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THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, MARCH 16, 1860. No. 6.

PREPARATION FOR SPRING WORK.

The advent of the agricultural year is close at hand. March has come again with its usual characteristics, storm and sunshine, with alternations of genial warmth and biting cold. And although in this northern zone of this mighty continent little can yet be done in the way of cultivating the soil, there are sufficient indications in the air, woods, and fields, that the active and delightful season of spring, with its warmth, bursting buds, and flowers, is, in obedience to the beneficent laws of nature, again making a commencement. With early spring begin the laborious duties and constant watchfulness of the husbandman.

Now is the time for the farmer to look anxiously about him, and to determine finally upon the adoption of such plans of operation as the more leisure season of winter has enabled him to consider and mature, in reference to the future. Not a moment should now be lost in deciding on the course to be pursued in regard to the cultivation, cropping, and management of every field. It is true that one may see good reasons for modifying the carrying out of a previously arranged system, as the season advances; some changes of conditions not anticipated will be sure to occur; but the farmer will labor under very serious disadvantages, and will probably incur heavy losses, if he allows this active season to find him without a well considered, and practical scheme of farm operations.

Firewood sufficient for domestic wants through the summer till the beginning of winter, ought by this to be laid in, and sufficient rails prepared and drawn to such fences as require repairing. All farm fences, especially the boundaries, ought to be annually examined immediately after the frost is out of the ground, and where needed, strengthened and repaired. If the farmers of a district would attend strictly to this principle, much damage to crops, sour temper, and ill neighborly feeling, would be obviated. As the season in Canada for preparing the soil and sowing the seed is short, nothing that can be devised and prepared during the winter ought to be left till the approach of the busy and all-absorbing period of spring.

Such farmers as have provided themselves with an ample store of turnips, mangels, carrots, &c., will now find them to minister to their own profit, as they unques-

tionably will to the thrift and comfort of their domestic animals. A daily supply of roots to milch cows and breeding ewes at this season of the year, will tend both to increase their milk and improve their condition. Cows yielding milk should be liberally fed, and not turned out to pasture till there is a good bite of grass. But it is to be feared, owing to the scarcity of hay, that farmers will be seriously inconvenienced, especially should the spring, contrary to present appearances, prove late. Old musty hay can be rendered more wholesome and palatable by being steamed and salted, previous to its being fed to the stock; which require strict systematic feeding, both as to time and quantity, to be kept dry and warm, with the strictest attention to cleanliness. They should be kept in good lodges or stables, with a well littered yard to run out in during the day. Sheep will require special attention for a few weeks. Ewes about to lamb should be comfortably housed, but not too closely shut in, as no animal, perhaps, suffers so much as the sheep from want of ventilation and crowding together. Ewes after lambing may be allowed to run out into the yard or field in the middle of fine days, and a few roots, with a little ground grain or bran mixed with linseed, will greatly tend to keep them in a healthy and thriving state, and to increase their milk for their young. Lambs should not be exposed to either damp or cold at this season, and they are better kept under cover until they are several weeks old, or they will be likely to contract some disease, and die. Breeding sows require also special attention, and should receive liberal treatment, that they may afford their young an amply supply of milk.

All kinds of roots that have been kept in covered clumps in the open air, should be examined as soon as the weather will safely admit, and all rotten ones, or such as show symptoms of decay, removed. Sweedish turnips especially ought now to be uncovered and examined, and a very slight protection will be sufficient for them hereafter. It is a general fact that with regard to Swedes in winter, more injury is done from too much covering than too little. Turnips by heating soon run into fermentation, and become totally unfit for stock. The only preventive is to cover the heap more lightly, and in building it to leave perpendicular holes, filled with straw, to allow the heat to escape, and for ventilation. Potatoes should be carefully examined and culled; selecting good sound tubers for seed. Parsnips that have been left in the ground all winter should be taken up as soon as the frost is out, when they will be found fresh and in general sound. Such parsnips will be of the greatest service to milch cows and breeding ewes, at this time of year.

The mouths of covered drains, ditches, and furrows, should now be examined, and any obstruction found to exist should at once be removed. Wheat fields should be particularly looked at with this object, and much of the stagnant water may frequently be removed at a small cost. The farmer should see that his ploughs, harrows, and other implements of cultivation, are in efficient, workable order; ready to be put into operation whenever the opportunity arrives. He should be careful, however, not to commence ploughing before the ground has become tolerably sound and dry; for nothing is so injurious to the seed bed as working the land when it is in a wet condition. Our object in this article is to call the attention of farmers to the imperative necessity of being duly prepared for spring operations, leaving details to our following numbers.

REPORTS OF AGRICULTURAL SOCIETIES.

We beg to remind the Officers of County Agricultural Societies that their Reports for the past year, with those of the Township Societies in their respective Counties,

must be sent in to the Secretary of the Board of Agriculture, at Toronto, on or before the first of next month. They are requested to see, as far as is in their power, that all the reports forwarded to them are complete and correct, and that a list of the Officers and Directors for the current year is added to each. We are glad to learn that a few at least of the Societies are competing for the prizes offered by the Board for Reports.

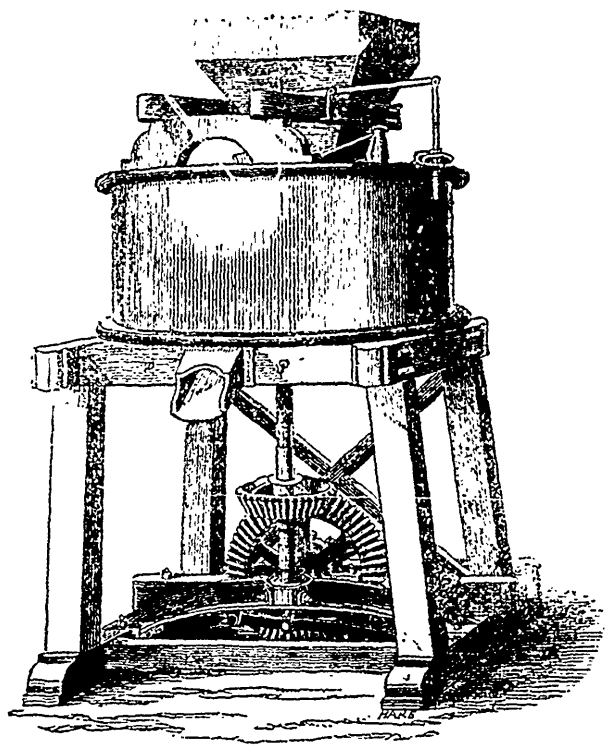
PORTABLE GRAIN MILLS.

In many of the British Colonies, and in the more recently settled portions of the United States, portable mills for the purpose of grinding wheat and making it into flour, have been found an important acquisition; enabling widely dispersed settlers to enjoy that primary necessity,—pure and wholesome bread,—in the midst of the wilderness. Upwards of twenty years ago we saw many of these mills in England, intended chiefly for the Australian Colonies; they were of simple construction, made of the best materials, of a superior style of workmanship, and did their work very effectually. Wheat was ground into meal, which was separated by a series of sieves into flour, both fine and coarse, shorts or pollard, bran, &c., with almost as much nicety as could be effected by ordinary flour mills. Since then, improvements have been made in these, as well as in most other kinds of machinery and implements; and portable mills are now fitted up that are capable of not only making good flour for domestic use, but also of grinding or crushing oats, peas, flax, &c., for feeding horses, pigs, and cattle. A single machine capable of being applied to such various uses, must be of great economic value, not only in newly settled countries, but also in such as are more advanced. Accordingly we find that these improved portable mills are used extensively in Britain for crushing grain, &c., for cattle, and that a homestead of any extent can scarcely be found without appliances of this nature. In Canada, and the neighboring States, these machines are beginning to be understood and appreciated by the farmers, and more than one kind has been pretty extensively introduced into the more advanced districts.

