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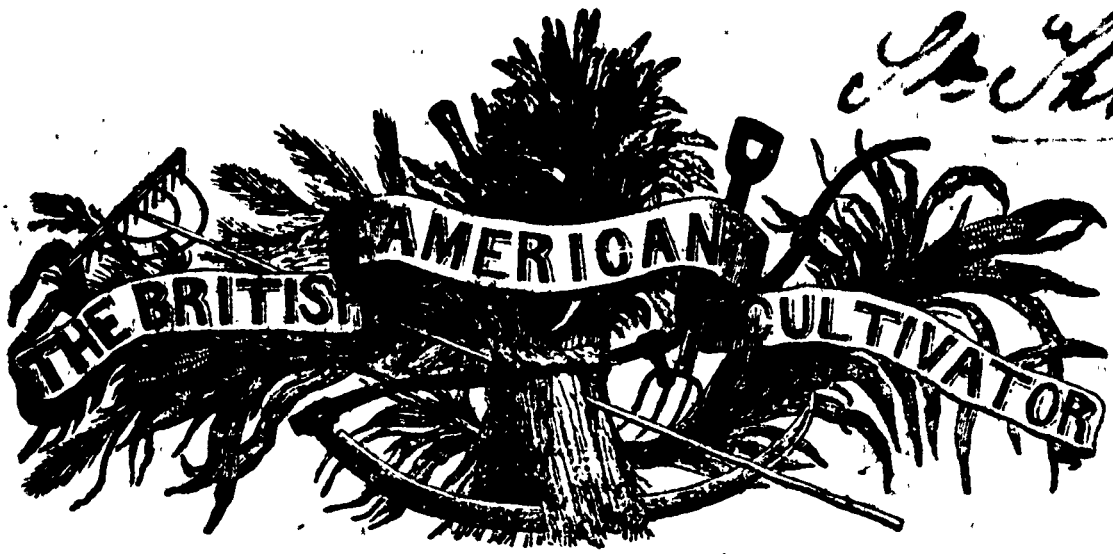


"Agriculture not only gives Riches to a Nation, but the only Riches she can call her own."

NEW SERIES.] TORONTO, AUGUST, 1845. [VOL. I.—No. 8.

WORK FOR THE MONTH.

This may truly be said to be the most important month in the year to the agriculturist. The most valuable of the grain crops will be harvested by the close of the month, and the fallows will be in progress by that time sufficient to secure the completion of the autumn seeding by the 12th or 15th of September. Every operation about the farm at this season of the year will require the greatest possible despatch, and must at the same time be conducted with great judgment. Leisure hours are now quite out of the question with the man who feels at all anxious to keep a head of his work. Do not let the grain become too ripe before cutting; great losses are frequently sustained by not observing this particular. Peas, oats, and wheat-straw make excellent winter food for stock if harvested a few days before they arrive at that state which is generally termed dead-ripe; and it is supposed by many, that the grain is more valuable than when allowed to fully ripen. This matter should be settled the present harvest; and when determining the value of early harvested grain, the superior value of the straw should be included in the account. The best and cleanest wheat should be saved for seed; and the portions of the fields intended for this purpose should not be harvested until the grain be thoroughly ripe. An excellent method of improving the quality of seed-wheat consists in observing the above; and instead of thrashing with a flail or machine, to have the largest of the grain beat out by hand over the edge of an empty barrel; by judiciously observing this plan for a few years, the sample would become so much improved that it would have the appearance of a new variety of wheat In selecting wheat for seed, choose that which is entirely free from chess, rye, cockle, and every other weed or grain that would be injurious to the crop.—Every farmer who intends becoming proficient in the cultivation of wheat, should immediately resolve to wage war against chess and smut; the former can be entirely extirpated from the country if the farmers would at once come to the

resolution to sow none, and also to destroy all that may be among the growing crops. It would require but little trouble to hand-pick a few bushels, by which means a pure sample might be obtained, and with a few such trials the most incredulous would be compelled to acknowledge that their former opinions were founded on error, and that chess is a distinct species of grain, as much so as oats, barley and wheat. The best means to prevent smut is to make a strong brine with salt, and add about an ounce of blue vitriol for each bushel of grain; the seed should remain in the water a few hours, and then be taken out and dried with lime, and sown immediately. If thoroughly ripe seed be selected, and brine sufficiently strong to buoy up an egg, and strong fresh lime alone be used, the prevention is almost certain. No one should on any account neglect to attend to this matter, because it frequently happens where no preparation whatever is employed, that at least one-tenth of the entire crop is destroyed, besides the sample seriously injured. Land for wheat should be deeply ploughed, and in all cases where practicable, the seed should be sown in rows from ten to twelve inches asunder. It is to be hoped that every farmer will satisfy himself upon those points, by making a few experiments in deep ploughing and in rowing his crops of wheat; the ploughing should be from six to twelve inches in depth; and the rows from nine to fifteen inches in width. A sixteenth of an acre devoted to each experiment, and the results carefully compared, would have the effect of enabling the cultivator to judge of the most profitable method of managing his land for crops. It is a fact which cannot be controverted, that agriculture is a science, and that every operation in nature connected with this important profession, is governed by certain immutable laws; but owing to the difficulty of convincing the untutored and self-sufficient husbandman that what was formerly all darkness or mystery may now be clearly demonstrated, as much so as two and two make four, it is necessary to point out the road, with clear and distinct lines, by initiating him by degrees into the best practice, or one which would tend to increase his products without materially increasing the costs of production, and by and by the most sceptical will become leaders in the agricultural reform movement which we are so devotedly attached to. We therefore press the importance of testing our directions upon all; and when we find this principle generally acted upon, we shall then with the greater confidence indite such matter as would be found, when honestly tested, to be productive of good to the productive classes.

Turnips, carrots, parsnips, and mangold wurtzel, will require to be twice hoed the present month. When those root crops are in rows they may be kept clean with a trifling expense, by freely using the cultivator or scuffler between the rows, and immediately afterwards the shovel-plough to mould up the plants. Where those two implements are used there will be little else left for the hand hoe than thinning the plants and cutting up the weeds in the direct line of plants. Thistles of every variety, and burrs as well as all other weeds injurious to agriculture, should be destroyed.

CULTIVATION OF THE STRAWBERRY.

The strawberry is universally esteemed as the most delicious and wholesome of fruits, hardy, succeeding well in our northern climate. No garden however

small, should be without a strawberry bed. The present month (August,) is the best season of the year for making plantations. We therefore give the following brief directions as a guide to the inexperienced who may conclude to set about planting.

Preparation of the Soil.—Choose a piece of the deepest and richest soil in your garden with a full open exposure to the sun and air, dig it, or trench it to the depth of eighteen inches, adding a good quantity of strong manure. When your ground is thus trenched, rake it off smooth, then take a line and mark off the rows for the plants, two or two and a half feet apart, the latter is preferable where ground is plenty, as it affords sufficient room for culture, and admits freely the sun and air, giving size and flavor to the fruit. A crop of small vegetables may be grown between the rows the first year.

Selection of Plants.—Many people have become discouraged from cultivating the strawberry, because their plants have proved barren notwithstanding good careful culture. The cause was—their plantation had become too old, (they should be renewed every fifth year,) or else they had taken their plants from some old degenerated stock.

In either case, a crop of fine fruit need not be expected—plants must be selected from young fruitful plantations, well rooted runners of the present summer's growth. Having procured such, plant after a shower, if possible, along the rows you have marked off, about a foot apart. If the weather be dry when you plant, water the ground thoroughly before planting, and shade the plants for a few days with branches of evergreens or anything else as suitable.

If the plants are not to be had in your own neighborhood, you can send to any distance you choose for them, they are not bulky and can be easily transported by any public conveyance. Nurserymen furnish them at one to three dollars per hundred according to the variety. *Hovey's Seedling* and *Ross's Phœnix* are two uncommonly large, productive, fine flavored new varieties, esteemed superior to all others; both have the good quality of being very hardy, and well adapted to this northern climate. *Keen's Seedling* is a highly esteemed older variety, well known,—and so is the *Large early Scarlet* a very early estimable fruit.

After Culture consists in cutting off the runners three or four times a year. these when wanted to form new plantations may be put out in some corner of the garden till the time for planting. A dressing of manure should be lightly spaded in every fall between the rows. Here in the colder parts of Canada it would be well to lay a good coat of leaves between the rows to guard against the severities of the winter. Managed in this way, a plantation will produce abundant crops for five years. then it must be renewed. P. B.

Broom Corn.—The seed is excellent to fatten sheep. Albert Hibbard, of North Hadley, tells us he makes use of the seed of his broom-corn to fatten sheep: that they are very fond of it, and will fatten better on this than on Indian corn. Broom corn is raised in great quantities in the river towns, where the brooms are made up and distributed to all parts of the country. We have often raised the corn for the sake of the brush, but we have never made much account of the seed, though we think it has seldom been converted to meal for hogs. Mr. Hibbard thinks the Broom-corn seed more valuable for sheep, than oats, or any grain. pound for pound —*Boston Plough.*

THE CULTIVATION OF FLAX.

The season for pulling flax will shortly be at hand; and as some of the Canadian farmers may be anxious to obtain further information in relation to the best mode of preparing the fibre for market, we shall, for their especial benefit, give insertion to the following extracts from Mr. Dickson's essays upon flax culture, which we copy from that very excellent paper the *London Agricultural Gazette*.

No doubt some are of opinion that we devote by far too much space in our magazine with the subject of flax and hemp culture, but to such we would say, that its importance would fully warrant a much greater share of our attention.—The present article, taken in connection with the one in the July number of the *Cultivator*, as well as the various articles upon the same subject in previous numbers, will certainly convince every man of sound judgment, that the flax crop is highly remunerating when cultivated and managed upon the most improved plans; we therefore consider that we have done our part in endeavouring to convince the cultivators of the soil of the propriety of adding this important staple for export to their list, which in due course of time would equal, if not exceed in value, that of all the other exports of Canada, especially if that attention were given to it that it so obviously merits.—We have no desire to tire our readers with our views upon this or any other agricultural question; our only object in so liberally discussing the flax and hemp question was, to benefit the classes whose interests we have been advocating for the past four years; and if we have failed in accomplishing as much as was desired, we flatter ourselves that no blame can be attached to us. It is our intention to dismiss this subject; and in all probability it will not be adverted to again in the current volume, and most likely not to any extent until the results of a few years' practical operations upon our farm with these crops will better qualify us to speak with more assurance regarding their profitableness for home and foreign consumption.

It is our present intention to engage very largely in the cultivation of flax, believing that it will remunerate better than any other crop the cultivation of which we are acquainted, and shall employ the best labour-saving machinery that the country will afford.

There is no possible danger of overstocking the market; for it should be remembered that the annual importation of lint and flax seeds to the British Isles, equal the enormous amount of *ten millions of pounds sterling*, not a sixpence of which finds its way into the British American Provinces. In 1844 there were sown in six small counties in the North of Ireland, no less than 285,600 bushels of foreign flax seed, costing about $600,000—who would say but that the Irish market could be supplied with flax seed as well from Canada as any other country? Certainly every man in his sober senses must admit that an annual income of about one million of dollars would be a very handsome thing for a new country like Canada to derive from a hitherto neglected product. If what we have recommended on former occasions be practiced, we feel confident in the opinion that a much greater value of flax seed than this would be sent to Great Britain annually from Canada. We have recommended, pressed, and almost begged the farmers of this country to engage in the cultivation of both flax and hemp, and once for all we say, that we shall urge the question no further, but shall engage

in the business heartily ourselves, upon a scale which would do credit to much older agricultural countries than Canada. Our operations shall in the course of time be made known; we affect no secrets in agriculture. Our knowledge, and our experiments in agriculture, are public property; and nothing of value in the shape of agricultural information, shall be withheld from the public, when we conceive it desirable on their part that they should be made known.

ON FLAX CULTURE.

The Pulling.—This operation should be done with as much care as possible in order that the roots be kept even or level, and as like a brush as possible, and the stalks kept straight. There is considerable loss in tying the sheaves with the plant; if rush bands are not to be had, old mats may be cut up, or anything in preference to wasting the Flax, as bands of the Flax never water or clean out but at a loss; the sheaves should not be large or bound tight in the band; allowance should be made for the swell which takes place by the fermentation, when in the water; after being pulled it should remain like corn in the stook for some days, until perfectly dry, and ready to be brought to the stack-yard.

The next process is *rippling*, or taking off the seed, which is easily done by an iron comb fixed in a position like coarse hackles, over which the tops of the sheaves are drawn until all the seed-balls are taken off, those balls should be taken to the barn or large lofts, and spread where the current of air would effectually dry them. I advise this to be done in August or September, in order that the seed may be had for feeding during winter. Fire must never be resorted to, in order to dry either flax or seed, as that will prove ruinous.

Watering, or Soaking.—This operation should be done in May or June, as it requires less time in the water, and the water being warm, the fermentation soon takes place, and, as a consequence, the wood inside the fibre is the more rapidly decomposed, a pond of river water, sufficient to hold whatever flax is to be steeped, should be collected, but water containing mineral substances, should always be avoided, and care taken not to let any fresh water into the pond or pit, or any out of it, until the flax that has been binged is lifted; being carefully placed under water for 10 to 15 days, and covered over closely with boards or grass-sods, in order to prevent the fresh air from affecting the fermentation; it must be, after the first week, frequently examined to see that it has not undergone more fermentation than sufficient to cause the wood to separate from the fibre,

Now, if persons who publish pamphlets on the subject would say that this part of the process in the management of the plant, not the growing, deserves serious consideration, those who know the value of the fibre would believe they had some knowledge of the subject they profess to know, in my opinion the secret in producing strong and good fine flax entirely depends on the management in this stage of the process—and Messrs. Herdman and Co's experiments are a proof of it; and if there be a lottery in the growing of it to perfection, the experienced and skillful farmer has in this stage an opportunity of showing himself able to arrive at perfection, and to find out where he may place his hand to have a prize; however, nothing but practical experience and proper instructions will enable those unacquainted with the process to become master of what I consider the most important part or finish in the management.

After being 8 or 10 days in the water it is necessary to take out a handful and examine it; try with the fingers if the wood breaks short, and if the fibre will leave the stalk without breaking, or if you can release 4 or 5 inches of the wood from the middle of the stalk without tearing the fibre, and such wood be free, or has none of the fibre adhering to it, you may then remove it from the pond; but as it frequently happens that a rapid change takes place when fermentation is over, it should be tried as I describe every four or five hours; it should be carefully lifted with the hand to avoid tossing, and placed on the ends when out two or three hours, in order to let the rotten water run from the stalks previous to being spread.

Grassing or Spreading.—For this operation new-mowed meadow or clean pasture-ground is requisite; the flax should be spread thin and equal, and when on the grass it requires to be once or twice turned, as that will prevent the sun from acting too much on what is exposed to its scorching rays; if it happens to be showery weather so much the better. I am no advocate for the very dry or hot weather for this process. To know when it is ready for lifting, a few stalks rubbed in the hand, when dry from the root to the top, will tell; if the wood breaks quite short, and separates from the fibre, leaving it free like a narrow ribband, it has got sufficient of grass; another proof of its being ready for lifting is, a number of stalks can be observed resembling a bow and string, the fibre quite separated from the wood or stalks as they lay on the grass.

Rolling.—When in the mill it is opened out and separated into small handfuls to feed the rollers; by this process the wood inside the fibre is broken into ¼ or ⅛ of an inch; there are 5 rollers about 18 inches or 2 feet in circumference, one in the centre, which turns the two above and two below; the flax being put in at the upper part of the centre rollers is drawn round, under the two upper rolls, which are

pressed down by two levers with weights; it is then turned by a board behind, and comes out over the upper part of the two under rollers, receiving the pressure of the fluted parts in the five rollers, which deliver it on a board in the front indented by the action of the several rollers; it is then ready to be handed over to the scutchers in the mill to be cleaned out, that is, the shives or short wood, taken out by the action of scutching handles.