A great saving is effected in bruising grain before it is given to animals; not only by diminishing the time and power required for mastication, but also by enabling the stomach to digest more easily and thoroughly and the absorbents to take up more completely, the nourishing ingredients of the food. It is well known that oats, when given whole to horses, pass through the intestines in great numbers unbroken; and consequently that little or none of the nourishment contained in the flour of the grain will be assimilated. The difference in the case of horses between whole and crushed oats, is probably not less than 25 per cent; and in the case of cattle it would be found far greater. To working animals especially, the saving of time and labor in the act of mastication, by the employment of crushed grain, and cooked food, is of great importance, as it affords them longer opportunities for rest.

Subjoined is a representation of one of these combined Portable Mills, brought up to the present advanced state of mechanical knowledge, and adapted to the existing wants of farmers and recent settlers. It is manufactured by *Messrs. Ransomes & Sims*, of Ipswich, England; a firm that has for many years been distinguished for the superior construction, materials, and workmanship of their numerous machines and implements; and to whom the highest premiums and medals of the national Agricultural Societies have been frequently awarded.

This valuable mill is well adapted for grinding every description of agricultural produce. It consists of a pair of French burr stones, three feet in diameter, mounted on a strong timber frame, and is adapted to be driven by horse or steam power.



There is a simple arrangement by which the stones may be easily adjusted to grind fine flour, or bruise oats, split beans, peas, &c. It is capable of producing, by ordinary power and speed, 4 bushels of fine barley meal, or 3 bushels of fine flour, per hour.

This mill, when fitted with stones of two feet six inches diameter, can be readily worked by two horses. The three feet mill requires the power of 3 horses; and, when fitted with the Dressing Apparatus, the power of four horses is required. The manufacturers frequently fit up these mills with a complete Dressing Apparatus, neatly arranged in the frame work of the mill, and by this arrangement will produce samples equal to those prepared by the best Bolting Apparatus. The price, with three feet stones, is £55; and with Dressing Apparatus combined, £70. With two feet and a half stones, £42; and with Dressing Apparatus, £55. These mills are so constructed, and so well made of the best materials, that they are not liable to get out of order when properly managed, and, with ordinary care, they will be found very durable.

STABLE MANAGEMENT OF THE HORSE.

Among the heaviest charges in conducting a farm are the purchase and keep of horses; and, perhaps, there is no department of farm management in which there is greater room for improvement than in the breeding and care of live stock, particularly the horse. It is too much the practice on this continent to subject the horse to extreme labor during the hot months; and many farmers' horses, in addition to the heavy six days' work of the week, have to travel many miles in waggons or pleasure carriages on the seventh; a practice which literally allows the animals no time whatever for recruiting their exhausted strength. High authority hath said, "that the merciful man is merciful to his beast;" and we consider that as a general thing, working horses, that is such as work hard ten or

twelve hours a day, during the oppressive heat of summer, have an equal right with man, as far as the mere physical nature is concerned, to the privileges of the Sabbath. This noble and useful animal, when properly treated and cared for, will amply reward his owner; perform on the whole far more work than under an opposite course of management, or rather mismanagement; will be comparatively free from diseases, and live out a longer term of years. The health and longevity of the animal is greatly influenced for good by a judicious admixture of food, punctuality in feeding, ventilation, and the most scrupulous attention to cleanliness. The following practical hints on this subject from the *Woodstock Journal*, (N. B.) will be found of much importance.

STABLE MANAGEMENT OF A HORSE.

It is one thing to own a horse, but it is another thing to know how to take care of him. A stable horse needs special care and attention. His feeding must be as regular as the measurement of the hours. When a change offeed is made it must be done with great care—giving a small allowance at first until the stomach becomes used to the change. He must be cleaned every day; and when we say *cleaned*, we mean all that can be conveyed by that word. A good currycomb, brush, and an oiled woollen cloth, are the utensils necessary. First take the currycomb and begin at the top of the neck, back of the ears, working the hand both ways. Proceed in this way till you have gone over the entire body and legs. Then take both comb and brush, and every other stroke, draw the brush across the teeth of the comb to clean it. An experienced groom will do this instantly. This done, take your cloth and lay the coat and remove the dust which adheres to the outside. The face and ears must also feel the brush.

Few men know how to clean a horse properly. If the above directions are followed daily, your horse will enjoy good health generally. Stabled horses must be exercised daily. This is absolutely indispensable to good health. If the feet of your horses are brittle and liable to break and crack, they must be well oiled once a week. A horse thus treated will always be ready to go when wanted, and you will not be ashamed either to ride or drive him.

Another thing quite as important is a clean and well ventilated stable. We cannot excuse any farmer or horse owner, who does not clean his stable twice a day. A stable should be so constructed as to have a wide passage way or floor in front to feed them. Above the manger a space should be left a foot or two in width clear, and the passage-way should be the avenue for the supply of fresh air to the nostrils of the horse.

A horse enjoys a good bed, and it should never be refused him. At night take your fork and make it up light, and you will feel amply rewarded for the humane treatment you have given your beast.

THE WONDERS OF INSECT LIFE.

The following interesting account occurs in Dr. Fitch's Report on Insects, for the year 1855, where he speaks of the aphides or plant-lice which cover the leaves of the cultivated cherry:

This species commences to appear as soon as the leaves begin to put forth in the spring; these first individuals being hatched from eggs which were deposited the preceding autumn. All the individuals which are bred during the spring and summer appear to be females, some of them with wings upon almost every leaf, but most of them without wings. The individuals which are hatched from the eggs resemble the mature wingless females, except that they are smaller and lighter colored, none of the species of this family passing through those remarkable changes in their form which most of the orders of insects undergo. They bring forth their young alive during the continuance of warm weather. These huddle around their parents upon the under surface of the leaves as closely as they can crowd themselves; indeed, they often are found two deep, a portion of the colony standing upon the backs of the others, requiring only sufficient space between them to insert their beaks into the leaves to suck their juices. The numbers which thus make out to stow themselves within a narrow compass are almost incredible. Upon the under surface of a small leaf three-fourths of an inch long and half an inch wide, I have counted upon one side only of the mid-vein, one hundred and ninety of these lice. Yet this leaf was not more densely covered than many others. The two surfaces of a small leaf but an inch long, would therefore furnish ample space to accommodate a thousand of these insects.