Although I admit those rollers do the work tolerably well when carefully attended, I cannot but condemn them, and all the inventions I have yet seen for that purpose, for two reasons: first, they are dangerous, and men often lose their arms, thus: the flax will sometimes go wrong in them, and men forget themselves, and in attempting to rectify the flax their hands are caught by the rollers; another reason of objection is, the flax is frequently much tossed, and delivered uneven, and this causes much waste or loss in the scutching or cleaning process, therefore I intend to recommend a machine free of all danger, that will break or indent it, in a lying position, without tossing or making it uneven, which I am prepared to prove will be a vast saving in the scutching.

Scutching.—In the mill at the scutching stalk or board it is prepared for market; and as it is very easy to convert any old corn mill into a scutch mill, I shall describe the simplicity of the machinery. The common fly-wheel used for driving stones in a corn-mill, will drive a shaft for 6 or 12 men to scutch at; on the end of this shaft a small spur-wheel is fixed, with cogs calculated to work on the face of the fly-wheel. This shaft has from 6 to 12 pair of arms driven through it from 3½ to 4 feet apart; on those arms are fixed short swords or handles of beech, one on each end; those arms, crossed in the shaft, revolve according to the power let on the water-wheel or engine, and pass round within from ¾ to 1 inch of an upright and stationary standard made of hard wood (called the scutching stalk,) over which the man or scutcher holds two-thirds of a handful of flax (called a streik,) under those swords, keeping a tight hold of the other one-third until the large portion is clean, when he turns the other end of the streik, and in a similar way feeds the swords, over the scutching stalk, until by the action of those swords the last of the wood, or stem, on which the flax grew is dusted, or driven out, leaving the fibres all together, like some hundreds of narrow ribbands. The rollers are also driven by a lying shaft, from the face of the fly-wheel. This is the whole process, as followed up in Ireland by those who are endeavouring to compete with their more experienced rivals the Belgians: formerly they all watered their flax when pulled, in order to have it early in the market, to meet the payment of their November rents; but this mode of management cannot be too strongly condemned; and as it is much against the interest of the grower, I shall point out the error: first, those persons glut the market in Oct., Nov., and Dec., and so anxious are they to have their flax early to market, that often have I had to allow my men to work day and night, as those workers are paid by weight for what they clean or scutch, there is always great loss in their being so hurried by the owners. Much of the finer fibres are cut up and lost in the stem, or wood, and the ends of the flax also much cut away. I consider the system of paying workers by weight a very bad one, as the loss, if the flax had got too much water, and turns out soft, is very great, when hurried over; this has been ascertained by weighing 1 cwt. of rough flax, and having it scutched by hand at home, and comparing it with the same weight done in the mill; there is much room for improvement in the scutching department of the business. I have also another reason for condemning the system of steeping the year it is pulled. The Belgians keep it over to the next season, and I believe the flax is the better for it; in my opinion the fibre absorbs all the oil or sap from the wood or stalk, and from its being kept over year, the wood becomes quite brittle, and it requires less time in the water to cause it to quit the fibre; therefore, I must believe that to grow and manage the flax plant to perfection, time must be looked to in every stage of the process, and as the watering or soaking should not be done till the year after growing, it is my opinion that the secret in knowing how to grow and obtain a fine fibre and an abundant crop is to be found out by proper attention to this in all the stages of the process.

Effects and Use of Flax-water.—I was often struck with astonishment after rain in the months of September and October to see the great number of large trout dead in the water course to my mill, from the effects of the water which had been let off from the several pits in the neighborhood where flax had been soaked. I am glad to find that even the water in which it is steeped can be turned to a good account. Some of the members of the Belfast Society have been trying experiments, and find that it can be returned to the land in the shape of manure. I should think bog-earth thrown into such water would be, when taken out, valuable.

Having given an outline of the plan of operation by which I and others have been successful in cultivating flax, and having watched the mode of management pursued by others in Ireland, who had year after year prime flax, I cannot imagine how men can be so prejudiced as to assert that the growing of flax is a lottery. I am aware that it is not every man who wants to do so can grow it of fine quality; he must give time to bring his ground into a proper state of cultivation. Added to this, as there are a great number of farmers uninformed of the value and variety in quality of flax, they must have Belgian teachers, or be guided by the Belgian system of management, before they can compete with our foreign neighbors: however, I do not despair of their success when knowing the result of several experiments made by gentlemen in Norfolk who have produced fibre equal to the best Belgian, and I have pleasure in informing them that I have been lately favored with letters from some of the most

extensive Flax spinners in Yorkshire, and Lancashire, promising to encourage and give a preference to their own country flax the moment they can do so without actual loss. No doubt these gentlemen feel, as landowners should do, the hardship of being obliged to pay so largely for flax to a people that tax the yarns made from their own flax 40 to 60 per cent, although they must have it for their wants.

As England is second to no country in the world in her manufactures or mechanical skill, it is to be hoped that the owners of the soil will not be the only class to follow, or hesitate to lead in the march of improvement, and I trust they will see that flax may be profitably grown both for the feeding qualities of the seed and for the fibre, although not in the same ratio, and that there is a great chance (if Flax is cultivated with success) of many of the Manchester cotton spinners following the example set them by the Belfast cotton spinners, whose mills have been, with two exceptions, all turned to flax spinning within the last 12 years. The first flax mill was built in 1828 in that town out of the ruins of a burnt down cotton mill, and at present there are above 30 flax mills in Belfast and neighborhood at full work, and five new ones about to commence work, not taking into account the several mills in the countries of Armagh, Derry, Dublin, and in the town of Drocheda. Whilst many thousands of hands are employed in the flax spinning factories, and in the weaving into linen what their neighboring farmers and landlords have produced; here is a connecting link that cannot be broken between agriculture and commerce.—The Belfast flax spinners are the only protective society the farmers in the North of Ireland require. As statements without proof are often considered erroneous, I shall conclude my observations on this subject by quoting, as proof, what I took from the *Times* newspapers in July, 1843. A deputation from the flax spinners in Ireland waited on Ministers in Whitehall, and made the following statement, because they considered their trade was going to be much injured by a free importation of machinery to a country that advanced the duty from what it was, 10 per cent. on linen and yarns in 1840, to what it then was and now is, 40 to 60 per cent.—

We (they say) only exported from Ireland		
Yarns in 1832 amounting to	-	£5,000
Ditto in 1841 "	-	1,700,000
Ditto in 1842 "	-	1,000,000
Ditto in 1843 "	-	1,200,000

Here is an increase from 1832, from £5,000 to £1,200,000.

A NEW STRAWBERRY.

We have the pleasure of announcing to the cultivators and lovers of good fruit, a new strawberry of great excellence, which we saw last week, in the garden of Henry Codman, Esq., in Roxbury. It was raised from the seed by his gardener, Mr. George Belford, who does honor to his profession by his skill and good taste. He calls it CODMAN'S SEEDLING, in honor to the proprietor of the grounds, and if this fruit on extensive cultivation equals our expectation, it will be a great and lasting honor. Mr. Belford procured the seed from a friend, and he knows not its origin, excepting it was not in this section. He raised the first plant four years ago.

This strawberry is superior in size and flavor, it appears to be a good bearer, and Mr. B. thinks it is very hardy. The runners are very strong and vigorous, and the foliage rather thin, which gives the fruit a good exposure to the sun. We have not cultivated strawberries extensively, as most of our days have been spent in a part of the country where nature furnished an abundance of this fruit in great excellence; but for several years we have carefully examined the various kinds cultivated in this section, (excepting Ross's Phœnix, which has been very lately, and only to a very small extent, introduced,) and some of the most famous in the same garden with this new variety, and it is larger, and of decidedly superior flavor to any of them, and we think a greater bearer also.

We have never seen so large a strawberry under ordinary cultivation. We picked a few of the largest that immediately presented themselves, and these not quite ripe, as the first had just been picked, and they measured *one and a half inches in length, and over one in diameter.* As to its flavor, very few of the cultivated kinds rival it, and none exceed it. The flavor is about equal to the native strawberry, and much resembles it, excepting a peculiarity resembling the pine apple. The texture is remarkably fine and delicate. It is multiform, giving it a pleasing diversity, in our view, as we are fond of variety Some few of the berries are nearly round, others oblong, but the most are long and pointed. Some are rather flat, others flat on one side and round on the other. Some flattened at the point only, others spreading out and parted at the summit, as though two had grown together. and various other forms, to suit purchasers, as they are large enough to retail singly.

The reader will please consider that our remarks are general, from a general inspection of this new fruit, in a single location. Our object is to bring it into favorable notice, that it may have a fair trial in various locations, and by the side of other well known valuable varieties. While the cultivator is multiplying his plants, with a view to extensive cultivation, he will be learning the value of this variety from his own experience.

It ripens in a favorable time, immediately after the Early Virginia, say in the latter part of June and first of July, continuing two or three weeks in succession. Mr. B. has a few plants to dispose of, and we would advise those who take much interest in cultivating the strawberry to try them. We think that in size and flavor it will exceed any other kind, and it promises well in every respect.—*Bost. Cult.*

CORN-STALK SUGAR AND MOLASSES.

It seems to us, that among the whole catalogue of imported articles, none could be supplanted with the produce of our own highly favored Canada more easily than that of sugar. The three sources by which our market might be stocked with this desirable luxury are, the maple, the beet, and the Indian corn-stalk. If due attention were paid to the production of sugar, this country might safely calculate on a large supply for exportation. It is, however, extreme folly to dwell upon fanciful pictures—the reality is within our reach, and it shall not be our fault if an entire revolution is not brought about in the sugar trade of this colony. We intend to agitate this question until we have aroused sufficient attention to the subject, to accomplish the object we have so much at heart. With this, as with the hemp and flax culture, we shall, if no one else begins, lead the way, and give the result to our readers.

Canada is well adapted for the growth of corn and for the manufactury of sugar, and it is to be hoped that the people have sufficient intelligence to give this new branch of agricultural industry a fair trial. The following from the pen of a Tennessee farmer, will throw some additional light upon the subject, and we hope will act as a stimulus to our Canadian farmers to resolve to do likewise:—

Gentlemen:—Believing that the manufacture of corn-stalk sugar and molasses, is forthwith susceptible of being made a matter of the greatest importance, it is deemed expedient to enter into details that perhaps will be considered unnecessarily minute, by some who are not yet apprised of its great value. For it is certainly true, that if the necessary care and attention be not bestowed on the whole process to the last, an inferior article will be the consequence, and which may induce the experimentalist to abandon the business in despair and disgust. Year before last, having met with the essay of Webb on our subject, it was concluded to give this new project a trial sufficient to enable me to determine, whether or not it was capable of being made an object worthy of serious attention. The result was decidedly favorable, and accordingly last year, a more efficient apparatus was provided, with the intention of making a sufficient quantity of sugar and molasses, to exempt me from the necessity of purchasing those articles; no inconsiderable affair, where a large family has to be supplied at a cost of twelve and a half cents per lb. for the first, and a dollar a gallon for the last named article, especially in a part of the country where money is so scarce, that it requires profound sagacity, deeply laid and successful stratagem, and vigorous exertion to obtain a sufficiency to enable one to live decently, and to pay all their dues at the proper time. The object proposed was to a great extent realised, but not being apprised of the quantity that would be necessary to last a whole year, it turned out that we had not made quite enough, our stock becoming exhausted about the middle of April; and from that time until the latter part of July it become necessary to resume the purchasing of sugar.

During the last season, however, an ample supply has been made, rather over 100 gallons, equivalent to a hogshead of sugar. This quantity could have been extended to 8 or 10 barrels, if a sufficient supply of stalks had been provided; for by planting the corn at various times the molasses season can be prolonged from the middle of July to middle of October. Four or five other mills were in operation, in this region, during the past summer, at which were variously made 10 to 60 gallons. Now what has been accomplished by a few individuals, can be done by every farmer in the State; and if this should prove to be the case, it is evident, that no trivial revolution in its commercial transactions, would be the result. Assuredly it is as absurd and unnecessary for a farmer to purchase sugar and molasses, as it would be to import his soft soap, candles, or any other article of ordinary domestic production. The mill should be made with three rollers, at least 20 inches in diameter, and 26 inches long; 4 inches above the cogs. The cogs 4 inches wide, and 18 inches below the cogs. The necks ought to be about 3 inches long, and 6 in diameter with a smooth iron band fitted on to prevent their wearing. The stem of the middle roller should be 12 or 13 in diameter, and 5 or 6 feet long, the neck to be received in a corresponding hole in a transverse beam resting on two posts, about 25 feet asunder. This arrangement will cause the mill to run more equally than if there was no support above. There should also be some contrivance of keys and wedges, with which to adjust the outside to the middle roller. This, however, must be left to the ingenuity of the builder of the mill, as it cannot easily be made intelligible on paper. For the sake of convenience, it may be proper to assign to the corn stalk two stages in its growth, as the most suitable for making

molasses and sugar, to wit: 1st when just in roasting ears; 2nd, when it has passed out of the roasting ear stage and become too hard for cooking, and thence to the commencement of fodder pulling. The syrup made from the stalks during the first or roasting ear stage, if boiled moderately thick, will very much resemble honey both in appearance and taste. In the second stage, which I consider on the whole the proper one, or when the corn has become to hard for cooking, the syrup will more than nearly resemble that made from the sugar cane, and is the age of the stalk at which the syrup is most disposed to granulate. As you approach fodder pulling time, the molasses will become darker and not so agreeable to the taste. In the first or roasting ear stage, it requires 10 gallons of juice to make one of syrup. In the second stage or two weeks later, 8 gallons will do the same. One hundred moderately large stalks will make 1 gallon of syrup boiled to the point of granulation, that is, when on taking a small portion (as warm as it can be borne,) between the thumb and fore finger, it can be drawn into a thread an inch or an inch and a half long. One gallon of such syrup is equivalent to 10 lbs. of brown sugar for any of the purposes for which that article is commonly used; stalks from which the ears have been pulled in their embryo state, will afford one fourth more syrup, than will those on which the ears have been permitted to arrive at their full growth. Small stalks will yield about the same quantity of juice as large ones; that is, the product of a *given weight* of either will be about the same. Large stalks, however, are preferable to small ones, as it requires nearly as much time to strip and prepare for the mill the latter as the former. As regards the *speedy* granulation of syrup the same difficulties have been experienced as heretofore.*

It is, however, satisfactorily ascertained, that if properly made and placed in shallow vessels, and in a moderately warm situation it will granulate, if sufficient time be allowed it for that purpose. Last season a small portion was set aside, and five months elapsed before the crystallization was completed; leaving, however, little or no molasses.