As all the leaves are tender and juicy early in the season, the aphides multiply rapidly, and in about a month after the first individuals make their appearance, namely, between the 15th and 25th of June, as I find the dates entered several times in my notes taken in different years, some of the trees become literally overrun with these vermin, their black bodies covering not only the under sides of the leaves, but also the leaf-stalks, the tender succulent ends of the twigs, and sometimes the green young cherries and their stems; whilst a swarm of flies, wasps and other insects, attracted to them to feast upon their honeydew, keep up a constant buz and hum around the infested trees during warm sunny days. The leaf of the cherry, however, is of such a tough coriaceous texture that it does not become curled and corrugated like those of most trees when similarly circumstanced. Its edges merely turn backwards or become slightly rolled. The tips of the twigs, however, and the young leaves growing from them, have their juices pumped out and drained by such a multitude of tiny beaks, shrivel and die, looking as though they had been scorched by fire; and the whole tree would soon perish, it is evident, if this severe infliction was protracted. But when the aphides become thus numerous, their natural enemies and destroyers are attracted to the tree and multiplied in such numbers as to make the most astonishing havoc among this feeble race of beings. Although single trees in my grounds have been equally infested in some former years, I never knew them all to be overrun by these lice, as they were the 25th of June, the present year. It was evident, if the evil continued, the trees could live but a short time. But on examination upon that day I found two or three yellow larvæ of the Syrphus flies upon almost every leaf, whilst the Lady birds or *Coccinellidæ* with their larvæ and Aphis-lions and other destroyers, were equally numerous. All fears as to the result were consequently allayed. Still, I little anticipated such a rapid and utter extermination of these vermin as actually ocurred. A week afterwards, upon a careful examination, not a living aphis could be found upon the leaves of any of the trees, and the conquerors had already disbanded their forces and had nearly all retired. The empty skins of the slain, adhering to the leaves, with the swollen bodies of others which had been punctured by parasites—for these, too, it appeared, had stepped in to give their progeny a share of the feast—were the only relics of the teeming myriads which had so recently swarmed there. It is by looking at the works of Nature in a definite manner, and tracing out her operations specifically and in their minute details, that we arrive at some faint conceptions of their magnitude and grandeur, and become vividly impressed with the truth that no other agency than that of a Creator, infinite in wisdom and in power, could have peopled the world which we inhabit with such countless numbers and such an endless variety of objects animate and inanimate, each occupying its appropriate sphere, and all so arranged as to fulfill the objects for which they were called into existence. Has the reader, as he has passed a forest, ever attempted to conjecture the number of trees which it contained? and has his mind passed onwards to a surmise of the probable number of leaves growing upon each tree, and onwards still to the number of insects which may be drawing their sustenance from each one of these leaves, and still further, to the number of minute and infinitesimal parasites which may be subsisting upon each of these insects? Among the cherry trees alluded to above, was a row of seven young ones, which had attained a height of about ten fee.. By counting the number of leaves upon some of the limbs and the number of limbs upon the tree, I find a small cherry tree of the size above stated, is clothed with about seventeen thousand leaves. And at the time alluded to, these leaves could not have averaged less than five or six hundred lice upon each, and there was fully a third more occupying the stems and the tips of the twigs. Each of these small trees was therefore stocked with at least twelve millions of these creatures. And yet so vigilant, so sharp-sighted and voracious were their enemies, that at the end of a few days the whole were exterminated.

Correspondence.

THE PUBLIC GRANT TO AGRICULTURAL SOCIETIES.

To the Editors of the Agriculturist.

March 8th, 1860.

GENTLEMEN,—I this day read in one of the city papers, that in answer to questions put to the Ministry yesterday in the House, they stated their intention of giving to the Agricultural Society this year only a sum equal to that raised by each society, in place of three for one as authorised by law, and as heretofore paid them. This

change, at such a time, will be seriously felt from one end of the Province to the other, and will cripple the energies of societies which are now doing much good, by causing the introduction of the improved breeds of horses, cattle, sheep, swine, and improved varieties of all kinds of farm produce, and stimulating the inventive genius of our implement manufacturers.

Besides all this, I should think the reduction of funds will be much felt by the Agricultural Association, as they are entitled, by statute, to one-tenth of the Government grant to the County Societies, and which, I believe, is all the Government support they receive.

It was chiefly on this account I took up my pen to write this letter to your very excellent paper, and which I hope to see published, more especially after the many invitations you have given to farmers to commit to writing any thing which attracts their attention, bearing upon their profession; and conceiving this to be of vital importance to farmers, I have accepted your invitation.

This proposed reduction is most certainly beginning at the wrong end, and cutting off revenue as fast as reducing expenditure; for instance, just look at the state of the country for the past three years. When little else had befallen us but deficiency in our crop, every one was crying out the country is ruined, and will never recover. How very soon that tune was changed, when, last year, we had a better crop, thereby bringing into the country, from the sale of our wheat, beef, pork, and butter, millions of dollars, besides feeding our own population well, and keeping over a large quantity of stock. I might have added to the list of exportations, horses, hundreds of which I know have found a market in the United States within the last twelve months. Without all this, what indeed would become of the country, and how should we pay the extravagant debts brought upon us by over-anxious-to-trade merchants, not to mention feeding and supporting our needy Railroads. I know Messrs. Editors that you eschew politics, or I should feel more than half inclined to pitch into the ruling powers, for contemplating such a reckless reduction.

If a single case could be made out where the Government Grant was foolishly spent, or wantonly wasted, there might be some excuse, but, on the contrary, wherever Agricultural Societies exist a marked change for the better is perceptible. As a Canadian agriculturist, I call upon you, gentlemen, and upon the Board of Agriculture, to use your and their influence in our behalf, both on account of the Local Societies, and the Provincial Agricultural Associations, of which we are justly proud.

I am, Messrs. Editors,
Your obedient servant,
THE PRESIDENT OF A COUNTY AGRICULTURAL SOCIETY.

[The subject of our correspondent's letter is an important one, but we are inclined to think that he is somewhat premature in assuming that the public grant to Agricultural Societies will be reduced to the extent that he mentions. There were certainly some remarks reported in Parliament in regard to the proportion the grant should bear to the subscriptions of societies, but they did not seem to us to bear the construction our correspondent puts upon them. —EDS.]

EX-OFFICIO DIRECTORS OF COUNTY SOCIETIES.

CANNATA COTTAGE,
Near Chatham, Feb. 28, 1860.

To the Editor of the Agriculturist.

DEAR SIR,—I hope you will be so obliging as to answer the following questions in the next issue of your valuable journal. Can a President of a Township Agricultural Society take his seat and vote at meetings of the Directors of the County Society, by his Township Society having had ten subscribers to the County Society from among their number for the year previous, or must the money be paid in advance to give them a right to vote? At the last meeting of this County Board, I was denied the right to vote as a Director, being but a President of a Township Society; but of one which had subscribed by ten members $10 to the County Society in 1859. I was told that would not do—that unless I advanced the money, or gave my note, I should not have the right to vote at the meeting—neither of which I would do, but claimed my right to vote under the 28th Clause of the Act to provide for the establishment of a Bureau of Agriculture, but that right was denied. I hope you will

give your advice on the subject, as others, as well as myself, may and will be greatly benefitted thereby.

I am, Sir,
Yours most respectfully,
DAVID WILSON.

[Our correspondent will find the above question already answered at page 45, No. 3 of the present volume. We will, however, repeat a little more fully what we there said. The proviso in Clause 40 of the present Act was originally introduced with the view of obviating the inconvenience which might sometimes occur from the Presidents of the Township Societies in any county meeting as *ex-officio* directors of the County Society, and by an accidental numerical majority outvoting the elected Directors of the County Society, and thus controlling the disposition of the funds of the latter, when in fact, in case of the Township Societies they presided over having no members also members of the County Society, these *ex-officio* directors could not be considered as representing at the Board of the County Society any persons who were interested in it. We are, however, well informed that the parties who suggested the change did not intend that it should be understood and acted upon in the way which the words of the Act, as they stand at present, seem to authorise. The intention in introducing the proviso was, that it should be, in effect, as follows: "Provided that each such Township Society, and Mechanics' Institute, shall have upon its list of members at least ten persons who are also members of the County Society, and paying not less than five shillings each, or that such Township Society or Mechanics' Institute shall have otherwise contributed two pounds ten shillings, annually, to the funds of the County Society." It is in the spirit of the proviso as here written, that several County Societies have, to our knowledge, interpreted it, and when the Act again undergoes revision by the Legislature, the clause will probably be amended to this effect. As it stands at present, it certainly seems to warrant the construction put upon it by the County Society mentioned by our correspondent, and we cannot undertake to say that they have not the law upon their side in so doing. It might be a question for the lawyers to argue, whether a contribution by members of the Township Society, individually, to the amount of ten dollars, to the funds of the County Society, is in fact a contribution by the Township Society itself, within the meaning of the clause; but, without resorting to legal quibbles, we think the County Boards cannot go very far wrong in meeting the Township Societies in a spirit of compromise, and acting upon the proviso as if it were printed as above written.—EDS.]