At present, I have several parcels which since last August, have been slowly undergoing this process; some of them now ready for draining; and doubtless in a few weeks more the whole will be completed. My apparatus for boiling consists of a large iron kettle, and also one of copper, made from the lower part of a second hand still, the nozzle being removed and the aperture closed by a piece of copper riveted over it: an iron band nearly an inch wide surrounds the top and riveted; the edge of the copper being turned over it, a broad lip is formed in front for the convenience of pouring out the syrup; two ears are welded on the band, in an opposite direction, with holes in them to receive two large rings, for the purpose of lifting it off the furnace; there ought also to be one behind. This kettle is about three feet in diameter, and nearly one in depth, and holds about 35 gallons, and answers admirably, as the boiling can be finished in it, about one third the time that is required in one of the ordinary depth. A shallow skimmer of tin about 8 inches by 6 with holes in the bottom, and rounding at the end, fixed in a wooden handle, will be found far more convenient for skimming than the ladle in common use. It will expedite the business if the fodder be stripped off the stalks the evening previous to the morning when they are intended to be cut, and afterwards the whole of the sheaths or shucks (as they are called) about the joints must be carefully removed, and the stalks perfectly clean. It is all important that the juice be pressed out, and set to the boiling as speedily as possible after the stalks are cut; not more than two or three hours should elapse before this is done, for if the stalks are permitted to lie or the juice to stand longer than the time mentioned, fermentation will commence and infallibly injure the quality of the molasses. As soon as a sufficient quantity of juice is received from the mill, it should be allowed to stand a few minutes for the coarser particles to subside, and then strained through a coarse cloth, and a table spoonful and a half of clear lime water added to each gallon of juice, and then poured into the kettle and carefully watched and skimmed during the whole process of boiling. When iron pots or kettles are used, it is absolutely necessary that they be entirely free from rust, as the smallest portion of this, would impart a dark color and ferrugious taste to the syrup, and also a dusky hue to the coffee when used in that way. With the fixtures above mentioned, and one horse, we made seven or eight gallons per day, but being in no hurry, generally ceased grinding about four o'clock in the afternoon, in order to finish boiling before night. By using two horses or extending the operations to some time after dark, ten gallons daily could have been easily made. The molasses thus produced has over and again been pronounced by numerous persons who have partaken of it, to be superior to the imported article; all without exception were fond of it, whilst among them were several who reject the use of the cane molasses altogether. It may not be amiss here to repeat a remark made in a former communication, to wit: That when intended to be used in coffee, the preferable and most convenient mode will be, to mix it with the coffee when first made, and boil all together. It is probable that the influence of prejudice will for some time prevent a general substitution of corn-stalk sugar and molasses, for the corresponding article of Louisiana, and the West Indies, for there is something repulsive in the idea, that a product of the common corn-stalk (an article with which we have been so familiar from our

* NOTE.—It is evident that superabundant mucilage in the juice prevents the speedy granulation of the syrup, and it is hoped more mature experience will remove this and every other obstacle so to complete success.

infancy) should come in competition with a similar one of the far-famed sugar cane, that comes from so great a distance and costs so much. And there is reason to fear that this opposition will be found to proceed in greatest force, from among the ladies, many of whom (with all due deference be it spoken) with characteristic ambition, pride and folly, appear much disposed to estimate a commodity not according to its intrinsic value, but precisely in the ratio of the distance from which it is brought, the difficulty with which it is procured, and the amount of money it may happen to cost. In the view of the foregoing fact, it appears every way reasonable to believe, that before another year rolls round, a sufficient quantity of sugar and molasses can be made, to supply our own wants in that respect. Yes, if every farmer in 4 or 5 of our most populous countries, would each make only three or four barrels, it would probably amount to a greater quantity than is annually imported into the State. But will this be done? It may well be doubted, for it is a melancholy truth, that with a few exceptions there does not appear to exist among the farmers of Tennessee, especially those of East Tennessee, a much greater amount of agricultural and manufacturing intelligence, enterprise and industry, than one might reasonably expect to find in a colony of free negroes.

Athens, November 28th, 1844.

—*Tennessee Agriculturist.*

SUGGESTIONS ON THE CULTIVATION OF FRUIT.

BY P. BARRY OF THE TORONTO NURSERY.

With the view to aid a little in drawing public attention more generally to the cultivation of fruit, as well as to contribute more or less to the diffusion of practical information on the subject, for the benefit of the inexperienced we propose to present through the *Cultivator*, a few suggestions, from time to time, before the arrival of the transplanting season.

Although the importance of this branch of rural economy begins to be felt and understood, it is as yet very far indeed from being duly estimated. We may traverse the country in any direction for fifty miles, without finding one farmer's garden and orchard that we could call respectable. We do not include the gardens of gentlemen who cultivate for pleasure and gratification alone. We mean those who *live* by the cultivation of the soil. On an average not one family in five hundred, even in the oldest settlements in the province, know what comfort and economy there is in having an abundant supply of fine fruits ripening in succession through the year, and hundreds upon hundreds there are, possessing fine lands, that rarely taste fruit at all. But comfort and economy of a sufficient supply of fruit for family use, are not all that is lost by neglecting their culture. A very important item of annual revenue is lost. No production of the farm yields greater profits, or as great, all things considered, as the orchard and fruit garden; this is so in every country even where fruit is most abundant—much more will it be so here for half a century and more to come.

During the months of June and July, when the markets should be supplied with fine *cherries*, *strawberries*, *raspberries*, and other early fruits, we find none but what are gathered from the woods. Good cherries will find instant sale in any market at three to six dollars per bushel. The cherry is easily cultivated—will grow in almost any soil, and comes early into bearing.

We have not seen a single cherry offered for sale in the market of Toronto this season, except the red sour pie cherry, and the fact, that large numbers of poor men and women are engaged in the sale of these *alone* for a livelihood, in penny bunches around the city, shows as forcibly as any thing could, the state of fruit culture to be fully as low as we have stated. Good raspberries and strawberries never reach the market; if a few quarts are to be spared from any garden, they are engaged long before they are ripe. Currants alone we have seen in tolerable quantities; but even

these are ot cultivated to one hundreth part of the extent that their usefulness, of which we shall speak again, would warrant.

For a supply of apples even the people of Canada depend in a great measure on the adjoining portions of the United States —a country as new as this, and enjoying but few superior facilities.

Now we would respectfully put the question to the Canadian farmers—should this be so? Should you not, *at once*, without a moment's unnecessary delay, make proper efforts to secure for yourselves and families the comforts and luxuries that a plentiful supply of fruit will yield them, as well as the important annual revenue you may obtain by supplying *your own* markets? Here you will perceive is a grand *threefold* inducement. Personal comfort, pecuniary gain, and patriotism, if you choose to put that noble sentiment last.

In other countries, where large numbers are but temporary owners of the soil they cultivate—mere tenants--there may be, and undoubtedly are, weighty and sufficient reasons why they do not and should not invest capital in this or any other improvement, that will not yield a *full and immediate return*, but rather a somewhat *distant and permanent one*.—But here, where almost every man is the proprietor in fact of his premises—where he and his posterity may reasonably expect to enjoy the fruit of their labour and investments—an early and ample provision for fruits should be made by every farmer in the land. To every young farmer we would say, let the planting of your fruit trees be among your first labors: if you wait till half your life time is spent, you will go about it with a thousand vain regrets that you delayed so long. When you plant a tree, and do it properly, it requires but little attention compared with other crops. Its yield is regular and permanent. You can enjoy its shade and its fruit while you live, and bequeath it as a legacy to your successors. This should be remembered. P. B.

Water-rotted Hemp.—The *St. Louis Republican* says :—Mr. T. Longworth, a farmer in Scott country, Illinois, who has for two or three years past water-rotted his hemp, and bestowed great care upon it, last year kept an accurate account of the cost of cultivating, and preparing for the market, the product of eight acres, including the rent of the land, cost of seed, labor, and expense of getting it to market, and the result was, a net profit of two hundred and thirteen dollars and thirty-eight cents. In estimating the cost of labor, a man's wages was charged at seventy-five cents per day, and an ox team at one dollar and fifty cents per day, but the most of the labor was done by himself and son, and the only outlay paid in money for extra hands and transportation, was at forty dollars. The product of the last year's crop, from the eight acres, weighed six thousand three hundred pounds, and was sold a few days ago in the market at one hundred and fifteen dollars per ton. The year before, he sold his crop here at one hundred and twenty five dollars per ton.—He sent a sample of his hemp, last year, to the Navy Agent at Boston, who, after testing it, pronounced it in strength and texture equal to the best Russia hemp. We must remark, however, that his is the best article which we have seen in this market; but we are assured by him, that equally as good hemp can, with proper care, be produced in other parts of Illinois and Missouri.—*West. Far. and Gar.*

Mr. Pell, of New York says that charcoal is a remedy for rust on the gooseberry.

Milk set in glass milk-pans is said to produce much more butter, and that of a better quality, than when set in other pans. Those used are made of the common green bottle-glass.

GRATUITOUS ADVERTISEMEMTS.

We have repeatedly been requested to insert the local proceedings of agricultural societies, and have in some instances done so, much against our own inclination and also that of the interests of the *Cultivator*. This journal is sent to 500 post-offices, and is read by nearly 6000 subscribers, and we leave it to any candid man, if it is fair to our many readers to give insertion to purely local matter. It is quite immaterial to the great bulk of our readers whether Tom, Dick, or Harry, gets a prize, or whether a local exhibition is held or not held at a certain place. Such information can be best circulated by the medium of local papers and handbills. Where a number of hundred copies of our journal is taken by an agricultural society, it might be thought advisable to have their proceedings published in the *Cultivator*, in the shape of an advertisement, but in no other view but that of local can such proceedings be made useful; we therefore beg to acquaint our numerous patrons, that in future no information or proceedings of agricultural societies, of a purely local nature, will be published in the *Cultivator*, unless as advertisements.

TO CORRESPONDENTS.

We have, during the past few months, received a number of anonymous communications, some of which were unfit for publication, and others not altogether adapted for an agricultural journal. In future we shall give insertion to no contributions but such as have the author's name appended. It was our intention at first to have adhered strictly to this rule, but we were deterred from carrying out this resolution owing to the great apathy displayed on the part of the farmers of this country in writing for the press. We have more than once seen the error we committed, and once for all would state, that no communications shall appear within the lids of our magazine but such as are accompanied with the writer's signature. There are hundreds of farmers in this country who are abundantly intelligent to write for the press, and from such we would be most happy to be favored with their assistance in enriching our columns with useful matter.

ON THE PROPER TREATMENT AND MANAGEMENT OF MEADOW LANDS

BY JESSE RYDER.

What I mean by meadow land, is that which, from the nature of the soil, is more natural to grass than grain, so much so, as to make it desirable to keep it all the time in grass. It also includes the light moist soil which is good for grain or grass. As permanent meadow land, the same treatment applies to it all. And be it understood, I have reference to upland merely. To such land as, when poor, or the grass becomes thin upon it, is covered with red moss, and frequently mouse-ear, being reduced to the production of bull's-eye, or white daisy, all of which are the effect, and not the cause of the absence of grass.

Those temporary meadows on dry lands, which comes of a rotation of crops, where the grass is renewed after tillage, and remains in but a short time, do not come within the limits of this article. The very dryness of the soil, which compels frequent ploughing, increases the profit of the farmer; his land is enriched by the easy and simple means of seed and plaster, in conjunction with the manure of the farm, and, as a general thing, such is the most profitable of all lands.

But a far different system should be adopted with land which is too heavy and wet for grain, without manure.

From the nature of things, it requires manuring highly to insure a crop of grain, and the fertility of the soil cannot be maintained in tillage husbandry, by the cultivation of clover, as is that of dry land.

Where the soil of a farm is all of that nature, there should be no more ploughed than can be manured sufficiently to give good assurance of every grain crop sought to be obtained therefrom. Consequently, that portion of the farm under tillage should be small in comparison with that of the same number of acres of dry land But with the treatment which such land usually receives, the amount of manure made from the produce of

the farm is too insignificant to maintain, much more to increase, its fertility. The common practice is to plough it up when the grass runs down and take from it several meagre crops of grain, before it is again laid down to grass; then succeed two or three middling crops of grass, before it degenerates to the old standard, again inviting or conpelling the owner to renew his impotent efforts to increase its fertility.

But such management is all wrong. The attempt to manage heavy land, the same as though it was dry, in order to renew the crop of grass upon it, necessarily involves frequent ploughing, with the application of little or no manure to the greater part of it, from the insufficiency of the supply; consequently, the land grows poorer and heavier by the operation. For soils which are naturally too stiff, but have been lightened by vegetable matter, speedidly degenerate under tillage, and becomes less porous as the vegetable matter works out; leaving it compact, and heavy, and unfitting it for the growth of plants; so that it requires a very successful new seeding with grass, to again lighten it up and restore it to its former good estate. Such a system, then, should be adopted with such land, as will not diminish the amount of vegetable matter upon the surface of the soil. If it is desirable to plough the land, let it be up but one season as a summer fallow, and sown early with winter grain, and seeded with timothy in the fall, and clover in the spring; that enables the young grass to feed upon the old, so that by the time the old roots are decomposed and appropriated to the use of the new crop, a more luxuriant growth is obtained, and the amount of vegetable matter in the soil increased, or, in other words, its fertility, or power of production is increased, which must be attributed to the large share of nourishment which plants derive from the atmosphere (being, according to Liebeg, nine-tenths of the whole,) that makes the old roots a basis for nine times their weight of vegetable matter to grow upon, or in the soil. This new estate can be maintained without manuring, as I shall show hereafter. Such, in my opinion, is the extent to which land not fitted for a succession of grain crops may be ploughed.

But a far better way than ploughing exists, in my opinion, to renew the grass upon old meadow lands. There are two ways in which it may be done without ploughing, one through the agency of red clover, the other by top-dressing with manure, of which the one most important to be understood, because the easiest, and cheapest, is that which is effected by clover.

Strange as it may appear to some, clover is to stiff clayey soils when kept constantly in grass, and rightly managed, the same source of fertility that it is to dry land in a judicious rotation of crops.

Although it generally succeeds but poorly on such land in a new seeding, after tillage, owing to the roots being drawn out by frost, it by no means follows that such soils are incapible of producing it—On an old meadow matted with other grass, there is but little freezing and thawing of the surface to draw out the roots of clover, and the multiplicity of other grass roots tend to bind them to the soil.

But it requires peculiar management of meadow land to preserve in it a succession of clover so as to maintain the fertility of the soil, and renew other grass upon it, so as to increase its burthen, like to a new seeding.

By obsevation, I have been enabled to discover the circumstances which govern the production of clover on old meadows, which might be called an inductive theory of its operation. To secure its benefits, one general principle is to be observed, which is, to always let the rowen clover go to seed, before cattle are turned on to pasture the after crop.

The operation is simply this: suppose an old meadow that is running down to blue grass. Timothy and other grasses are dwindling to a light crop, and there are plants of clover scattered over the land, which are permitted to spring up after mowing, and go to seed. The seed sheds abroad over the surface in the fall and winter; in the spring it comes up very early, and is protected from frosts by the old stubble and moss which is upon the land. The crop of other grass being light gives the young clover a chance to grow, which consequently brings the land round to clover, the old grass preserves the roots during the winter, the next year it is up betimes, and takes possession of the ground by getting the start of other grass, provided the seeding was thick enough. If not, it seeds thicker the next fall, clover being on the increase, and thus it gets possession of the ground partially smothering other grass, and killing the moss. The land becomes completely renovated, but what becomes of the clover? The year it gets possession, there is naturally a great deal of seed grown in the fall, which scatters over the ground in great profusion; it comes up the next spring, but circumstances are now very different, there being a full growth of other grass, the young clover is nearly all smothered in turn. The old clover dies and the soil is further ameliorated by its roots, and timothy, red-top, and white clover take possession, in a rejuvenescent state, young clover is more or less killed until the timothy and red-top dwindle again; and thus by proper management is clover made the agent of the farmer in fetilizing the soil, and increasing his crops, without the aid of manuring, or ploughing, vegetable matter accumulates on the surface, the soil becomes more open and friable, and pervious to air, and heat, and this is all done for a soil that is naturally wet and heavy without manure. But these changes of grass are not periodical.

The shortest that can be made are once in three years a crop of clover, but they are genrally irregular, owing to the vicissisitudes of seasons, affecting the young clover for good or ill.

There are many who suppose it necessary to leave the second growth of grass undisturbed,

to rot on the ground, in order to preserve the fertility and maintain the productiveness of old meadows in grass, where top dressing with manure is not resorted to. But such management is not only unnecessary, but oftentimes extremely hurtful, and the injury is proportioned to the amount left untrodden and unfed. If the amount left standing, or laying loose upon the surface be considered, it, in the first place, makes a harbor for mice, which will, under the cover of the old grass, intersect the surface of the land with paths innumerable, from which they cut all the grass that comes in their way, more especially the crowns of the clover plant of which they seem especially fond.

In the second place, the loose covering of old grass seems to operate to shade and smother the young grass in the spring, that the young mice may have left, more especially the young timothy, and the result is that a meagre crop of what is here called spear grass, or June grass, shoots up through the old grass as through a brush heap, in lieu of the good burthen of the year before.

1st. Always let the rowen clover go to seed.

2nd. Always mow early, so that, if the season be dry, the clover may have a chance to get to seed. The hay will also weigh more and be of better quality.

3rd. If the season be favorable and the second growth large, turn in upon it as soon as the clover seed begins to shed, in order that it may be sufficiently fed off and trampled down before winter, otherwise mow it the second time after sufficient seed has been shed upon the ground.

4th. If the after growth be light, so as if left upon the land, it will not endanger the next crop by shade and mice, do not pasture it at all.

Such treatment of meadow land is generous and good, and that generosity will be returned. It does not admit of turning cattle upon meadows as soon as they are mowed, to bite the grass down to the roots, killing some kinds and injuring others. Timothy grass, for instance, generally requires the balance of the season after mowing, in which to recruit, so as to put forth its best efforts the spring following.

The more kinds of grass there are growing on the same ground, the greater the weight produced, and the thicker the growth. Each kind is supposed to require some specific food, not appropriated by the others, therefore they can feed together without robbing each other, and therefore it is that old meadows can be made to produce much more weight of grass than those newly seeded.

White clover is an important grass on flourishing old meadows. It grows very thick at the bottom of the other grass, although in a good season it will grow to the height of from twelve to sixteen inches I have seen it in low spots completely covered for weeks together. Therefore land which produces abundant crops of grass would require extensive draining for grain, and seeing that ploughing such land destroys its life it is far better to keep it in grass continually.

I now come to treat of top-dressing meadow land with manure to promote the growth of grass.

Where hay is much of an object of culture, and manure can be had, it possesses the following advantages over the clover culture, in renewing the crop:

1st The crop can be kept more uniform in amount by manuring while it is still fair, and before it runs out to blue grass, which generally precedes the change to clover—for, in the clover culture one or two middling crops must be expected in a round of from three to six.

2nd. If the hay is destined for market, clover is not as saleable as other grass, and it can be kept in a minority by pasturing the meadows close after mowing, and top-dressing with manure.

3rd. Heavier crops can be obtained by top-dressing than by any other system of management, the clover system seldom giving over two tons of hay to the acre, at one cutting—new seeding with timothy three tons—when top-dressing gives three tons and upwards. Three and a half tons to the acre, obtained by top-dressing, will stand up as well as two tons of timothy newly seeded, but being so much thicker at the bottom, and growing so many more kinds of grass. I have obtained three and a half tons to the acre in a good season, by spreading ten two-horse waggon loads of fresh livery stable manure to the acre, in February, on a stubble principally timothy the year before, when a portion of the meadow not dressed gave but two tons. I have spread fifteen loads of manure to the acre on poor, wet, heavy, meadow land, in the fall, where about half a ton of white daisy grew to the acre. The next year the crop was about one and a half tons of daisy and other grass, particularly red clover; the year following timothy began to get possession—crop about the same in weight. In the fall I put on about ten loads more to the acre, of swamp manure, that had laid one year in the hog pen; the result was full three and a half tons of hay to the acre of timothy, and some white daisy of equal height, and very tall. The next year there was a very heavy growth of timothy without daisy, which was now mastered and killed. Two things I have ascertained by top-dressing, which may be useful for farmers to know. One is, that it is the only way to exterminate from meadows daisies and weeds, and be paid for doing it, instead of paying for having it done.

Bull's-eye or white daisy, does not grow on my meadows, after the yield comes to exceed a ton and a half to the acre, except the year following the application of the manure—the growth being promoted for one year as much as that of other grass.

Another thing useful to know, is, that it pays better to manure good land than poor, when in grass; the limit being where the effect is neutralised by the grass lodging early, and rotting at the bottom—at least such is my experience.

As concerning the time in the year when

manure should or ought to be applied to the grass grounds, it is, or must be varied by circumstances. But this much I will say, that it may be done as soon after mowing as is convenient, and not later than the first of March in this latitude.

If the land be naturally wet, so that in the spring months it is saturated with water, the manure should be applied as soon as possible after it is mowed. By so doing, the rains which fall in the dry part of the season soaks into the ground, and carries with it the strength of the manure, which is thus secured for the benefit of the land. If on such land it be put on in the winter, the spring rains float off a great part of its substance, and the effect is comparatively trifling.

I have seen as good effects from manuring in the summer, spots so wet that nothing but wild grass grew, as I have from manuring land that is esteemed dry enough; it causes red-top to grow in such places most luxuriantly.

Another case where the manure should be applied early, is where the land is so poor that the grass is weak and thin. In such cases it should be applied immediately after mowing, so that the grass may have time to thicken up in the fall, for the year following. The greatest effect from the manure will then be observed in the first crop of grass. If it be put on late, the greatest effect will not be observed until the second crop is obtained. Early spreading is generally the best on any meadow land. I prefer unfermented stable manure, with the litter undecomposed, to the same manure in a rotten state; and hot, dry weather, in summer, forms no objections in me to applying it immediately. In the dryest weather, the grass will soon spring up through the manure, when it will not grow at all on the parts adjacent.

The manure should be spread very evenly over the ground; if it be long manure, it should be shaken fine off the fork. There are but few hired men who are willing to perform the work aright.

I have used earth from the road side, swamp-manure, swamp-manure with leached ashes spread on it after it was applied to the land, and leached ashes alone for top dressing, of which the swamp manure and ashes together produced the greatest effect, being fully equal to stable manure, and will no doubt be much more lasting. The rich earth from the road side, on the second year, more than four times paid for its application. Ashes alone shows a decided good effect. The swamp manure alone has been on for two years without having effected much change—I suppose, because of its insoluble state, and the grass roots not having got hold of it—but I do not despair of its ultimate good effects. I think that, as manure, it should always be applied to the surface, that it may be dissolved by the gases that float in the atmosphere, aided by the roots of the grass when they have taken possession of it. I know that it is extremely favorable to the growth of timothy when it is once appropriated to its use, and that the crop is maintained for a long time. Rich earth, from the sides of the fences, where it has been washed or ploughed in, would be excellent for top dressing; never mind if the bushes are killed by it. In top dressing with stable manure, I make a point to sow plaster upon it as soon as I can after it is applied, and the more manure I put the more plaster I sow, more being required to arrest ammonia in its escape.

As I do not think that moving without manuring necessarily impoverishes the land, and as I think that my meadows are rich enough, I shall hereafter depend on clover, and top dressing with any substance that will lighten the surface soil, to kill the moss and renew the grass.

As an instance of the effect of clover, I will mention that I know a meadow which twenty years ago was a barren waste—the soil heavy, and the water, in the spring months, escaped from it by flowing over its surface—no grass grew upon it. It was summer-fallowed and sowed with rye, timothy and clover seed; a little manure was put on a part of it. It has never been manured since, except by plaster; the hay from it has always been sold, and averages about two tons to the acre; it is in clover about one quarter of the time, and is managed as I have directed in this article; the soil is now very light, and the water soaks away freely.

When will farmers stop murdering their meadows, and keep more stock? which they may do under a better system. Better soil the cattle with green corn, sown for that purpose, or clover, than to pasture so close.—*Am. Quarterly Journal.*

To dye Grey or Red Hair Black.—Take slaked lime, 1 pound; litharge, 4 ounces; chalk, 4 ounces; ceruse, (white lead,) 2 ounces. Mix into a thick paste with warm water immediately on going to bed. Comb the hair well on to the top of the head, then apply the paste, while warm, completely embedding the hair; then, with a cotton cloth sufficiently large to cover the head, dipped into warm water and wrung out, the head is to be enveloped, while the cloth is warm; then tie over all a large silk handkerchief, or a piece of oiled silk. The object of thus enveloping the head is to keep the paste warm, and at the same time from drying. In two hours the hair will turn brown, and by morning it will be a good black. The powder can easily be removed by a brush. As soon as the hair is cleansed, apply some olive oil, to give the hair a fine appearance. This is the best receipt known; it will not stain the skin, and the only disagreeable result that can arise, is to those who have a very tender skin, which will become a little inflamed. If it is desirable to have the hair of a brown color, the paste may be removed in two hours, in the manner above mentioned, or by moistening the paste and using a fine tooth comb.

The *Coon* is said to be superior to either cats or terriers, as rat catchers.

SAVING MANURES.

The effluvium or gas, arising from decomposing animal or vegetable substances, though exceedingly disagreeable to our olfactory senses, is the congenial food of growing plants.

Arthur Young said, not many years ago, "he who is within the scent of a dunghill, smells that of which his crops would have eaten if he would have permitted it." Sir Humphrey Davy demonstrated this. He placed a quantity of fermenting manure in a retort, and ascertained that it gave off a liquid containing a large proportion of salts of ammonia. Seeing this result, he introduced the beak of another retort filled with similar dung, under the roots of some grass in the garden, and, "in less than a fortnight, a very distinct effect was produced on the grass, upon the spot exposed to the influence of the latter disengaged in fermentation: it grew with much more luxuriance than the grass in any other part of the garden." It is hence obvious that by permitting the escape of the gas evolved during fermentation, the valuable portions of the manure are dissipated in the atmosphere.

"The loss of *gaseous manure*," says Mr. Hanum in his excellent essay on the Economy of Waste Manures, "arises from the escape of the carbonic acid and the ammonia, of the vegetable and animal matters in the manure heap, during the process of fermentation and putrefaction; both of which gases are essential in the nutrition of vegetables. * * * When this evolution of ammonia and carbonic acid takes place under the root of a plant, it is what we want; but when it takes place, as is generally the case, months before the compost is used, the manure is robbed of its most valuable constituents"

"It is worthy of remark," continues Mr. Hanum, "that the richer manure is in nitrogen, the more serious the loss is; as the more nitrogen a substance contains the more prone it is to ferment and throw off ammonia." The observation of every farmer will corroborate this; for all have noticed that the richer the manure the stronger the odour rises from it.

The most effectual means, probably, of preventing this waste of the gaseous portion of manures, would be to apply them to the soil before fermentation takes place. In this case the gaseous would be taken up by the growing crop. Stable or barn manure, is sometimes deposited in cellars, where, from the low temperature, and seclusion from the air, it undergoes little or no change. Thus kept, it retains its original strength, and is much more powerful and enduring in its effects, than that which has undergone decomposition in the open air. But there is often so large a portion of undecayed vegetable fibre, (litter, &c.,) in manures, they cannot conveniently be applied in a green state Besides, for some crops, the action of green manures is not quick enough; and for other crops, as wheat and other small grains, they tend to promote too great a growth of straw, and increase the liability to rust.

It, becomes, then, necessary under certain circumstances that manures should pass through a a state of fermentation before they are applied to the soil, and the question is, how can this object be accomplished without loss?

Reason teaches, and experience proves, that substances must be mixed with manure, which will absorb the gaseous portions as they are generated. *Earth* is a good absorbent. If a dead animal be enveloped in the earth before putrefaction commences, and allowed to remain so until the carcass is decomposed, the earth will have absorbed the nauseous fumes occasioned by the decomposing animal matter, and will be found rich in those principles which constitute the food and growth of vegetables. This example teaches that mixing soil with manure, or covering the manure heap with a layer of soil while undergoing fermentation, will preserve much of its value which would be otherwise lost. There are other substances which are preferable to common soil—such as charcoal, (which will absorb ninety times its own bulk of ammoniacal gas, and thirty-five times its volume of carbonic acid gas,) and peat or swamp muck. The latter in many parts of the country, can be had in the greatest abundance, and it is, beyond doubt, one of the best means of augmenting the farmer's stock of valuable manures. In its composition and absorbing power, it much resembles charcoal—being principally the carbonaceous matter of decomposed vegetables. Every farmer who can conveniently obtain peat or muck, would do well to place a layer of it under all his manure heaps—to mix it with barn or stable manure in forming composts covering the piles with a coating of it to prevent the waste of the gases, and throwing it liberally into the stalls of horses and cattle, to absorb the urine. Results will show that the labor thus bestowed in the use of swamp muck, will be rewarded a hundred fold.

Other substances are used as *fixers* of ammonia, &c., which act somewhat differently from those above mentioned—such as gypsum, and various kinds of acids. The theory of their action is, the ammonia, being an alkaline gas, will by combination with any acid, form a neutral salt. Gypsum is a combination of lime and sulphuric acid. When this is applied to fermenting manure, the sulphuric acid of the gypsum leaves the lime and unites with the ammonia, the acid having a stronger affinity for the ammonia, than for the lime with which it was combined. Mr. Hannam in the essay before referred to recommends that the manure heap be covered with peat or some absorbent, and "this coating kept well saturated with sulphuric acid and water, say a weak mixture of ten gallons of water to one of acid." Mr. Hannam adds, that any other acid which may be obtained at a cheaper rate, will act as well, as the ammonia will combine with any acid. Either the application of gypsum, or the acid solutions mentioned, will soon affect such a *fixture* or combination, that little or no smell can be perceived.

In regard to the use of *salt*, which has been by some recommended as a fixer of ammonia, Mr. Hannam says—"My own observation teaches me to prefer acid to any salt, as it is equally cheap, more easily used, and is, therefore, likely to be more efficacious."—*Alb. Cult.*

MAKING COMPOST.

The importance of manure to the farmer is so apparent, that the manner of increasing it, in quantity and quality, without reducing the value of the same, becomes a matter of interest to all who are engaged in agriculture; and it is a well established fact, that manure can be more profitably used as a compost, than in any other way.

My attention was particularly drawn to the subject of making compost manure, about five years since, for at that time I could not purchase stable manure, without paying more for it, than the real benefit derived from its use. About that time, I built a barn 80 feet long, by 40 feet wide, with a cellar under the whole of it, and I then began making the compost in a way that proved more profitable than I had previously found. I began by fixing troughs in the cellar, under the holes where I put down the manure, with hogsheads placed under the same to receive the urine from the cattle, and when full, I placed a bed of loam and peat mud and emptied the urine on to it, and set them again.

I have always kept hogs in my barn cellar, and, for the last three years, have kept two yoke of of oxen, seven cows, one bull, and two horses, through the year. I tie up the cattle in the barn every night to save the manure; and in addition to the above, I have usually wintered from twenty to twenty-five head of young and fat cattle, and oxen.

For the last two years, I have adopted a new method, which I think is better than any other that I have tried. I have always kept at hand plenty of good loam and peat mud, both in my barn-cellar and barn-yard. I have windows opening from the cellar into the yard, through which I put down most of the loam and mud, and place it under the holes where the manure is put down, and after it has remained there about one week, I spread it over the hog styes in the cellar, which are 80 feet long by twenty-four feet wide; but before spreading the loam or mud, I sow corn on it, which will cause the hogs to root and turn the whole over.

So valuable do I consider urine for compost manure, that I have barrels placed in my sheds to receive the urine from the house, which are emptied on to the manure heaps when full; and also, I have plank troughs made on runners, placed under two privies, and when they are partly full, I hitch on a yoke of oxen and draw them to the barn cellar, and bury the contents in the loam and mud.

At intervals of a few weeks, I mix in lime, salt and plaster, at the rate of about one bushel each of lime and salt and a bushel of plaster to a cord of compost. Lime aids the fermentation, and the salt and plaster, I believe, have beneficial effects on most of my lands.

I always fork over my manure very light before using it, and cast it out of the cellar and yard twice a year.