KEEPING FARM ACCOUNTS.

To the Editor of the Agriculturist.

SIR,—

Let any farmer make the experiment, and he will find it interesting as it is useful, and both interesting and useful, to know from year to year the actual produce of his farm. Let everything, therefore, which can, be measured and weighed, and let that which cannot be brought to an exact standard, be estimated as if he himself were about to sell or purchase it. Let him likewise, as nearly as possible, measure the ground which he plants, the quantity of seed which he uses, and the manure which he applies. The labour of doing this is nothing compared with the satisfaction of having done it, and the benefits which must arise from it. Conjecture, in these cases, is perfectly wild and uncertain, varying often with different individuals, almost a hundred per cent. Exactness enables a man to form conclusions, which may most essentially, and in innumerable ways, avail to his advantage. It is that alone which can give any value to his experience. It is that which will make his experience the sure basis of improvement; it will put it in his power to give safe counsel to his friends; and it is the only ground on which he can securely place confidence in himself.

W. A. C.

Ancaster, February, 1860.

DRAINS AND QUICKSANDS.

To the Editor of the Agriculturist.

Sir,—I have a piece of land of about six acres which is a foot and a half lower than any of the land immediately surrounding it. The top soil is a mixture of clay loam and black soil, such as is generally found in such situations; the subsoil is a very tenacious yellow clay; immediately under the clay, and perhaps three feet from the surface, is a quicksand, I cannot say how deep; I have frequently dug into it in the summer season, to make a watering place for cattle, and I never could get deeper than a foot or eighteen inches in the sand before the water came rushing in and upwards at such a rate as effectually to stop me: the water would rise in the hole to within about two feet of the surface, when it would remain stationary. I have dug a ditch two feet deep across the piece, and another three feet and a half deep across a neighboring piece for a distance of about two hundred yards to a creek, which effectually carries off the top water. I fallowed the piece last summer, and sowed fall wheat on two acres of it only, across the highest end, as I thought the rest of it was too low, and would probably answer better for spring wheat. On one side of the two acres there was perhaps a quarter of an acre of the low ground, and on this the wheat grew quite thin and spindly, which I have no doubt is caused by the body of cold water lying under it in the quicksand. Now my object in giving you all these particulars is this: If I dig a ditch or drain through the clay which forms the outer rim of this basin of quicksand until I strike the sand, would that carry off the water without running the drain through the sand itself? If it would not, how can I run a drain or drains through the sand when the water comes rushing in as I have described above? If I do attempt to drain it, I cannot get more fall than will allow me to go, say four feet and a half below the surface, which would be eighteen inches or two feet below the top of the quicksand. I shall be obliged to you if you would in some early number of the *Agriculturist* give such directions as will meet the case.

Your obedient servant,
WILLIAM STUART.

Waterdown, February 9, 1860.

Remarks.—It is generally a difficult and unsatisfactory thing to offer *practical* directions relative to draining, without the advantages of personal observation. In all cases the cause of wetness should, as far as possible, be correctly ascertained; when, with due examination of the nature and direction of the underlying strata and the conformation of the surface, the most efficient and economical mode of cure can usually be decided on by an experienced drainer.

From our Correspondent's description of his own case, we infer that the stratum of quicksand, of unascertained depth, is saturated with water proceeding from some higher source; the pressure exerted in such instances will account for the water rising in holes dug by the spade in the summer season, to within two feet of the surface. If a sufficient out fall could be obtained, we would recommend the construction of a deep drain near the upper end of the land at a right angle (or as nearly so as practicable) to the inclination of the field, and if possible, to pierce through the stratum of sand. One such drain, when securely made, and of sufficient size, might relieve the whole field. But with an out fall of only four feet and a half, any attempt to cut off the water by one or two deep drains, is unfortunately impracticable; and this circumstance will probably render it impossible to drain such a piece of land thoroughly and economically. In this case it is not only the surface water that has to be carried off, which may always be done, to some extent, by open furrows, but the chief cause of the wetness and coldness of the cultivated surface is the large amount of water in the underlying layer of sand. To construct a drain in a bed of pure quicksand, so as to make it efficient and durable, is one of the greatest difficulties the drainer has to encounter; and with all the skill and care with which such drains can be made, they are always liable to be choked up by the infiltration of the sand. It is useless to attempt underdraining in such circumstances, without laying down boards for the tiles or pipes to rest on, and surrounding them tightly with softened clay; good tough sod

may answer for a while, but it will decay, and cannot be permanently depended upon.

As an experiment, without risking any large outlay, we would suggest for the consideration of our correspondent, to lay in, during the approaching summer, two drains across the upper portion of the field, one at the juncture of the clay and sand; and the other at some fifty or sixty feet distance, as deep into the sand as the outfall and other circumstances will admit; using the precautions above stated for protecting the drain by clay, &c. By carefully observing the action and effects of these two drains for a couple of seasons, some judgment might be formed of their relative efficiency, and adaptation to the case in question. Pipes, of not less than 3 inches diameter, with a good fall, would be the best form of material to be employed. The month of August, when the ground is generally in the driest state, is the most favorable time for draining quicksands. If the water prove troublesome, the drain can be deepened by degrees before putting in the pipes, giving time for the water to drain off, and taking care, when necessary, to protect the sides against slipping in. If these few hints shall prove of any service to our correspondent, and lead to any practical result hereafter, we shall feel obliged by his communicating the particulars.—Eds.]

CULTIVATION OF FRUIT-TREES.

(*For the Canadian Agriculturist.*)

It is a fact that must have attracted the attention of every person who has travelled through the inland counties of Canada, that as we recede from the Lakes Ontario and Erie, Northward, orchards begin to diminish, more especially after crossing that well known watershed the "Ridges," and at length in the most northern counties, as North Simcoe, North Ontario, and Victoria, they almost entirely disappear.

The superficial observer may have attributed the fact entirely to the newness of the country, and thought that as time is required for the growth of fruit trees, it only required the necessary time to elapse when the inhabitants of our northern townships should also be blest with their wholesome and nutricious fruit, and their farms ornamented with productive apple orchards.—Very many farmers farther south, who have an interest in the prosperity of the northern townships—who perhaps have purchased farms in them for their sons—or may be intending to do so, have also, with many of the residents, consoled themselves, nearly up to the present time, with the same belief. The necessary time for raising orchards, since the land has been cleared, has passed, but none, comparatively speaking, are to be seen. It has at length become evident to all that there is an enemy to the apple amongst us. Many farmers have planted orchards, but only to see most of them die after the first and second winters; and even the scattering trees that have come to maturity appear somewhat stunted and *neglected*, and do not bear well. Whilst other persons, seeing the bad success of the attempts that have been made, decline incurring the risk of trying for themselves. And the majority, I fear, have come to the conclusion that apples will not grow in so uncongenial a climate. Wherein consists the difficulty, and in what way can it be obviated, is a question that every farmer amongst us should make his study, and upon which he should gladly receive information. Does the extreme cold of winter kill the young trees, or is it the late spring frosts, or is bad husbandry the principal cause? It is my opinion that with proper precaution, and with the necessary information, every farmer in Simcoe, Victoria, and North Ontario, might raise a good thrifty orchard. He might not always be sure of a good crop of fruit—occasionally a frost, like that of last year, would wholly or partially destroy his crop, for the same thing takes place in the front townships and on the south side of the lakes.—Yet he would, with good management, have his fair share of apples and other fruit, and would not be under the necessity of buying from the "Yankees" at exorbitant rates, or of doing as very many are now compelled to do, make their pies of pumpkins and berries, and when these fail go without! Now what are the precautions which the farmer must take, and the information required, in order that this very desirable object may be attained?—Theory may do much towards answering the question, but there will remain a wide gap that can only be filled up by practical observation and experience. Those who

have succeeded in raising trees and fruits in northern localities, should make known, through the proper medium, their experience and the plans they have adopted, and urge their neighbors to adopt the same means. Every farmer who has not an orchard should at once institute enquires into the matter, and with the stock of information thus obtained, make an earnest attempt to attain this very desirable object. If some of his trees die, let him replace them by others, and, if possible, ascertain the cause of their failure. If this plan be adopted, success will, almost to a certainty, crown his efforts; and what a boon will that be to himself and family. How will he have increased their comforts, and may I not say their luxuries? How much will he have done towards making his home a homestead? What improvements could he undertake that would more adorn and beautify his farm—that would more enhance its value, or that would better pay "the reward of his labor!" Fruit trees are in fact almost the only *ornamental* trees that the farmer north of the "Ridges" requires to cultivate, as splendid spruces, balsams, and in fact almost every American evergreen, are found in abundance.