There can be no better economy in the making of compost manure, than by adopting a course of using the urine of cattle to the best advantage. Filling up the hog pens with loam and mud at about the same time, and allowing it to remain until it is wanted for use, does not, in my opinion, answer so good a purpose as putting the loam, &c. in as fast as it becomes saturated with urine. In the one way, your compost is well mixed with the droppings and urine of the cattle, and in the other the droppings are all on top before it is forked over, and but partially saturated with the urine.

The urine of cattle, I think, possesses as strong and enriching qualities, when properly applied to loam or mud, as their droppings.

Peat mud can be easily rotted and fit for making compost, by digging the same in the summer or fall of the year, throwing it into moderate sized heaps and allowing it to freeze and thaw during the winter.—*Capt. Abel Moore's Statement to the Committee of the Middlesex (Mass.) Society.*

Hints to Young Men.—Be Economical.—No matter if your parents are worth millions, it is not the less proper that you should understand the value of money, and the honest, honorable means of acquiring it. What multitudes of young men, particularly in our cities, make fatal shipwreck of reputation and health, and eventually of property, by a neglect of this maxim. They are aware that their fathers obtained their wealth by habits of industry, but they are ashamed of the very name. They forget that wealth in this country passes rapidly from one to another, and that he who is rich to-day may be poor to-morrow; or that he who relies on wealth amassed by his father, may end his days in a poor house. It is for the young man to say whether by industry and economy he will secure competence and respectability, or by extravagance and idleness become a worthless beggar and a sponging outcast.

Be Just.—In the course of life a man frequently finds his interest or his opinion crossed by those from whom he had a right to expect better things, and the young are apt to feel such matters very sensibly. But be not rash in your condemnation. Look at their conduct carefully and be just to the motives that prompt it. You may find that were you placed in their position, the course you now condemn would be the one proper for you, and the one you would be under obligation to pursue.—A little cool consideration would avoid much censoriousness.

Grafting the Chesnut on the Oak.—In the department of the Correze, an oak, engrafted eight years ago with the chesnut, has produced at length, chesnuts of good quality. The success of the experiment is deemed important for extensive districts where the oak flourishes, and the chesnut is barren, and where the fruit is needed for food.

Art of Mowing easily.—The scythe should hang natural and easy, and it must be kept in first rate order. As you approach the standing grass, let the point of the scythe move to the very point of commencement, and let it stop the instant it has done its work. Thus there is nothing lost by a backward or forward swing. If the grass stands up so as to admit of moving on, measure the utmost capacity forward of your scythe, take a quick easy gait, moving your right foot well up towards the standing grass, and your body with it, though leaning back, by bending the knees a little forward, so as to bring your whole weight to bear upon the scythe, without twisting the body from right to left, as many do; thus giving ease to each clip, and ability to repeat in an advanced position, without fatigue.

If you swing six inches too far back, and six inches too far in pointing out, it makes twenty-four inches *loss!* Then apply the same strength to a proper forward motion, and you will find it difficult for ordinary mowers to keep up.—*N. Y. Far. and Mech.*

SUBSOIL PLOUGHING.

The first object sought to be obtained by the operation was deepening the soil: *the second*, facilitating the descent of surface-water where the subsoil was retentive; and *the third* to secure the beneficial influence of the atmosphere and manure to a greater depth. The first object is described as mechanical, deepening the soil so as to remove obstructions for the more easy and perfect performance of all the operations necessary to correct cultivation; and the essay points out the advantages of this mode of deepening the soil, over the frequent practice of carrying on earth. "To cover an imperial acre one inch deep with soil, would require a fraction more than 134 cubic yards. It is well known that a cubic yard is a good cart load, and if brought from any distance at all, with filling, spreading, &c., would not cost less than 1s. per yard; this would amount to £6 14s. 5½d., an expense sufficient to subsoil plough the land, and leave more than £5 to be applied in manure; this, at the present price of guano and bone, would purchase 7 cwt. of the former, or 40 bushels of the latter, being double the quantities of these manures usually applied to an acre, and undoubtedly sufficient to manure several inches of subsoil." The second object may also be said to be mechanical; when the subsoil is retentive, or when "a pan or cruit" exists, this does much good, by facilitating the descent of water, and by equalizing the supply of moisture during drought, not only by capillary attraction, but by allowing the roots of plants to penetrate freely below the parched surface into a cooler and damper medium. But besides its mechanical operation, it is intimately connected with, and lays the foundation of the third, and most important change, that of allowing the influence of the sun and air to penetrate, and, by the filtration of rain, to make that one of the most beneficial, which had previously been one of the most detrimental of atmospheric agencies; thus producing such remarkable changes as are often seen by the draining and deep cultivating of land, without any visible foreign chemical agent or re-agent being introduced. Then follows a detail of a number of experiments, tending to show the advantages of the operation of various soils—on thin soils with open shelfy killas subsoil—on blue and other clay subsoils—on granite soils when the bottom is retentive—and in cases in which the actual subsoil plough had been used, and the soil and subsoil had been deep ploughed up by the common plough and mixed together. In conclusion, it is stated "that if the experiments are not held to prove the advantage of subsoil ploughing, they prove that it is not injurious. In no case where the writer has seen either deep working with the common plough, or with the subsoil plough, has it had the least injurious effect; but, on the contrary, the crops have turned out beyond his expectation. And if, as will be conceded, a deep soil is better than one of a contrary character, and if it be of importance permanently to improve land, this appears to be one of the most feasible and necessary preliminary steps. Not that all land requires such a process; nor should a practice be condemned from having been tried without producing any good effect where it was absolutely not needed. In regard to the expense of the operation, it may be slightly different in different soils and situations; but where four ordinary horses draw the subsoil plough, with two going before with the common plough, three-fourths of an acre may be a fair day's work. At this rate the cost would be per acre—

One pair of horses and a man 1½ day, at 8s. - - - -	£0	10	8
Two ditto and two ditto, 1½ day, at 16s. - - - -	1	1	4
Tear and wear, say - - -	0	2	8
	£1	14	8
The land having to be ploughed, at any rate the single plough ought not to be charged against the subsoiling, therefore deduct -	0	10	8
Leaving - -	£1	4	0

as the additional expense for subsoiling an acre"—*Report of Mr. Peter's Prize Essay, read before the Cornwall Agricultural Association, December*, 1843.—*Ag. Gaz.*

ON THE FORMATION AND MANAGEMENT OF FENCES.

Fences have been mostly formed of Whitethorns; and where they have been skillfully planted, and duly attended to, they have formed fences that are impregnable to cattle—but many of them having been improperly planted, and neglected after planting, have failed to form sufficient fences. Thorns are not aquatic plants, but they require more moisture to bring them to luxuriant growth than any other tree or shrub that is not ranked among the aquatics, and if that supply is withheld, they do not thrive well. When enclosing of land began to be attended to in Scotland, soon after the middle of last century, the dykes were formed with a trench, 6 feet wide and 4 feet deep, and the earth dug up from that trench was heaped over the thorns as high and narrow as it could be made to stand, and it was generally built nearly perpendicular on the back, by sods or turf, to near the height of 3 feet, so that the rain that fell on the coarse Grasses and weeds very soon covered the mound or dyke; and as very little of the rain-water sank into the mound, the thorns, after exhausting the moisture in the dyke, when formed, became stunted and unhealthy for want of moisture, and if not relieved, ultimately died. The proper way of forming a dyke for a thorn hedge, is to make the trench, or sheugh, only 3 feet wide, and 18 inches deep, laying the soil, or first spading, mostly under the thorns, and the second spading of subsoil, above the thorns, to the depth of 9 or 10 inches: and as that is composed of barren earth, weeds or Grass will not spring up over the thorns so readily as in richer soil. The design of a larger trench and high dyke was to serve as a fence till the thorns grew up—but by depriving them of moisture, the thorns were starved and became stunted. It is true, that a trench of 3 feet by 18 inches deep, and the dyke formed of what was dug from the trench, was not sufficient to turn cattle, but had to get either a foot or 16 inches of land stones raised over the dyke, or dead thorns struck into the top of the dyke, or stobs and railing put up to render the fences impregnable to cattle. Any of these on the top of the dykes would allow the rain-water to sink to the thorns, and would not exclude the heat of the sun. Any dyke formed in that manner, and strengthened by any of the toppings here mentioned, will, in five or six years, if kept clear of weeds, become an impregnable fence, especially in clay land that retains moisture. To end my remarks on the formation of dykes, I have only to add, that when fences are right across a reclining plane, the trench should always be formed on the lower side of the dyke, so that when rain falls it may run into the dyke and feed the thorns; and in all cases where fences are formed on the side of a road, there should be no trench or ditch between the road and dyke where they are level, or on the lower side where there is a declivity. Thorns planted on the lower side of the road, having no ditch between the road and the thorns, always thrive well, owing to the roots of the thorns being fed by the moisture from the road, enriched with dung dropped by the animals travelling on it. But, besides the right formation of fences at first, they require to be frequently dressed, the ground over the roots of the thorns dug up, so as to kill weeds, and allow moisture to reach the roots of the plants. The proper mode of dressing thorn fences is a matter of some importance, that was long misunderstood or neglected. When the thorns grew up they were neglected and allowed to take their own shapes, or if the hedge bill was at all used, it was in cutting off the lateral twigs next the roots of the thorns on the front of the fence, to make the hedge as straight in the fore-side as possible; but the thorns were allowed to retain their highest and bushy tops. This was the very worst mode of dressing a hedge. The chief growth of thorns is, like other shrubs, at their tops, and the growth of the lateral branches is puny and feeble, compared with the growth above. And when these smaller branches were lopped off, and the growth on the tops prevented the sun or rain from falling on the remains of the lower twigs, the thorns set up strong stems with bushy tops, but became so bare and open at the root as not to form a proper fence, and in time allowed cattle to go through the fence. But of late, when hedges are dressed at all, the lateral branches and twigs are spared even to the surface of the ground, while the strong and bushy tops are cut down to an equal height, and thinned, so that the hedge, in a few years, comes to be formed into the shape of a wedge, or horse's mane, when cut short and standing upright—thin and narrow above, and broad on both sides below. When that is done, the branches and twigs, on both sides, get their due proportion of the sun and rain, and grow close and so thick as to form a fence which cattle cannot storm. When I surveyed the county of Ayr, for the Board of Agriculture, in 1810, I found only two or three hedges cut in that manner; but now there are many hundreds of miles of them cut in that form. Another mistaken notion long prevailed in Ayrshire, viz., that the wool of sheep made thorns canker and die. But as every farmer had, for centuries past, a good many sheep on his farm, yet the thorn bushes referred to above grew well, notwithstanding the sheep rubbing on them; and as there are thousands of such thorn-trees growing on all the dry sheep walks in Scotland, where sheep nestle under and touch them, the wool of sheep does no harm to thorns.—*W. Aiton, in the Ayrshire and Renfrewshire Agriculturist.*

Murrain or Red Water in Cattle.—Mr. Joseph Dibley of Oak Creek, Wisconsin, sends us the following recipe for this disease: Take two pounds of Epsom salts—pour on to them boiling water enough to dissolve them and stir in one-fourth pound of tallow. Give one-third of it warm for a dose, and at the end of seven hours another third if needed, and after a similar interval the remainder.—*Prairie Farmer.*

NECESSITY OF SUPPLYING THE SOIL WITH THE CONSTITUENTS OF THE CROPS GROWN ON IT.

The new light which the improved state of science is throwing on agriculture, must be hailed be all *thinking* farmers with joy. At present this light is restricted in its radiance, but few, comparatively, out of the ranks of the learned, feeling its beneficial influence. But the time seems to be approaching—let us bid it speed—when in the culture of the earth, *science* will guide practice, and good farming, the most profitable farming, become an art which will require the skilful exercise of intelligent MIND, more than the exercise of physical power, to pursue it with the greatest success.

Chemistry, the patron-genius of agriculture, is now lending its aid as it never before lent it, to dispel the darkness which has too long enveloped the farmer in his pursuit, and teaching him to see, and enabling him to comprehend, the true processes by which his crops and animals are formed, and the necessary conditions required to make the one heavy and the other fat, at the least expense and with the most profit. The desirable light is being constantly diffused by scientific men, particularly in England and Scotland, in lectures and communications through the press, and thousands seek it as eagerly as they do their own prosperity, and, indeed, their prosperity depends in an important degree upon it.

To no one, we think, are the farmers on either side of the Atlantic, more deeply indebted for efforts to benefit them by imparting valuable scientific knowledge, than to Professor Johnston, of Scotland. The following abridged report of one of his late lectures before the *Dumfries Farmers' Club*, on the necessity of returning to the soil the constituents of the crops taken off, I think will interest many of our readers:

"The different substances of which plants are composed, must exist in the soil on which they grow: according to the nature of the plant to be reared, so ought the land to be manured. Thus, while wheat grain contained only two per cent. of ashes, hay contained ten per cent. Hence, the wheat required a much larger amount of combustible aliment than hay It was true that the whole of the combustible matter was not obtained directly from the soil, as a large portion was derived from the air; but from five to ten per cent. of the straw of wheat was obtained from the soil: hence the provision made in cases, that no straw should be carried off the land. Different kinds of hay carry off different quantities of inorganic matter from the soil, and consequently have different effects upon the land.

Every plant grown, requires, in accordance with the nature and composition of the soil, the proportion of the ingredients in its ashes. If no alteration of crop is made, nature will become exhausted in some of her resources, and the plant for want of requisite nourishment from the soil, must die. We have facts to prove that nature will not forever grow the same plant on the same soil. The Black Forest consisted first of oak, then of pine, and now it is again covered with broad-leaved trees; and as with trees, so with crops; and as on a large, so on a small scale.

Different modes of husbandry have been adopted. Instead of oats being grown fifteen or twenty years on the same soil, the rotation of three white crops and six years grass was adobted; this also, has become antiquated, and now the preferable alternation of white and green crop is adopted. Altering crops, and adding such manures as has been carried off by preceding crops, is the only profitable mode of cultivation, while nature will also assist by the going on of certain circumstances, such as the decomposition of minerals, &c.

A soil containing just sufficient lime for a luxuriant crop of rye-grass, would be far deficient for either clover or lucerne. The soil must contain in abundance what your crop specially requires, and consequently the necessity of selecting the manure to suit the crop wanted.

The ground becomes exhausted in many ways. By cropping too long with either one kind or different kinds of grain and straw, it becomes exhausted of some of its soluble matter by the action of the rains, just in proportion to the wetness of the soil. By the application of proper manures, the waste may be replaced. Feeding on the ground will replace a portion of the waste of solid matter, by the dung voided by the animals; but a great portion of the *soluble* is lost, both by being, to a small extent, irrecoverable, and because of the direct waste by carelessness or ignorance. Those soluble or saline substances, are principally contained in the urine of cattle, and just in proportion as it is lost, so is the direct waste. Guano is not a more valuable manure than the urine of cattle. By building suitable tanks, the whole of the barn-yard saline might be preserved, and 900 lbs. of good solid matter, equal to the best Peruvian Guano, would be the annual produce of one cow. We have frequently been astonished at the results of certain saline substances when scattered over unhealthy plants, and by the first shower washed into the soil and immediately consumed by the plant as its proper and necessary food; and just in proportion to the ease with which it gets the substances upon which it is supported, and of which it is composed, will it vegetate and flourish.

To resume: Suppose any of the substances of which a plant is composed, to be already in the ground in sufficient proportion, then any addition cannot do good. Suppose soda to be in sufficient quantity for hay, any addition would be unprofitable for a rye-grass crop, while it would be of immense benefit to clover or lucerne. And again, some soils contain it in sufficient quantity for every variety of crop, consequently any addition would be unprofitable. Hence the reason of so many conflicting opinions respecting the utility of various manures. One tries gypsum, in whose soil it is deficient, and finds it an invaluable manure; another applies it to his soil, which is al-

ready well supplied with it, and pronounces it worthless.