Should not some person of more ability and experience take up this subject, I may in a future communication mention a few facts that have come under my observation with regard to the managing of apple orchards.

H. R.

Agricultural Intelligence.

Prepared Cattle Foods.—It is stated in a late number of the London *Illustrated News* that "Mr. Pawlett, the well known sheep breeder, has been pursuing some experiments as to feeding. Beans, Cotton Cake, and Thorley's food are the three articles he selected for trial, and he put a lot of eight ram hogs on each. At the end of four weeks he sent them to scale, and found that those fed on beans made 10¾ lbs. of live weight, those on cotton cake 16½ lbs., and those on Thorley's food 13¼ lbs.; and that the cost of producing the mutton in each case was 3½d. per lb., 2¾d. per lb., and 4¼d. per lb. Still, damaging as this experiment seems as regards the applicability of Thorley's food to fatten animals, in comparison with cheaper substances, we remember an instance in one of our principal herds where a sickly calf could not be got to eat anything till it was tried with it; and from all we can hear it is most beneficial as a tonic, but not as an article of regular food. Mr. Thorley, however, announces that, in order to meet the Rothamsted objectors, he has enlarged his defence pamphlet from thirty-two to sixty-four pages, which is rather alarming."

Cultivation of Flax.—Mr. J. H. Brown, of Ayr, publishes the following advertisement:—

"J. H. Brown purposes to erect a flax mill in the vicinity of Ayr, and to encourage the cultivation of flax, he will furnish seed to those farmers who may feel disposed to make the experiment of raising flax, by returning to him the same quantity of seed in the fall which they receive in the spring.

J. H. B. will clean and dress the flax at his mill, then purchase it from the producers at the rate of $100 per ton.

Parties desirous of renting land for the cultivation of flax can make arrangements with Mr. Brown for that purpose.

The following is a statement of the produce of nine acres of flax, grown on the farm of Mr. Joseph Hollman, of the township of Blenheim:—

Raised from 9 acres 111⅓ bushels of flax seed and 37 cwt. of flax.

Sold the seed at New Hope, 111⅓ bushels, at $1.31 per bushel	$145 83
Sold 37 cwt. of flax at $5 per cwt.	185 00
Total amount realized from 9 acres.	$330 83
Average per acre	36 75

Mr. Hollman ploughed his land once in the fall and cultivated once in the spring, then sowed the seed and harrowed it in. He hired the pulling done at $2 75 per acre. Mr. Benjamin Shune, a neighbour of Mr. Hollman, got his flax pulled, threshed, and rotted, for $6 per acre.

Parties wishing to arrange with Mr. Brown will find him at Colwell's Hotel, Ayr, or forward letters to his address at the Ayr, P. O.

J. H. Brown.

Ayr, Feb. 23, 1860.

Profits of Farming.—In a lecture on sewage, delivered at the Farmers' Club on Monday evening, Mr. Alderman Mechi, referring to his Tiptree-hall estate, said:—"For the last years my gain as landlord and tenant on my little farm of 170 acres has been nearly £700 per annum. Even this year, with wheat at 42s. per qr., I have gained £600 after paying every expense. Of course, much of this benefit has arisen from steam power, drainage, deep cultivation, and other improvements; but the liquified manure system has greatly contributed to this result."

Horticultural.

HINTS FOR MARCH.

(*Continued from page* 108.)

At present we have the prospect of an early spring. The snow has in most situations disappeared, and the frost is rapidly thawing out, so that unless severe weather again set in, gardening operations will be in a forward condition. Care, however, should be exercised in this uncertain climate, not to uncover and expose tender plants and shrubs too soon. All decayed shoots, or such as have been injured by the winter cold, should now be removed; and every effort made, as far the weather and the state of the surface will admit, in clearing up the garden and preparing for active out door operations.

For raising choice early annuals, which give so marked a beauty to a garden, large or small, the following description of framing from *Buist's American Flower Garden Directory*, will be found concise and explicit:

OF FRAMING.

Where it is desired to have the more showy annuals early in bloom, it is necessary to prepare a hot-bed frame, for the purpose of bringing them forward. It is time, about the first of the month, to collect and prepare manure for the desired hot-bed; and, as that operation, in many instances, is very imperfectly performed, a few observations on the subject may be useful.

Take three parts of fresh hot stable manure, with one part of fresh oak leaves. Have a sufficient quantity to make the intended bed, or beds, from three to four feet high. Shake and mix up both together in a compact, conical heap, in order to encourage fermentation. If the weather is cold and windy, cover it with straw or leaves and boards, which is necessary to produce the desired effect. If fermentation soon takes place, it will need to be thoroughly turned over in eight or ten days. If any of it has become dry and musty from excessive heat, as you proceed, water the affected parts, pile all up neatly, and leave it protected in part as before. In five or six days more, it will have to be turned again, repeating it until the first extreme heat has been over. In neglect of this, the heat, after making up the bed, will be vehement for a week or two, frequently destroying the vegetative purity of the soil, and proving destructive to the seeds.

Allowing the manure to come to a lively heat, having no unpleasant, rancid smell, proceed to mark off your intended bed, running it east and west, as nearly as possible, measure your frame, and allow the site of the bed eight inches, each way, larger than the frame: at the corners, place a stick or rod perpendicularly. The ground ought to be higher than that around it, to prevent water from getting into the bed, which, if low, must be filled up; or, if supposed that water may lodge there, a little brushwood might be put under the manure, which would keep it from being inundated. The manure must be built up square and level, shaking, mixing and beating it regularly with the back of the fork. When you have it to the desired height (from two to three feet will be sufficient for annuals), leave the centre of the bed a little higher than the sides, thus allowing it more to subside. When finished, put on the frame and sash, or sashes, keep them close until the heat arises, covering them at night with mats or shutters. As soon as you feel the heat increased, give air by tilting the sashes a few inches, to let off the steam and stagnated air, observing to close in the afternoon, and cover at night. If the heat is violent, about half an inch of air might be left during the night. In about three days, if all has been properly attended to, the bed will be what is termed sweet. Then put in about six inches of fine garden soil; if heavy, mix a little sand with it. Spread it level, and, when the soil is heated through, sow in small drills, from one-eighth to an inch deep, according to the size of the seeds; cover with very fine sifted soil. Some very small kinds do best when sown upon the surface. When sown, give gentle sprinklings of water until they come up, when it will be necessary to give air freely during the day, to prevent them from being weak, or damping off, which many of them will do if they have not air regularly admitted.

A LIST OF CHOICE FLOWERING ANNUALS ADAPTED FOR SOWING ON A HOT-BED.

Alyssum calycina, white, fragrant.
Argeratum Mexicanum, blue-flowered Argeratum.
Asclepias curassavica, swallow wort, orange and red-flowered.