Milk contains so much bony earth, that in 75 years, a cow pastured on an acre of land, will carry off a ton of bones. Hence, (the Professor said,) some lands used for dairy purposes in Cheshire, had, in the course of years, deteriorated to such a degree that they were not worth more than from 5s. to 10s. per acre, just because the cows pastured on them had carried away all the bone out of the soil. Bone dust was at length applied as a top-dressing, and the results were so astonishing, that the land increased 700 per cent. in value, and the rector's tithes were increased fivefold. Any or all other manures, had the soil wanted bone, would have proved ineffectual. The bones added just what had been gradually taken off in the lapse of years, in consequence of the peculiar husbandry of the district."—*New England Farmer.*

KINDNESS TO ANIMALS.

The following which we copy from the *Mass Ploughman*, we commend to the special reading of every one who has charge of beasts of burthen. The example of the owner of the runaway oxen alluded to, cannot be too generally followed. If kindness, instead of the brutal treatment usually meted out to the dumb beasts by their drivers, were resorted to, we have no doubt that many of the faults and tricks to which they are subjected might be overcome.

Mr. Editor—In passing through the town of S——, a few days since, I stopped at the residence of a distinguished farmer of that town; it so happened during my short stay, his steers which he was working at the time, by some means, escaped him and ran away. After much running and trouble, they were overtaken and brought back, which done, the good man very deliberately and good naturedly stepped into his corn barn and brought out several clever ears of corn and gave them to eat; at the same time patting them on the sides, saying, "There *Buck* and *Bright*, take *that* and *that*, and know better than to run away from me again." The steers seemed to forget their skittishness at once, and became tame and familiar. They indicated as much as to say, "Master, we were afraid, wherefore, we ran away; but now, we believe thee to be our friend, and shall no more fly from thee."

There, thought I, is a lesson of moderation and kindheartedness worth the regard of all those who have the care and management of dumb beasts. And it is here noted for the special consideration and behoof of all such as are in the constant habit of maltreating their domestic animals. What a contrast this to the manner of some, who, instead of forbearance and kind dealing, upon every occasion of waywardness in their horse or ox, fly at him, cudgel in hand, and deal "death and damnation on his defenceless head like a very Turk!" How many noble animals have had their courage broken down and rendered spiritless by such brutal treatment—it is worse than *brutal*, for no brute animal will treat his fellow so unnaturally! How many colts and steers have been thus spoiled in training to service! "The merciful man is merciful to his beast!"

Nor are others less culpable who leave their cattle exposed to the inclemency of the winter weather, without shelter, and a sufficient and proper supply of food. Man, take care of thy beast and be kind to him, else his voice may be heard in heaven testifying against thee!

Respectfully, B. F. Wilbur.

A New Carriage Wheel.—The New York *Farmer and Mechanic* notices the invention of a new wheel for waggons, of the following description:—

"In this new wheel, immense strength is obtained by the manner of setting the spokes in a metal hub, constituting the spokes at the same time levers, which may be operated upon at pleasure (through the medium of the hub) on the principle of the tozzle-joint power, in such a manner as to send the spokes out firm to the rim, thereby avoiding the greatest difficulty in the common wheel, and superseding the necessity of ever resetting the tire unless broken or worn too thin to be run with safety.

Another great advantage which this wheel possesses, is that it can readily be taken to pieces, and put together again as strong as ever—the singular construction of the hub admitting of this operation, by which a broken or defective spoke can be replaced by a new one without the expense and delay of shedding the tire. It is also invaluable for pleasure carriages and vehicles of all descriptions. Its great durability and economy (the expense of construction being supposed to be about the same as the ordinary wheel) constitute the great value of this improvement.

Experienced persons pronounce it invaluable for ordnance wheels, and to test this opinion, it will shortly be submitted to government inspection. Mr. Scripture (the inventor) has sent a wheel to Europe, and taken necessary measures to secure patents in the old countries as well as the new.

Those desirous of seeing the wheel in use can do so by examining them on the "Edwin Forest," the largest omnibus in the city, belonging to Messrs. Kipp & Brown."

To prevent moulding in Books, Ink, Paste, and Leather.—Collectors of books will not be sorry to learn that a few drops of oil of lavender will insure their libraries from this pest. A single drop of the same will prevent a pint of ink from mouldiness for any length of time. Paste may be kept from mould entirely by this addition; and leather is also effectually secured from injury by the same agency. —*Am. Ag.*

STIRRING THE EARTH A RELIEF AGAINST DROUGHT.

Some entertain an idea that it is injurious to stir the soil when it is dry and the plants are suffering for want of rain. The error of this supposition is well exposed in an article written by the Hon. J. Lowell, headed '*Stirring the earth a relief against drought,*' republished from the *Massachusetts Agricultural Repository* in the *New England Farmer*, vol. xi. p. 92. The following is an extract:—

'In this extraordinary (very dry) season, I had a small patch of early potatoes, planted in a warm and sandy soil, purposely to procure an early crop; the soil was, at least, three-quarters pure sand, mixed with some food for plants among the sand. The severe drought threatened a total loss of the crop. The potatoe stalks were feeble, drawn up, scarcely larger than goose quills, and I expected every day to see them wither; all hopes of a crop were abandoned. I thought that they were the fair subjects of a *desperate* experiment. On one of the hottest and driest days, I gave them a thorough ploughing, passing the plough four times through each row; first ploughing two furrows from the hills, as near the roots as possible without throwing out the seed potatoes, and then returning the loam or earth instantly back by two other furrows. No rain intervened for ten days. In three days after, the potatoes changed their color, they started afresh as if they had received the benefit of ample showers, while not a drop of rain had fallen.

'The dews, which were abundant, settled upon the new turned earth, while before the ploughing no moisture had been apparent.

'The last fact, though it cannot have escaped the notice of the most careless cultivator, has not been as yet explained. We can easily see that a soil rendered porous would more readily and easily convey its moisture to the roots. It becomes like a sponge, and is readily permeable, or rather readily permits the moisture to pass between the particles. But it is not yet understood why it attracts the moisture. Perhaps, however, it may be owing to its presenting a much greater surface to the moist air of the night. The fact, however, which is what *most concerns us*, is settled. Perhaps some of the experiments of our distinguished countrymen Dr. Wells, a physician of London, who rendered himself distinguished by his remarks on dew, may tend to explain this fact, though it is not my purpose to examine the theory.

'Every man who feels an interest in the question can satisfy himself at once by stirring a small piece of earth in a time of severe drought, and if he does not find it in the morning more filled with moisture, than the undisturbed ground in its vicinity, let him continue an unbeliever.

'But there is another mode, and it is one which I have never heard suggested, by which I apprehend the stirring of the surface, and making it light and porous, is beneficial in great droughts. It is this: light porous bodies are bad conductors of heat: perhaps because they have more air between their interstices. The facts are familiar to us. Metallic bodies acquire an intense heat under the rays of the sun; so do stones in proportion to their density. The earth, when very compact, will become exceedingly hot, but garden loam, which is very porous, remains cool at noon-day two inches below the surface. I believe, therefore, that moving the surface, and keeping it in a light and porous state enables it to *resist the heat of the sun's rays;* that the air between the particles of earth communicates the heat more slowly than the particles themselves do when in close contact.

'Such is my theory, but I am an enemy to theories. I always distrust them; I look only to facts; and having observed that a slight covering of half an inch of sea weed would preserve my strawberries from drought, which can only arise from its lying so loose on the surface, I have been led to infer that the undoubted fact, that soil in a loose pulverized state resists drought, is owing to the same cause, to wit, the slowness with which

the heat of the solar rays are communicated to the roots. But, the theory sound or unsound, I am persuaded that every farmer will find that the free use of his plough and hoe in times of severe drought, will be of more value to him than as much manure as that labor would purchase. I have always been convinced from my experience as an horticulturalist, that the great secret in cultivation consists in making the soil porous. In raising exotic plants we know it to be true, and our flower-pots are always supplied with soil the most porous which we can obtain. The farmer may borrow light from an occupation which he looks upon with disdain, but which serves to elucidate and explain the secrets of vegetation."—*Complete Farmer.*

BUTTER MAKING.

Milk Apartments, &c.—The milk cellar should be deep, well ventilated, and dry; the bottom covered with stone flagging. Bricks will absorb milk, and other liquids that may fall upon them; and will soon contract mildew, the smell of which, like the odor of cheese, vegetables, fish, or foul of any kind, will be imparted to the cream and butter. Over this cellar should stand the dairy room, with shelves to set milk upon in cool weather; the cellar to be used during the extremes of heat and cold. The temperature of the milk apartment, if possible, should never be above 60° nor below 45°. Set kettles should not stand in the dairy room; neither should churning, cheese making, nor cleaning milk vessels be done there, but in a convenient room near by.

Cream may be kept much longer, if it be kept in a white oak vessel, with a tight cover, and a faucet or tap near the bottom, to draw off the milk when it settles, before the customary daily stirring. The quality of the butter is much improved by this management. If the milk be not drawn off, and it be churned with the cream, the butter will be no longer in coming, and it will show specks of sour curd, taste like cheese, and will soon become rancid.—Butter will come quickly at all seasons of the year, if the cream be of a temperature of from 60° to 75°; to this end, use hot water in winter, and ice in summer; *but never add either to the cream, in or out of the churn.*

Salt.—Pure salt crystallizes into perfect cubes. All other forms of crystallization found in common salt, arise from impurities; those of a needle shape in Liverpool bag, or blown salt, indicate the presence of lime, magnesia, &c. One great cause of the failure in making good butter, may be traced to the use of impure salt. Rock salt, and the large lumps of Turk's Island, washed, dried, and finely pulverized, are preferable to all other kinds, being highly preservative, and hardening the butter, so that it will be sooner ready to work over in warm weather. The Liverpool bag or blown salt, the Salina salt, in small bags, from New York, and the fine part of every kind of imported salt, contains a great portion of impurity. Less than one ounce of pure salt is sufficient for a pound of butter; (many put in but half an ounce;) in all cases leave out sugar and saltpetre.

In the manufacture of cheese, a preference is sometimes given to Liverpool bag or blown salt. This contains salt of lime and magnesia, which attracts moisture from the air, and have the desirable effect of softening the cheese; and the pungent bitter taste which they impart to it, is an improvement in the estimation of some.

General Remarks.—The cream should not rise more than thirty-six hours; it should be sweet when taken off, and sweet when churned; yet there is a degree of maturity, to be acquired by keeping.

The kegs for packing butter should be made of white oak, bilging in the form of casks, for the more perfect exclusion of air, and convenience of transportation. If the butter is not to be sent to a warm climate, or a foreign market, let the bilging kegs have moveable covers, to accommodate inspection; they should be soaked in a strong brine, made also of pure salt, in order that justice may be done to the purchasers in tare, and to save the butter from being spoiled for one or two inches deep all round, from its contact with dry wood. In case the wood is anything but white oak, there is danger of its giving an unpleasant taste to the whole. For the convenience of families, the size should vary from 25 to 50 pounds. A large keg of butter is exposed to the air for a long time while on broach in a small family, and the bottom, in consequence, becomes rancid.

The consumer will cheerfully pay an extra price for 100 pounds of butter, packed in four kegs instead of one. No salt should be put on the sides, bottom, or between the layers. If the kegs are made with covers, put a cloth over the top, and cover that with pure fine salt. Keep a cloth wet with strong brine, over the butter, while the keg is filling, to exclude the air. The practice of washing the butter is not approved of in Europe; it destroys its fragrance and sweetness by dissolving the sugar of milk, which it is said is always present in good butter. It is practiced in Holland, when the article is designed for exportation to India; then the operation is usually performed with cold strong limpid brine made of pure salt, and pure water; water that has lime in it will not answer, as the lime is readily absorbed by the butter.

To exclude the air more effectually during the process of putting down, let a little melted sweet butter be run into the cavity, where the bottom, head and staves come together, then after each layer is completed, let the dairy-woman pass her finger round so as to press the butter hard and close against the side.—*Prov. Transcript.*

BUTTER.

To understand the preparation of butter thoroughly, it is absolutely necessary to know the physical constitution of the milk from which it is obtained. Now the microscope shows us that milk holds in suspension an infinity of globules of different dimensions, which, by reason of their less specific gravity, tend to rise to the surface of the liquid in which they float, where they collect, and by and by form a film or layer of a different character from the fluid beneath; the superficial layer is the *cream*, and this removed, the subjacent liquid constitutes the *skim-milk*. —This separation appears to take place most completely in a cool temperature from 54° to 60° F.

Allowed to stand for a time, which varies with the temperature, milk becomes sour and by and by separates into the strata or parts: cream, whey, and curd, or coagulated caseum. By suffering the milk to become acid before removing the cream, it has been thought that a larger quantity of this, the most valuable constituent of the milk, was obtained; and the fact is probably so; but in districts where the subject of the dairy has been most carefully studied, it has been found that it is better to cream before the appearance of any signs of acidity have appeared. When a knife ca be be pushed through the cream, and withdrawn without any milk appearing, the cream ought to be removed.

Butter is obtained from cream by churning, as all the world knows; by the agitation, the fatty particles cohere and separate from the watery portion, at first in smaller and then in larger masses. The remaining fluid is buttermilk, a fluid slightly acid, and of a very agreeable flavor, containing the larger portion of the caseous element of the cream coagulated, and also a certain portion of the fatty principle which has not been separated.

The globules of milk appear, from the latest microscopical observations, to be formed essentially of fatty matter, surrounded with a delicate, elastic, transparent pellicle. In the course of the agitation or trituration of churning, these delicate pellicles give way, and then the globules of oil or fatty matter are left free to cohere, which they were prevented from doing previously, by the interposition of the delicate film or covering of the several globules. Were the butter simply suspended in the state of emulsion in the milk, we should certainly expect that it would separate on the application of heat; but this it does not: cream or milk may be brought to the boiling point, and even boiled for some time, without a particle of oil appearing. Could M. Romanet show any of these pellicles, apart from the oil-globules they enclose, it would be very satisfactory, and would certainly enable us to explain the effect of churning.

Churning is a longer or shorter process, according to a variety of substances, it succeeds best between 55° and 60 F. So that, in summer, a cool place, and in winter a warm place, is chosen for the operation. There is no absorption of oxygen during the process of churning, as was once supposed; the operation succeeds performed in vacuo, and with the churn filled with carbonic acid or hydrogen gas.

On being taken out of the churn, the butter is kneaded and pressed, and even washed under fair water, to free it as much as possible from the buttermilk and curd which it always contains, and to the presence of which must be ascribed the speedy alteration which butter undergoes in warm weather. To preserve fresh butter it is absolutely necessary to melt it, in order to get rid of all moisture, and at the same time separate the caseous portion. This is the process employed to keep fresh butter in all the warmer countries of the world. In some districts of the continent, it is also had recourse to with the same view. The butter is thrown into a clean cast-iron pot, and fire is applied. By and by the melted mass enters into violent ebullition, which is owing to the disengagement of watery vapor; it is stirred continually to favor the escape of the steam, and the fire is moderated. When all ebullition has ceased, the fire is withdrawn, and the melted butter is run upon a strainer, by which all the curd is retained. M Clouet has proposed to clarify butter by melting it at a temperature between 150° and 140° F., and keeping it so long melted as to dissipate the water, and to secure the deposition of the cheesy matter, after which the clear melted butter would be decanted. I doubt whether by this means the water could be sufficiently got rid of, a very important condition in connection with the keeping of butter, though certainly all the caseum would be deposited.

The moisture and curd contained in fresh butter may amount together to about 18 per cent; at least we find that we lose about 18 lbs. upon every 100 lbs. weight of butter which we melt at Bechelbronn.