Aster Chinensis, China Aster, or Queen Margarets, in great variety. The late imported German and Italian Asters are of extraordinary beauty.
Balsamina hortensis, Balsam, commonly called Ladies' Slipper.
Browallia alata, upright blue and white Browallia.
Cacalia coccinea, scarlet Cacalia, or Venus' Paint Brush.
——— sonchifolia, orange Cacalia.
Calandrinia discolor, rosy purple, *very pretty.*
Celosia cristata, Coxcomb, two varieties, red and yellow.
Centaurea Americana, American Sultan.
——— suaveolens, yellow and sweet Sultan.
Clarkia elegans, elegant rose-coloured Clarkia.
——— pulchella, showy purple Clarkia.
——— ——— alba, white-flowered Clarkia.
Cleome grandiflora, large lilac-flowering spider-plant.
Clintonia elegans, elegant blue Clintonia.
Collinsia bicolor, two-coloured Collinsia.
——— heterophylla, lilac and white.
Commelina cœlestis, blue-flowering Commelina.
Dianthus Chinensis, China pink, many fine double varieties.
Gomphrena globosa, red and white globe Amaranthus.
——— Hoveyii, orange-coloured.
Hibiscus manihot, large yellow Hibiscus.
——— Africanus major, buff with black centre.
Helichrysum bracteatum, *Xeranthemum lucidum,* } Yellow everlasting.
Lophospermum erubescens, ——— *scandens,* } Rose-coloured flowers like the Digitalis, a fine climber for arbours.
Loasa laterita, } Orange red, an interesting climbing plant, blooming throughout the season.
Malope alba, white-flowering Malope.
——— grandiflora, large red-flowering Malope.
Mathiola annua, all the varieties of ten week stocks should be industriously cultivated, and seed sown also in April and May for autumn blooming.
Maurandia Barclayana, blue-flowering, ——— semperflorens, pink-flowering, ——— alba, white, } Climbing plants for pillars, trellises or arbours.
Mesembryanthemum ——————— crystallinum, Ice plant.
Mimosa pudica, Sensitive plant.
Mimulus, Monkey flower of sorts. They grow best in moist half-shady places, are very pretty, generally bright colours of yellow spotted with crimson or rose.
Petunias of variety, a beautiful genus of every variety of colour, from deep purple to pure white, blooming from June till frost; the seeds are small, and require to be very lightly covered.
Phlox Drummondii, and its varieties of crimson, rose, lilac, and white.
Portulaca splendens, splendid purple-flowered Purslane.
——— Thorburnii, yellow.
——— alba, white.
——— elegans, crimson.
——— Thellussonii, red-flowered.
Salpiglossis picta, atropurpurea, &c., delight in a cool situation.
Schizanthus retusus, orange-coloured Schizanthus, ——— pinnantus, calico Schizanthus, And a few other varieties, } Like a rich soil, and a cool and partially shaded situation.
Shortia Californica, yellow Shortia, very profuse flowering.
Tagetes, Marigold, the new varieties of the French are very pretty—they like rich soil and plenty of moisture.
Tropæolum aduncum, Canary bird flower, a beautiful climber.
——— atrosanguineum, crimson Nasturtium, Thunbergia alata, buff with black centre, ——— alba, white-flowered, ——— aurantiaca, fine orange. } Climbing plants.
Verbena, a lovely family of pretty procumbent plants, that bloom from June till frost—a packet of seeds will produce every colour and shade from white to crimson.
Vinca rosea, Madagascar Periwinkle, ——— alba, white-flowered Periwinkle. } Thrive best in a warm, dry situation, with rich soil.
Zinnia elegans, splendid Zinnia, ——coccinea, scarlet, —— alba, white, ——pauciflora, yellow } Very showy plants, and do best when they are well supplied with water.

Though the above will bloom much earlier by being sown on a hot-bed, yet where that convenience cannot be obtained, they will all succeed treated as hardy annuals.

After sowing, if the weather be clear, the sun acting on the glass will produce a too rapid evaporation of the moisture of the soil, and may otherwise affect seeds but thinly covered, which must be guarded against by shading with mats for a few hours during bright sunshine. In giving water, it ought always to be about milk warm, and passed through a fine rose, to

prevent the stems being broken or bruised. Weeds must be drawn out as soon as they appear.

To such as have a desire and opportunity for raising fruit, which contributes so essentially to domestic comfort and the health of a family, the subjoined directions taken from *Barry's Fruit Garden*, an excellent, practical treatise, will afford to amateurs and residents in the country some useful aid:

The formation of a fruit garden requires a consideration of the *soil, situation, enclosures, laying out, selection of trees, selection of varieties,* and *planting.*

1st. *The Situation.*—This is generally governed by the particular circumstances of the proprietor, those only who build with reference to the location of the garden, or who have a large domain at their disposal, having an opportunity of selection to any considerable extent. Persons who live in cities and villages, have to make the best of their situation. As it is, if it be exposed, they can only give it protection by lofty enclosures, that will break the force of the winds. The *aspect* they cannot alter, and must adapt other circumstances to it. Those who can should select a situation convenient enough to the dwelling, to render it at all times easy of access, in order to save time and labor in going to and from it. It should also be sheltered from the north and west winds. The former are destructive to the blossoms in spring, and the latter frequently blow off the fruit before its maturity. In sections of the country subject to late spring frosts, an elevated situation is to be preferred, as in the case of orchards. A full eastern or southern aspect should be avoided, because in them the sun's rays strike the trees while the frost is upon them, and produce injuries that would be avoided in other aspects. Where artificial shelter is required, a belt of rapid-growing trees, composed of evergreens and deciduous trees mixed, should be planted on the exposed side, but at such a distance as to obviate any difficulty that might arise from the injurious effects of shade, or from the roots entering the garden. Such a belt of trees might, at the same time, be made to impart a pleasing and highly ornamental appearance to the grounds.

2d. *The Soil* is a most important consideration. As in a garden a general collection of all the fruits is to be grown, and that in the highest state of perfection, the soil should be of that character in its texture, depth, and quality, best adapted to general purposes. It should not only be suitable for the apple and the pear, but for the peach, the cherry, and the plum—a good, deep, friable loam, with a gravelly clay subsoil, and entirely free from stagnant moisture. In this country, our warm summers, and frequent, protracted droughts, render a deep soil for a garden absolutely necessary. *Two feet* is little enough, and three would be still better. The means for deepening, drying, improving, and changing the character of soils have been already pointed out under the general head of soils, and need not be repeated here. Suffice it to say, that it will always be found true economy to be liberal in the first preparation of the soil; for after a garden is laid out and permanently planted, improvements are always made with greater difficulty and expense.

Enclosures.—The cheapest and most ordinary kind of enclosure for gardens in this country, is the tight board fence, and the picket or paling fence. The former should be made of stout cedar posts, set at six feet apart, and three or four feet in the ground, the ends being previously charred to increase their durability, connected in the middle and on the top with cross-bars or rails which may be two by four inches. The boards should be well seasoned, matched, and securely nailed to the cross-bars. Where the fence is required to be higher than the posts, the boards can extend above the top rail two, three, or even four feet, if necessary. The picket or paling fence is made in the same way, as far as the framework, posts, and crossbars go; but, instead of matched boards, pickets, from three to six inches wide, and pointed on the top, are used, and a space of two inches left between each. Where the proprietor can afford the expense of a brick or stone wall, it will prove the most permanent, and, in the end, the cheapest enclosure. The height of the fence or wall depends somewhat on the extent of the garden. In ordinary cases, eight or ten feet is the proper height, but when the garden is very small, five or six feet is enough; and the open paling will be preferable except on the north side, to the tight board fence, as it offers less obstruction to the air and light. A high fence around a very small garden, besides being injurious to vegetation in it, looks quite out of character, giving to it the appearance of a huge box. Live hedges, as recommended for orchards, might be employed around coun-

try gardens of considerable extent, say an acre or upwards, but they require to be kept in the neatest possible condition.

Trellises.—In England, and other parts of Europe, where the summer temperature is not so high as it is here, espalier trees are trained directly on the garden walls or fence; but our hot sun renders this unsafe, except in the case of the grape, or on the north sides of the walls. The sun strikes the south side of a fence with such force that the foliage in contact with it is burned. It is therefore necessary, where the walls or fences are to be occupied with espaliers, to erect suitable trellises at the distance of six to twelve inches from them, on which to train the trees; the form of these differs according to the nature of the subject to be trained. They are generally made of upright and cross bars, of inch boards three inches wide, placed within six to twelve inches of each other, according to the growth of the species; the larger the foliage and the longer the shoots, the greater may be the distances; thus, the grape twelve inches, and the peach eight. Sometimes they are constructed of wooden bars and wire rods alternately; these answer a good purpose for the grape, as it fixes itself to the wires by the tendrils. The trellis is fastened to the wall by iron hooks, and should stand a little farther from it at the bottom than at the top, for the purpose of giving the tree a better exposure to the sun, rain, &c. Fruits are grown so successfully in this country in the open ground that walls or trellises are seldom used, except to economize space. In the north, however, where the more tender fruits do not succeed in the open ground, walls may be advantageously employed, as the trees trained on them are easily protected both from winter and spring frosts.

Laying out the Fruit Garden.—This is the arrangement or distribution of the ground into suitable plots or compartments, necessary walks, etc. The mode of doing this depends on the size of the garden, and the manner in which it is to be planted.—Fruit gardens, properly speaking, are such as are wholly devoted to fruits; but a very common form, as has been already observed, is the *mixed* garden, where a portion only is devoted to fruits, and the remainder to culinary vegetables. We will first consider

The Fruit Garden proper.—In all fruit gardens the number of walks should be no greater than is absolutely necessary for convenience. In small places the better plan appears to be, to carry the principal walk around the outside, leaving as much as possible of the interior, where air and light are enjoyed to the greatest extent, for the trees. A border should be left between the fence and the walk, of sufficient width for the trees to be trained on the fence trellis. If appearances were to be strictly observed, this border should be as wide as the fence is high, but as a general thing five to six feet will be sufficient; and where ground is limited, appearance must in many cases be sacrificed to economy. Where the work is all performed by manual labor, the walks need not be more than five to six feet wide, as that admits of the passage of a wheelbarrow; and this is all that is required.

Next month, when the active operations of the kitchen garden in Canada may be said to commence in earnest, we shall give such details as we trust will be found generally useful and adapted to the season.

J. F.

SOFT SOAP FOR THE BORER.

It is stated by Dr. Fitch, the celebrated American Entomologist, that soft soap, although it will not kill the apple borer after he has entered the wood, will exclude the eggs. The soap should be thin enough to lay on with a brush, so as completely to cover the bark. This operation should be commenced at the bottom of the trunk by scraping away a little of the earth at the roots, and proceed upwards as far as the borer is supposed to have reached. It is best to begin in the spring, and repeat the operation once or twice during the summer. If heavy rains should wash it off, the soap should be applied again immediately. It is said that the insect will not lay its eggs in the bark thus saturated. The *Country Gentleman* thus observes:—

"This insect seldom attacks young trees kept constantly growing. They rarely disturb the nursery when the soil is kept loose and the trees suffer no check—hence the importance of transplanting with care, and allowing no drawback to their progress. Trees allowed to spread low, (and where the soil is not used for the cultivation of crops this is a good way of raising them,)

seldom suffer from the attacks of this insect on account of the shade produced about the stem of the tree."

How to Produce Large Fruit.—A correspondent of the *Gardener's Gazette* says, by a very simple and easy process fruits of many kinds may be raised about one-third larger than is usually the case, and improved. The secret consists in supporting the fruits so that they shall not be allowed to hang their whole weight upon the stalk, or twist about in the wind. The *Gazette* states that when fruit is allowed to hang naturally upon the stalk, the increasing weight strains the stem or twig, and thus lessens the quantity of nutritious food flowing to the fruit, which may be supported either by tying it to a branch with a piece of string, or by enclosing it in a small net. Flowers, such as dahlias, peonies, may also be rendered much larger by adopting this system.

Mildew in Gooseberries.—Applications of powdered sulphur to the foliage and fruit of the gooseberry, when the fruit begins to form and increase in size, is said to be a complete protection from mildew. The application should be made every few days. Spent tan, placed around the bushes, preserves them from the ravages of the gooseberry worm, it is said.

Scientific.

Charcoal.—Charcoal surpasses all other substances in the power which it possesses of condensing ammonia within its pores, particularly when it has been heated to redness. It absorbs ninety times its volume of ammoniacal gas, which may be again separated by moistening it with water. It is by the virtue of this power that the roots of plants are supplied in charcoal exactly as in humus, with an atmosphere of carbonic acid and air, which is renewed as quickly as it is abstracted. Charcoal has a physical as well as a chemical effect on soils, which is decidedly useful. It renders them, as far as it is present, light and friable, and gives additional warmth to them by its color, and retains readily the rays of the sun during the day. Wherever charcoal has been applied, rust never affects the growth of wheat.—*Liebig.*

Good Health—How to Preserve it.—Dr. Frank H. Hamilton has delivered an excellent address on Hygiene, before the graduates of the Buffalo Medical College. We make a few extracts:

Within a few years our houses have been robbed of the domestic hearth, toward which so many associations have always centred, and air-tight stoves have been substituted for the iron dogs. Not content with this, the enemies to our race have still more lately taken away the stoves which, destitute of the essence, served to remind us at least, of the ancient fire-places; and instead, they have built for us iron furnaces —Etnas—under ground, so that now what of the oxygen we are not able to consume, and convert into carbonic acid, is vitiated by impure gas escaping from its hidden chambers, by invisible particles of coal dust, and by other impurities which clog up the air-cells, and close the avenues of life, or stick along the parched fauces as if reluctant to convey their poisons to the lungs.

Stoves have, no doubt, abridged the sum of human life, but by these subterranean iron furnaces we are truncated—cut short in the middle. It is an error to suppose that hot-air furnaces can ever be so constructed or managed, at least in private houses, as not in any degree to prove detrimental to health. We wish we could persuade ourselves that this is not so, for it is certainly very agreeable, in a climate like ours, to enjoy throughout all the rooms and passages of the house, warm and uniform temperature; but it is just this even warmth which is one of the sources of mischief. The inmates are so little accustomed to the cold within doors, and become so morbidly sensitive, that they shudder at the idea of going out, and if they ever do venture into the air, the frost enters into their open pores, and they hasten back to their shelter, chilled, exhausted, and discouraged. They are no better able to endure the storms than a plant reared in a hot-house. It was the venerable Bede, I think, who said, "When men lived in houses of willow, they were of oak; but when they lived in houses of oak, they were of willow."

We need for our dwellings more ventilation and less heat; we need more out-door exercise, more sunlight, more manly, athletic, and rude sports; we need more amusements, more holidays, more frolic, and noisy, boisterous mirth. Our infants need better nourishment than colorless mothers can ever furnish, purer milk than distilleries can manufacture; our children need more romping and less study; our old men more quiet, and earlier relaxation from the labors of life. All men, both young and old, need less medicine and more good council.

Our cities need cleansing, paving and draining. The Asiatic cholera, the yellow fever, the plague, and many other fearful epidemics are called the opprobia of our

art, and our fellow-citizens upbraid us with the feebleness and inefficiency of our resources in staying their fatal progress. When will they learn that, although we do not fail to cure these maladies, the more precious secret of prevention is in our possession, and has been for these many years.