The information which we have on the produce in butter and cheese, from different samples of milk, is very discordant, so that I prefer giving the results of a single experiment made under my own eye. From 100 lbs. weight of milk, we obtained:

Cream - - - -	15.60 lbs.
White curd Cheese - -	8.93 "
Whey - - - -	75.47 "
	100.00

The 15.60 lbs. of cream yielded by churning:
3 33 lbs butter, or 21.2 per cent., and
12.27 " buttermilk.

The reckoning with reference to 100 lbs. of milk consequently stands thus:

Cheese. - - - -	8.93
Butter - - - -	3.33
Buttermilk - - -	12.27
Whey - - - -	75.47
	100.00

Taking the whole of the milk obtained and treated at different seasons of the year, I find that 36,000 lbs. of milk yielded 1080 lbs. of fresh but-

ter, which is at the rate of 3 per cent. From the statement of M. Baude, it appears that near Geneva a proportion of butter so high as 3 per cent. is never obtained, probably because there a larger proportion of fatty matter is left in the cheese. In the dairy of Cartigny, 2200 gallons of milk gave:

Butter	363 lbs.	or about	1.6 per cent.
Grucyere Cheese	1515	"	6.9 "
Clot from the whey, obtained by boiling	1140	"	5.2 "

In the same neighbourhood, another dairy, that of Lullin, gave from the same quantity of milk:

Butter	418 lbs.	or	1.9 per cent.
Cheese	1485	"	6.75 "
Clot from whey	963	"	4 4 "

—*Boussingault's Rural Economy.*

TO YOUNG MECHANICS.

How much encouragement have the youth of our country to habits of industry and perseverance in the acquisition of knowledge and the improvement of the mind! As we look back upon the past we read of hundreds who have risen to stations of honor by their own exertions. —There is not an instance on record where a man who put forth all his energies, and determined to be something, did not reach the height of his ambition. It is not those who have what is called a liberal education who are the most useful men in the world, and who alone can occupy stations of trust and honour.—On the contrary, the most talented men of our country belong to the class who received their education at the work-bench, the plough, the press, and anvil.

Who are most prominent in our congressional and legislative halls, in the pulpit, and at the bar? Those who were cradled in poverty, and fought their way through much sorrow and tribulation—who met with hard rubs on every side—who were despised and sneered at by the proud and the rich. Poor and friendless young men do you ever feel discouraged? Do you sometimes sink to the earth in despair? Suffer not the indulgence of those feelings, but renew their energy, by pursuing the histories and following in the footsteps of those who have gone before you. You have not more to contend with than others, and the prospect is bright and glorious in the far distant future. Hope on and persevere.

A few years ago, Luther Severance and James Harper, were bringing water by the pail full to wash type in a printing office; they were knocked about by the older boys. But they did not sit down and weep, and declare that they would run away from their masters. No —they stuck to their trade year after year, till they became of age. Where are they now? Severance is in Congress, and Harper is at the head of the largest publishing establishment in America, and was elected Mayor of the city of New York by a large majority. So much for energy and industry.

Simon Greenleaf Professor of law at Cambridge University is an example of what a man becomes by studious habits. With a limited education he entered a lawyer's office and it was by industry and attention to his books that he mastered his profession. From the time when he began his practice at the Cumberland bar, till he was called to occupy his present station, his industry has been unceasing. He is the author of several works which rank high with our ablest lawyers.

What young man will fold his hands and slumber when by active exertions, he can take a high stand and be eminently useful among his fellow men?—Up and be doing! Lose not a day or an hour in sloth, and there is no position too elevated for you beyond your reach. —*Buffalo Courier.*

Cleaning Silk.—The following directions for cleaning silks are by one of the first Parisians dyers; half a pound of soft soap, a tea spoonful of brandy, and a pint of gin; mix all together; with a sponge of flannel, spread the mixture on each side of the silk, without greasing it; wash it in two or three waters and iron it on the wrong side; it will then look as good as new.

Scratches in Horses.—The sprinkling of paster of Paris on stable floors, is not only an excellent plan for arresting the fertilizing gas of ammonia for manure, but it prevents horses from having the scratches, or sore heels.—*Alb. Cult.*

SCAB IN SHEEP.

One of the most common and far the most destructive of all the diseases to which sheep are liable in the United States, is what is called the scab or itch. Indeed it is thought by some to be more destructive than all other diseases together. So infectious is it, that having once entered a flock, whatever be its size, unless stayed in its progress, it is felt by every animal. It may not only be taken by one sheep from another, but every tree, stone, or post, against which an infected animal has rubbed, becomes the conveyor of it to the rest. Hence, when once it makes its appearance in a flock, the proprietor may as well sit down to its cure at once, and keep at it, till the pest is extirminated.

Symptoms.—It makes its first appearance on the shoulders and back. The animal is seen rubbing itself against every object, the irritation constantly increasing, till it tears out its wool with its teeth, and exhibits the most intense suffering. The symptoms are in fact so unmistakable, that there is little need of a minute description. On examination there will be found along the back little red pustules, which soon break, and are succeeded by a dry scarf or scab, from which the disease takes its name.

Its Nature.—It has been satisfactorily ascertained by a German named Waltz, that the disease is nothing more nor less than the work of a parasitical insect of the *acarus* family, similar to that which causes the itch in human race.—This animalcule, upon getting on to the wool of a sheep, makes his way to its roots and buries himself in the skin of the animal, where he remains till the pustule breaks, when he seeks a new place, and tries the same thing over; with this difference—that his onward course is attended with a constantly increasing progeny, each individual of which gives rise, by the same means, to a similar amount of agony to the poor animal in whose skin they burrow. There are however two sexes of the *acarus*, and if the male be alone, he lives his time out and dies. The female comes forth from each burrowing place at the end of sixteen days, with a troop of young, numbering from eight to sixteen. The young, if deprived of nutriment, soon die; but the old one will live in similar circumstances during a whole winter.

Remedies.—Decoctions of tobacco and hellebore, and solutions of arsenic, have been the usual remedies, and if repeated will cure the disease; but they injure the fleece, leave the skin of the animal in an unhealthy condition, and frequently destroys its life. The mode of using these preparations is, to fill a large tub half full with the liquid, and dip the sheep into it till the wool is fully saturated, and repeat the operation as often as the symptoms return.

But it is found that mercury is an instrument far more destructive to the acari; and can be used much more easily and with more safety to the value and life of the sheep. The form in which it is best applied is in that of the blue ointment known as *unguentum*. As there is much difference in the quality of this article, care should be taken to procure that which is good; when, in bad cases, it may be mixed with three parts of lard, and applied. Ordinarily one of the ointment with five of the lard will be strong enough. If too strong, ewes and lambs will be salivated. The mode of applying it is to separate the wool and rub it carefully upon the affected spots, applying from half an ounce to two ounces and a half to an animal. After this, every few days, examination should be made to see that it has done its work, until the disease has been eradicated.

To procure a mercurial ointment that can be depended on, an ordinarily skillful hand can make it as follows: Take crude quicksilver, half a pound; Venice turpentine, quarter of a pound; and spirits of turpentine, one ounce; rub them together for five or six hours until perfectly united. This may be known by rubbing a little with the finger on a piece of glass, and if any globule or shining particle is seen, be it ever so small, the substances are not well united, and the rubbing must be continued. To this add two and one-fourth pounds of lard. It may be mixed by melting the lard to the temperature of new milk, and stirring together till stiff.—*Prairie Farmer.*

INTERESTING AGRICULTURAL EXTRACT.

At the Highland Society's late show at Dundee, the most extraordinary exhibition amongst the roots, seeds, plants, &c., was that of Mr. James Campbell, of the Dundee Public Seminaries. It consisted of magnificent plants of oats and barley, grown from seed which had undergone a certain chemical preparation, and without the aid of any manure whatever. Since the show, Mr. Campbell has placed the particulars of his process in the hands of the Society, for the benefit of agriculturists generally, and, to further his good intentions, the Society has published his own explanation, which we now lay before our readers:

"Much has of late been said and written on the subject of extraneous and other manures, and a great many nostrums have been puffed off and applied with various success. Many composts have been formed, whose tendency is to yield abundant crops on certain soils; but it must still be confessed, that no manure or other application of much permanency of effect, or approaching to anything like universal aptitude to soil, has yet been produced; and in all circumstances the expense of manure is still very great. The discovery, therefore, of a process by which the cereal and other graminaceous seeds might be obtained in *extraordinary*

abundance, without the use of manures, is certainly a great desideratum. Now, this desideratum, however strange it may appear, I have good ground for concluding I have attained. It is now a considerable time since I began to imagine, that if the ultimate principles of which the proximate constituents of most of the gramineous seeds are composed, could, by any possibility, be made so to enter the substance of the seed, and at the same time not to injure its vitality, as thoroughly to imbue its texture with an excess of these principles, the end would be accomplished; and it is by doing this to a certain extent, that I am convinced I have succeeded. I steeped the seeds of the various specimens exhibited at the Highland Society's Show in sulphate, nitrate, and muriate of ammonia in nitrate of soda and potass, and in combinations of these, and in all cases the results were highly favourable. For example, seeds of wheat steeped in sulphate of ammonia on the 5th July, had, by the 10th of August, the last day of the show, tillered into nine, ten, and eleven stems of nearly equal vigour, while seeds of the same sample *unprepared*, and sown at the same time, in the same soil, had not tillered into more than two, three, and four stems. I prepared the various mixtures from the above specified salts exactly neutralised, and then added from eight to twelve measures of water.—The time for steeping varied from 50 to 94 hours, at a temperature of about 60° Fahrenheit. I found, however, that barley does not succeed so well if steeped beyond 60 hours. Rye-grass and other gramineous seeds do with steeping from 16 to 30 hours, and clovers from 8 to 10, but not more; for being bi-lobate, they are apt to swell too much and burst. The very superior specimen of tall oats averaging 160 grains on each stem, and eight available stems from each seed, were prepared from sulphate of ammonia. The specimens of barley and beer were prepared from nitrate of ammonia; the former had an average of ten available stems, with 72 grains in the ear. The other specimens of oats which were next the most prolific, were from muriate of ammonia, and the promiscuous specimens of oats were from nitrates of soda and potass—strong, numerous in stems (some not having less than 52) and not so tall as either the preparations from the sulphate or muriate of ammonia. It was objected by some that the tallest oats were too rank, and would break down before coming to seed; but I have no fear of that, as they were strong in proportion to the height; and should there even be any ground for the objection, I am confident that a combination of sulphates of ammonia and soda, or potass, would rectify the excess of height, and render the grain equally productive. From the experiments which I have already (September, 1343,) tried, I am satisfied that even without the application of common manures, double crops at least may thus be raised; and under the application of the ordinary manures, crops tenfold greater than usual. The various salts were prepared by me from their carbonates.

English Farming.—Large crops of Wheat—working of Cows—economy of manure, and improvement of the soil.—Professor *Colman*, in his European tour mentions an instance where a man had supported himself, wife and son, from two acres of land, for which he paid a rent of $45,60; and in the course of seven years, saved enough from the produce of his two acres to purchase two acres at $144 to $192 per acre. In another case, six acres under spade cultivation, is stated to have given an average of 52 bushels of wheat per acre. Another witness brought before the Parliamentary committee, testified that on the estate of Lord Howard, Barbot Hall, Yorkshire, twenty-eight bushels of wheat had been obtained from a quarter of an acre; being at the rate of 112 bushels per acre. Mr. Colman thinks, however, that the accuracy of this statement may be considered doubtful.

An instance is mentioned where a man in Sussex, John Piper, who occupied four acres, and kept two cows, worked one of the cows in a cart, by which he makes an annual saving of $24. Notwithstanding the cow is worked, "she makes *eight pounds* of butter per week, besides furnishing some milk for the family."

Great pains are taken in all cases to save the manure. Nothing is wasted. The animals are stalled, and only turned into a yard a few hours a day for exercise. Brick or stone tanks, well cemented, are sunk near the cow stables and pigsties, for the reception of all the liquid manure. "The contents of these tanks, on becoming full, are pumped into a small cart with a sprinkling box attached to it, like that used for watering streets in cities, and distributed over the crops, always with the greatest advantage, and with effects immediately perceptible." All which Mr. Colman saw, convinced him that there is no necessity of impoverishing the soil, but that under the right management, it will keep itself in condition, and be ever improving.—*Am. Far.*

What Cows can do.—The report of the New York State Agricultural Society gives the produce of 40 cows, kept by Mr. A. Hall, as 585 lbs. of cheese and 5 lbs. of butter each, in one season. The whey was fed to 20 of them.

Culture of Mushrooms.—"You ask me about the cultivation of mushrooms. I have two houses in which I have raised them, one built expressly for the purpose, 50 feet long, 14 feet wide, 9 high, plastered inside, with a flue from a stove running on the ground through the centre. On the top of the flue are hollow tiles for the purpose of holding water and keeping the room moist. I have two tiers of beds on each side of the house, one over the other, 3 feet apart and 5 feet wide. We first fill each bed with pure horse dung, with as little straw as possible—say one foot deep; we then put on 3 inches of rich black mould; in this earth we plant the spawn of the mushroom broadcast. That from England comes in blocks like brick. This is broken up into pieces the size of a walnut, and planted about 3 or four inches apart. The best time to make the beds is in October and November. Keep the house warm; about 65 degrees, and damp and dark, and cover the the beds with hay 3 inches deep. The mushrooms will be ready to pick in about a month, and will continue until August, or longer; but in very warm weather they get covered with bugs. The other house is smaller, and I heat it with a large pile of horse manure, which being kept wet my gardener thinks raises the best mushrooms."

ROSWELL L. COLT,

Paterson, 7th May, 1845.

—*Am. Ag.*

Grafting Currants.—The Gardeners' Chronicle recommends for the pretty appearance presented, as well as for improved flavor, to greft currants of different colors, as the red, black and white, variously intermixed, on stocks trimmed up to a single stem three or four feet high. The tops may be headed down to a compact head, or trained as espaliers in the horizontal or fan method, the two latter modes of training, by the free exposure to the sun and air, much improving the quality of the fruit. The importance of trimming the bushes up to single stems to improve the fruit and facilitate clean culture, instead of suffering two-hundred and fifty suckers to shoot up all round into a dense brush heap, is very obvious to those who have tried both.

Diarrhœa or Scours in Calves—Young calves are very liable to this affection, and not unfrequently die from it. It is, (says the Cattle Doctor,) in a majority of cases, the consequence of neglect. The calf has been too early exposed to cold and wet, or has been half starved, and then one full and hearty meal often disarranges the whole alimentary canal—the mucous coat of the intestines becomes inflamed, and violent purging ensues.

Remedy.—As being more simple, and we have no doubt equally efficacious, we give, instead of the remedies prescribed in the Cattle Doctor, the following by Lovett Peters, Esq., of Westboro' originally published in this paper, and which he pronounces an infallible cure. "I call it," says he, "infallible, because in thirty years' use of it I have never known it to fail in effecting a cure, by once giving it, except in one instance, and then a second dose proved effectual. Put into a suitable bottle about half a pint of cider —(not sweet nor bottled cider.) Then open a vein in the neck of the calf, and let into the bottle about the same quantity of blood. Shake it well together quickly, and before it has time to coagulate, put it down the calf's throat, which is easily done with the bottle," (This remedy is quoted by Mr. Skinner, in his American edition of the Cattle Doctor.)

Natural Habits of Domestic Animals.—"The natural habits of different domestic animals differ very considerably. In small, and thorough-bred horses, the pulsations of the heart are about forty to forty-two in a minute. In farm horses they do not amount to more than thirty-six. When they are treated ill, or even when spoken roughly to, their circulation is increased, say ten pulsations per minute. Cold has a great effect on the pig. It is found that pigs whose styes have a southern aspect, thrive much better than those placed in a colder declination; they can hardly, perhaps, be kept too warm, and too clean."—*Cuthbert W. Johnstone, Esq., Farmers' Magazine.*

To preserve Bees from Worms, &c.—About the first of May raise the hive up, and strew some fine salt under the edges.

To make the Teeth white.—Rub them with mixture of honey and pure charcoal.

To take white spots out of Furniture.—Hold a warming pan or a shovelful of coals over the furniture, and rub it while warm with a piece of flannel.

Lime.—One farmer saved his clover from destruction by the slug or small snail, on land bearing a wheat crop, by slight dressing of powdered lime, scattered through a clover seed machine late in the evening, when the insects were busy at work. Lime would be frequently useful if applied in this manner. Sown in moderate quantity on light land, it will bring in white clover; it is said also that it will destroy the fungus which causes the rot in potatoes.—*Am. Ag-*

Soap Suds.—Apply them to melons, squashes, and cucumbers, or to any plant infested with the plant-louse.—*Alb. Cult.*

To make colors fast.—If a calico is likely to fade, wash it in a gallon of warm water, to which is added a large spoonful of beef's gall; wash it without soap. This will take out spots from bombazine, bombazett, &c. It will set any color, silk, cotton, or woollen.

To take Film from a Horse's Eye—Blow loaf sugar and a little salt into the inflamed eye, and in most cases it will be relieved. Sassafras buds pounded and put in water, to stand till it becomes nearly as thick as cream, applied to the eye, is an excellent remedy for inflammation.

To remove Grease Spots.—Rub magnesia on the spot, and cover it with clean paper, and apply above it a warm flat iron. Repeat until the spot is removed.

Cement for Broken Glass or Crockery.—Take the white of an egg and very fine quicklime.

Orchard Grass. — Mr. Sanders, a famed grazier of Kentucky, commends this grass very highly. The seed ought to be sown early in the spring, as soon as the ground can be prepared.—One bushel of seed is enough for an acre. It affords a bite in the spring ten or twelve days sooner than blue grass, and soon revives after pasturage. It stands drought better than any other.—*Selected.*

A Cold.—Drink a pint of cold water, lying down in bed. Or, a spoonful of molasses in half a pint of water. Or, to one spoonful of oatmeal and one spoonful of honey, add a piece of butter the bigness of a nutmeg: pour on gradually near a pint of boiling water: drink this lying in bed.

The Colic, in the Fit.—Drink of camomile tea. Or, take from thirty to forty grains of yellow peel of oranges, dried and powdered, in a glass of water. Or, take from five to six drops of oil of aniseed on a lump of sugar. Or, apply outwardly a bag of hot oats. Or, steep the legs in hot water a quarter of an hour. Or, take as much Daffy's elixir as will presently purge. This relieves the most violent cholic in an hour or two.

Daffy's Elixir is made thus:—Senna 2 ounces; jalap, 1 ounce; coriander seed, half an ounce; Geneva, or proof spirit, 3 pints. Let them digest seven days, strain, and add loaf-sugar, 4 ounces.

Colic in Children.—Give a scruple of powdered aniseed in their meat, or small doses of magnesia; or a drachm of anisated tincture of rhubarb every three hours till it operates.

To Cure Asthma.—Take a pint of cold water every morning, washing the head therein immediately after, and using the cold bath once a fortnight. Or, cut an ounce of stick liquorice into slices. Steep this in a quart of water twenty-four hours, and use it, when you are worse than usual, as common drink. I have known this give much ease. Or, half a pint of tar-water twice a day. Or, live a fortnight on boiled carrots only. It soldom fails. Or, take from ten to twenty drops of elixir of vitriol, in a glass of water, three or four times a day. Or, into a quart of boiling water, put a tea-spoonful of balsamic either, receive the steam into the lungs, through a fumigator, twice a day.

Corns.—Never cut your corns: it is dangerous. To remove them when they become hard, soak them in warm water, and with a small pumice stone, rasp down the corn. Try it, and you will never use a knife afterwards.

Biles.—1. Apply a little Venice turpentine.

2. An equal quantity of soap and brown sugar, well mixed.

3. A plaster of honey and wheat flour, or figs.

4. Or a little saffron in a white bread poultice, It is proper to purge also.

A Bruise.—1. Immediately apply molasses spread on brown paper.

2. Apply a plaster of chopped parsley mixed with butter.

Cure for Quinsy or a Fever Sore.—Take the moss that grows on the cranberry bog, sprinkle it with vinegar, or steam it with vinegar, and apply it to the part affected, two or three times a day, and it will soon afford relief.

For a Felon.—Take a piece of salt, the size of a nut, and roast it in the ashes, and pulverize it; then take a piece of hard soap about the same size, and a few drops of turpentine, and mix all to the consistency of salve, and apply it, and it will extract the felon.

Chinese Cultivation and Implements.—We passed the batteries which had so recently been the scene of such dreadful slaughter, and, stemming a strong current, proceeded rapidly up the river. The country through which it wound its way, was a perfect flat as far as the eye could reach, and in as high a state of cultivation as the market-gardens around London; small farm houses stood in every direction, neatly encircled with flower-gardens, the whole presenting a perfect picture of wealth, fertility, industry, and comfort, and when we were informed,—a circumstance we had every reason to believe perfectly true,—that the same state of things existed not only throughout the whole of this, but of all the neighboring provinces of any one, which, as regards extent, would make a handsome kingdom for an European potentate, some slight idea may be formed of the endless internal agricultural wealth of the Chinese empire, and the little concern the Emperor of this mighty country has been accustomed to bestow on foreign nations, their commerce, trade, or anything else concerning them. Numerous implements of agriculture, which we suppose to be only known to the most scientific and highly instructed European nations, were discovered in great numbers, and in constant use among them, from the plough and common harrow to the winnow and thrashing machine, with which scarcely any farm-house, however small, was unprovided. Added to which, for the purpose of irrigation, scarcely any considerable field that did not possess its chainpump, for the purpose of irrigating their crops by drawing water from the lower levels, with comparatively small labor to themselves; from which mode I have not the least doubt those at present in use in our navy or merchantmen were taken.

To relieve Cholic in Horses.—Rub spirits of turpentine on the breast of the horse; and if he be drenched with it, he will be relieved. Horses should never be put to severe work on a full stomach; more horses are hurt by hard driving after a full feed, than by a full feed after hard driving.

Vermin on Fowls.—A writer in the Boston Cultivator says that if fowls are allowed free access to a box of dry ashes or even dry earth to roll in, and are well fed, they will not be troubled with vermin.

A. L. Fish of Herkimer county made 592 lbs. of cheese per cow, up to the 17th of September. His average from 25 cows, for the last three years has been 590 lbs,

To Destroy Rats.—There is a preparation which has been tried by us, and some of our friends, which, after all the numerous recipes for this purpose in the different Agricultural papers of the day, we pronounce to be the best and most effectual of all. It is a preparation of *Phosphorus*. It has been in use in Europe, particularly in Germany, for several years, and but few others are now used there, as nothing has been found to equal it. The articles forming this composition are in themselves very innocent, and do not contain a particle of poison; but when combined, create a gas which explodes the stomach, and consequently destroys life in a very short time. As soon as it has affected the stomach, the articles become neutralized, and will affect nothing thereafter, so that there can be no danger in its use, under any circumstances. It must not be used with any dry substance, as corn meal, &c., but with some kind of grease, as fowls, dogs, and other animals, are not so likely to touch it when mixed in this way, rats and mice only seeming be to fond of it. The mode commonly used is the following:—Spread a thin slice of bread with this preparation as thick as apple butter, pour some dissolved butter over it, then strew over the whole a little sugar, and cut it into a number of small pieces, and put it where they are known to frequent; repeat it for two or three nights in succession, when they will entirely disappear. This is found also to be destructive to cockroaches. To do this, a slice of bread is spread in the same way as above, and sprinkle a little flour over it; this is to be put on the floor in the evening, and repeated several times. Bedbugs, it appears, can be destroyed by the same preparation. To do this, take a teaspoonful of the stuff, and a teaspoonful of slaked lime, mix them together, and rub it on those places infested by bugs.—*London Ag. Gaz.*

Elisha Baker of Oneida county in 1843 made an average of 500 lbs. of cheese and 50 lbs. of butter per cow between the 15th of April and the first December.

Thinning Plants.—The thinning of seeding crops is a very necessary thing to be done in time, before the young plants have drawn up so much as to become weak. All plants grow stronger, and ripen better, when the air circulates freely around them, and the sun is not prevented from an immediate influence. In thinning close crops, as onions, carrots, turnips, &c., be sure they are not left too near, for instead of reaping a greater produce, it would assuredly be less. When they stand too close, they will make large tops, but smaller roots.

Indian Slap Jacks.—Scald a quart of Indian meal—when luke-warm, turn, stir in a pint of flour, half a tea-cup of yeast, and a little salt. When tight, fry them in just fat enough to prevent their sticking to the frying pan. Another method of making them, which is very nice, is to turn boiling milk or water on to the Indian meal, in the proportion of a quart of the former to a pint of the latter—stir in three table-spoonsful of flour, three eggs well beaten, and a couple of tea-spoonsful of salt.—*American Housewife.*

AGRICULTURAL SHOW.

THE PRINCE EDWARD DISTRICT AGRICULTURAL SOCIETY offer the following Premiums to be awarded at the Annual Exhibition to be held at BLOOMFIELD on Tuesday the 14th day of October next, viz:

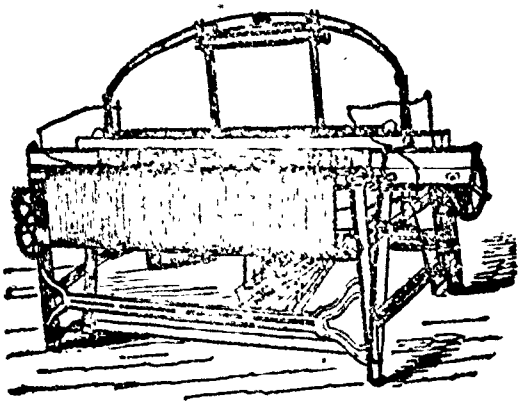
Best Field of Winter Wheat	£0	17	6
Second do	0	15	0
Third	0	12	6
Fourth	0	10	0
Best Field of Spring Wheat	0	17	6
Second	0	15	0
Third	0	12	6
Fourth	0	15	0
Best Mare and Foal	1	0	0
Second	0	15	0
Third	0	10	0
Best three year old Colt	0	10	0
Second	0	7	6
Third	0	5	0
Best two year old Colt	0	10	0
Second	0	7	6
Third	0	5	0
Best one year old Colt	0	10	0
Second	0	7	6
Third	0	5	0
Best Bull of any age	1	0	0
Second	0	15	0
Third	0	10	0
Best Milch Cow, 4 years old	1	0	0
Second	0	15	0
Third	0	10	0
Best three year old Heifer	0	10	0
Second	0	7	6
Third	0	5	0
Best two year old Heifer	0	10	0
Second	0	7	6
Third	0	5	0
Best yearling Heifer	0	10	0
Second	0	7	6
Third	0	5	0
Best Boar Hog	0	15	0
Second	0	12	6
Third	0	10	0
Best Breeding Sow	0	15	0
Second	0	12	6
Third	0	10	0
Best two Pigs of the year	0	5	0
Second	0	5	0
Best Ram	0	15	0
Second	0	12	6
Third	0	10	0
Best two Ewes and Lambs	0	15	0
Second	0	12	6
Third	0	10	0
Best 10 yards Domestic Flannel	0	10	0
Second	0	7	6
Third	0	5	0
Fourth	0	5	0
Best and largest lot of Corn Brooms made from Corn raised in the District	0	15	0
Second	0	10	0
Third	0	5	0
Best Field of Potatoes, not less than half an acre	0	15	0
Second	0	10	0
Third	0	5	0
Best specimen of Ploughing	1	5	0
Second	1	0	0
Third	0	15	0
Fourth	0	10	0

All Competitors for Ploughing must be on the ground by ten o'clock.

No Premiums to be awarded except to the Owners of the property exhibited.

July, 1845.

POWER LOOM.



TO WOOLLEN MANUFACTURERS.

THE Subscriber begs leave to inform the public at that he has been engaged with Mr. Christopher Elliot at the *Phœnix Foundry, Toronto,* for the last two years past, in building *Woollen Machinery,* but in consequence of having suffered a serious loss by the late fire, he has been obliged to give up the business with Mr Elliot, and therefore does not hold himself accountable for the working of any of the machinery built at the *Phœnix Foundry* after the first January last.

The Subscriber has now made arrangements with Mr. J. R. Armstrong, Proprietor of the new *City Foundry,* to make and furnish all kinds of

WOOLLEN MACHINERY

that may be required in manufacturing Woollen Cloths in this Province, such as follows, viz:—

Pickers, Carding Machines, Condensors, Spinning Jacks, Broad and Narrow Power Looms, Fulling Mill Cranks, Napping and Teazling Machines, Gigs, Shearing Machines, Jinnys, Stoves for Heating Press Plates, Cast Iron Dye Kettles, together with every other kind of Machinery required to manufacture Cloth.

The machinery will be made under his personal superintendence on the most approved plans, and the material and workmanship will be of the best description.

☞All orders addressed to *Archelaus Tupper, City Foundry, Yonge Street, Toronto,* will be promptly and neatly executed on moderate terms.

ARCHELAUS TUPPER.

Toronto, March, 1845.

EASTWOOD & Co.

Paper Manufacturers, Stationers, School Book Publishers, &c.

HAVE constantly on hand an assortment of SCHOOL BOOKS, such as are in general use throughout the Province.

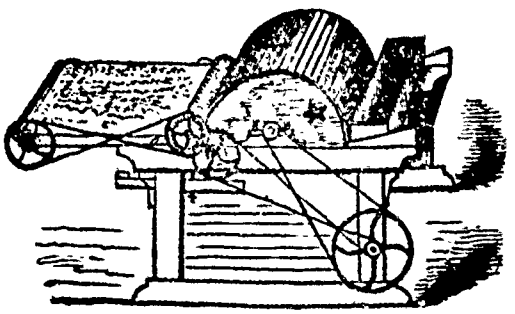
—ALSO,—

Writing, Wrapping, and Printing Paper, Blank Books, Stationery, &c.

N. B. Publication Office of "*The British American Cultivator.*"

Yonge Street, Toronto, 1845.

PATENT WOOL PICKER.



ESQUESING WOOLLEN FACTORY.

IMMEDIATELY after Sheep-shearing, the Subscribwe rill be ready to take in exchange 50,000 *lbs. fine clean wool,* for Cloth, Flannel, or Blankets, on the usual terms, either at the Esquesing Woollen Factory, or at their works near Streetsville.

As we have now on hand some Thousand yards of assorted finished Cloth, our exchange Customers will experience little or no delay in obtaining manufactured goods for their Wool.

Any of our Customers who prefer to have their Wool manufactured into Flannel, or Cloth; plain or twilled; white or colored; striped or checked; Summer Tweed, Double Milled Tweed, Sattinet, Blankets or Carpets; will be accommodated as early as possible, at the customary rates.

Peoples own Yarn Colored and Wove into Coverlids of neat and superb Patterns.

They likewise beg leave to acquaint their Customers and the Public generally, that the *Branch* of their business, established last year near Streetsville, is superintended by a resident partner of the Firm, who will exchange upon the same terms as at their establishment in Esquesing.

W. BARBER & BROTHERS.

Esquesing, April, 1845.

The British American Cultivator,

(New Series,)

Is published on the First Day of every Month, at Toronto, by EASTWOOD & Co., to whom all orders must be addressed.

W. G. EDMUNDSON, } *Proprietors.*
EASTWOOD & Co. }

W. G. EDMUNDSON, *Editor.*

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☞ Editors of Provincial newspapers will oblige the Proprietors, by giving this advertisement a few insertions.

Toronto, Jan, 1845.