A Cold Atmospheric Wave.—During the past year, the Smithsonian Institute, under the able supervision of Professor Joseph Henry, has maintained its extended system of meteorological observation, and been enabled to make some very curious investigations respecting the three memorable cold days of January, 1859. It was found that the cold of the three days above mentioned swept progressively over the whole country like a wave, coming down from the Arctic regions and first entering the territory of the United States at the extreme north-west, among the Rocky Mountains. It was experienced at Utah some three days before it reached the banks of the northern Mississippi, and was heralded by telegraph at Minnesota some two days before it reached Washington. At Buffalo it was some hours in advance of Boston, and was felt last on the Atlantic Ocean, where it appears to have disappeared. This cold wave also swept South in a most remarkable manner, and progressively appeared in Florida and other southern States and Mexico; and the last pulsations, as it died away in that direction, were experienced in Central America and the West India Islands. Taken in all, it was one of the most remarkable phenomena ever noticed, and the facts collected seem to prove that the originating impulse came from the extreme north-western portion of the American continent.

A factory for the manufacture of oil from shale has been started at Collingwood. The works are upon a large scale. Forty-eight tons of shale are used every week, producing 1750 gallons of oil. An acre of ground will supply sufficient shale for a years work. The oil is adapted for burning and lubricating purposes.

Editorial Notices, &c.

The office of the Board of Agriculture is now at the corner of King and Simcoe Streets, Toronto, in front of the Government House, being the same place in which it was some years ago.

The London Quarterly Review for January, 1860:

We are in receipt of this splendid review through Mr. Rowsell, of this city. The articles are: The Three Colonies of Australia; Cotton Spinning Machines and their Inventors; China and the War; The Roman Wall; Religious Revivals; Life and Works of Cowper; and Reform Schemes; all of which will amply repay an attentive perusal.

Blackwood's Magazine for February:

We have also received through Mr. Rowsell, a copy of Blackwood for February. It contains, as usual, articles of great literary merit, abounding in information that cannot fail to instruct and interest a wide class of readers. Those on Robert Burns; France and Central Italy; The diffusion of taste among all classes a national necessity; and a Visit to the Columbia River and Vancouver's Island; will be perused with equal pleasure and profit on both sides of the Atlantic. This American edition is very neatly printed by Leonard Scott & Co. of New York, at $3 a year, forming two handsome volumes annually. The same firm issue quarterly the four leading British Reviews, viz: the *Quarterly, Edinburgh, Westminster*, and *North British*, all of which can be obtained, including Blackwood, for an annual subscription of $10; being only about a fourth of the cost of importing the original editions from England. Any one of the above Reviews, and Blackwood's Monthly Magazine, can be procured for $5 a year. We would strongly recommend our readers to subscribe for the whole, by which they will get these invaluable publications at an extraordinary low price, and keep themselves posted up in all the great literary, scientific, social, and political questions of the day. No book clubs, reading rooms, mechanics' Institutes, or farmer's associations should be without them.

To Subscribers.—We are still able to supply back numbers. Secretaries of societies or clubs, and others ordering a considerable number of copies should recollect that it is only the orders received on or before 1st April, accompanied with the amount of subscription to correspond, that can compete for the cash premiums.

Market Intelligence.

TORONTO MARKETS.

Wednesday, March 14.

The supplies of produce during the past week have been moderately large, taking into consideration the season of the year, and a brisk business has been done in grain, although of other articles there has not been so much brought in as in former weeks.

Fall Wheat—The week has been characterized by great buoyancy on the wheat market, which has resulted in an important improvement in prices. From Thursday until Saturday, rates went up from $1 38 a $1 40 to $1 45 a $1 47½, and on Tuesday $1 48 a $1 50 were the extreme outside rates for the very best samples. On the last named day, the receipts were pretty large, amounting to 2,500 bushels, most of which moved off the market at about $1 45, while the choice lots were picked out at $1 40 a $1 48, and in one or two cases $1 50 per bushel. These rates refer only to the better grades of shipping wheat, which comprise the bulk of the deliveries; but even for common and inferior lots $1 35 a $1 40 were frequent figures.

Spring Wheat—For fine samples $1 05 has been frequently paid, and on Tuesday $1 06; and in one or two cases $1 10 per bushel was paid.

Flour—The flour market exhibits a buoyant aspect. Views of holders have advanced. Some few sales have transpired at better prices, but transactions have not been frequent. The following quotations must therefore be regarded as nearly nominal, the outside figures being the rates demanded by holders:—Double Extra, $6 00 a $6 50; Extras, $5 60 a $6 00; Fancy, $5 25 a $5 40; No. 1 Superfine, $4 75 a $5 00; No. 2 Superfine, $4 25 a $4 50; Oatmeal, $4 25 a $4 50; Cornmeal, $3 25 a $3 50.

Barley is dull at 60c per bushel.

Rye 70c a 75c per bushel.

Oats—Sales have been made with ease at 35c, and in some cases 36c.

Peas—For good samples 60c a 62c would be freely paid.

Seeds—The rulling figure for good Clover is from $5 to $5 50 per bushel. Timothy seed is not plentiful, but still the high rates check the sales. The latter qualities sell at $3 a $3 50, and inferior grades at $2 a $2 50 per bushel.

Potatoes are in fair supply at 30c a 35c per bushel, according to quality.

Hay in moderate supply at $11 a $19 per ton. Baled hay in small lots at $18. Straw $7 a $8 per ton.

Pork—Fresh is becoming scarce at the nominal rates of $6 a $6 50 per 100 lbs.—Cured meats are quoted wholesale at $18 per barrel for mess pork; $14 a $15 for prime mess, and $11 a $12 for prime. Bacon 8c per lb. Hams, smoked, 10c a 11c; unsmoked 9c a 10½c.

Beef—The demand for *first class cattle* is more active, and 6c per lb. has been paid, while 5½c a 5¾c has been frequently realized. For second cattle, 4½c a 5¼c per lb. is the current rate. Sheep $4 a $6 each. Lambs—none in the market. Calves in demand at $4 a $6 each.

Beef Hides are steady at $5 25, but more frequently $5 50 per 100 lbs. *Sheepskins* $1 a $1 25 each. Calfskins 10c per lb.

Butter—We have no improvement to notice in the market for butter, the stock of which is large and the demand dull. No. 1 tub better by wholesale at 14c a 15c per lb., and No. 2 can be bought freely at 10c a 11½c. Fresh 17c a 19c per lb.

Eggs—Fresh are scarce at 12½c.

NEW YORK MARKETS.

New York, March 14, 1860.

Flour.—Receipts 2487 barrels. The market is dull and heavy, and lower. Sales of 6,000 barrels at $5 30 a $5 35 for superfine State; $5 45 a $5 55 for extra State; $5 30 a $5 35 for superfine Western; $5 45 a $5 65 for common to medium extra Western; $6 00 a $6 20 for inferior to good shipping brands—extra round hoop Ohio. Canadian flour is quiet; sales 150 barrels at $5 90 a $7 25 for extra. Rye flour steady at $3 70 a $4 40.

Grain.—Wheat no receipts. Market dull and heavy, 1c and 2c lower; sales, 1,500 bushels at $1 28 for prime Milwaukie club. Rye quiet at 85c a 87c. Barley steady; sales 12,000 bushels State at 78c a 80c. Corn, receipts 10,900 bushels-market heavy and lower; sales 12,000 bushels at 75c a 76c for white and yellow. Oats dull and heavy at 43c a 44½c for Western and Canadian.

Provisions.—Pork market is dull and heavy, with sales of 650 barrels at $17 75 for old mess; $18 a $18 20 for new do: $12 50 for old prime and $14 56 for new do. Beef is firm—sales 300 barrels. Lard is a shade firmer; sales 100 barrels at 10¾c a 11½c. Butter is in moderate request at 11c a 14c for Ohio, and 14c a 20c for State.

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

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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.

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Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

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