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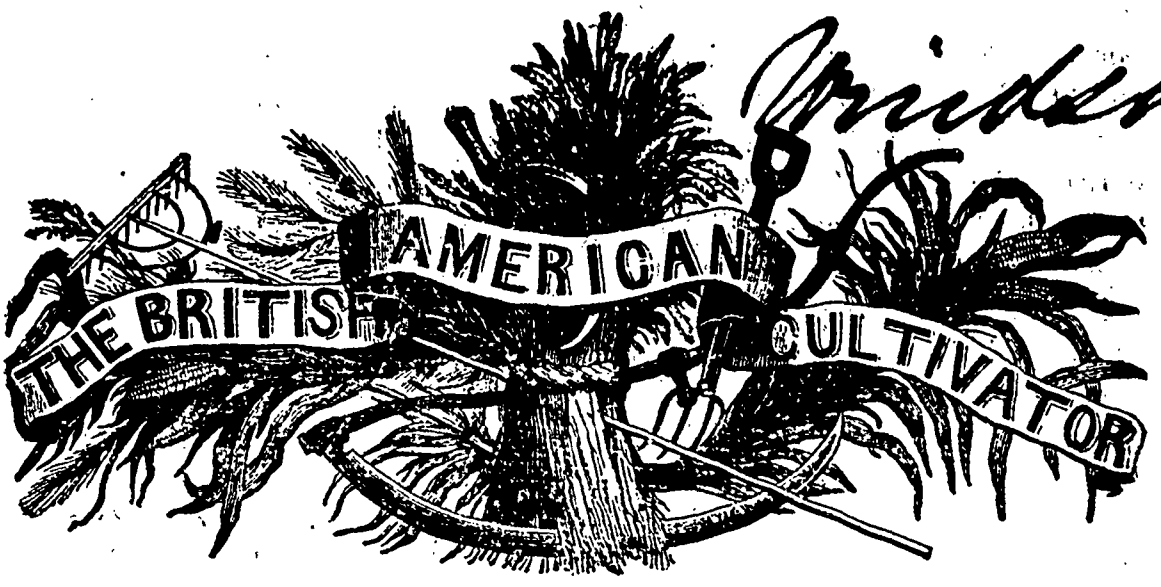


"Agriculture not only gives Riches to a Nation, but the only Riches she can call her own.

NEW SERIES.] TORONTO, APRIL, 1845. [VOL. I.—No. 4.

## WORK FOR THE MONTH.

The work to be done on the farm during this month, is of the greatest importance. Much of the success of the farmer will depend upon the manner in which the operations of this month are carried out. Unless the ground be properly prepared and the seed of a good quality, it is hopeless to expect a profitable crop. If information be more profitable to the husbandman at one season of the year than another, this is obviously the one in which it could be turned to the greatest account. The first thing to be considered is, a judicious system of rotation. Spring wheat may be sown after potatoes, rape, turnips, vetches, and peas. If a preference is to be given to either of these crops, it must be in favour of potatoes. The land for this crop should have been ploughed last autumn, and the seed cannot be sown too soon in the spring. The moment the ground is sufficiently dry for the harrows, spring wheat should be sown. To prevent smut, the seed should be pickled in strong brine and dried in lime; by this process the oats and light grains may be separated from the wheat, and the early growth will be considerably promoted. *In selecting a variety*, choose the one which comes the earliest to perfection, and has the greatest number of good qualities and the fewest bad ones. For yielding and flouring qualities the Siberian wheat cannot be surpassed; and by sowing alternately upon heavy and light lands, and selecting the finest samples, the quality of this wheat would be greatly improved. Forty bushels per acre after potatoes and rape have been repeatedly harvested, and it will command as high a price in the British market in wheat, as the finest samples of fall wheat. The *flour from this wheat* is of the finest quality, and if it be ground and packed in the summer months, it may be shipped across the Atlantic in as sound a condition as flour manufactured from winter wheat. If the land intended for this crop be very rich and likely to promote rust, it would be advisable previous to sowing, to plough the ground lightly in ribs about twelve inches asunder—the seed may then be sown and harrowed

once. This method diminishes the weight of straw, brings the crop to an early perfection, and lessens the chance of rust and mildew. The drouth last autumn, having materially blighted the prospect of the winter wheat crop in many sections of the province, it would be advisable to sow spring wheat upon much of the land now occupied with this crop. In all cases where the plants are thin upon the ground and appear backward or stinted, the ground should be ploughed or scarified and re-sown with spring wheat. It is foily to wait for the winter plants to thicken, if the prospect is bad; plough and sow with spring wheat, as soon as the ground will admit.

Peas require to be sown upon good ground, and if they be a short, haulmed variety, three and a half bushels of seed per acre will not be found too much.—This may follow any of the white crops; and the land should be ploughed deep and well in the fall, and harrowed fine in the spring. The seed is difficult to cover—this may be remedied by ribbing or drilling in the seed; of the two methods probably the former is the best, both for covering the seed and for the crop. In point of importance the pea crop ranks next to wheat. Instead of making a naked summer fallow, peas may be sown upon the land. An early variety should be selected for this purpose—one that will come off the ground by the twentieth of July. As soon as the crop is harvested the land should be ploughed ten inches deep if possible, which may be done previous to wheat harvest, if the early variety be sown; and the only other preparations that the fallow will require, will be ploughing the seed furrow. The seed should invariably be sown in rows about ten inches asunder, or even fifteen inches is better than less than ten, which distance will admit a free circulation of air between the rows. If peas are cut a short period before they are ripe, the straw with care may be cured in such a state, that it will prove highly nutritious food for sheep during winter months. An abundance of food for stock might thus be raised at a very trifling expense, upon land that would have produced nothing if summer fallowed, but a heavy expense to keep clean.

Barley land can scarcely be worked too much; it should be rich, ploughed in the fall, and twice in the spring, and made by ploughing, harrowing and rolling, as fine as a garden. Ground thus prepared will scarcely fail in producing a heavy crop of barley. Ten pecks of seed per acre is none too much, and the seed should be sown by the first of May.

The Oat crop at the best scarcely remunerates for the expense of cultivation, and no good farmer will grow them with the expectation of realising a large profit. No crop is harder upon land than this, and it almost invariably leaves the ground in an unsuitable condition for the crop that succeeds it. Land for oats should be ploughed in the autumn and cross-ploughed in the spring. When all things are considered, the black oats are the most profitable variety cultivated. Three bushels per acre is the usual quantity of seed sown, and the average produce may be computed at sixty bushels per acre. Oats should be sown by the twentieth of this month.

Sow clover with barley, spring wheat, flax, and oats, either of these crops is adapted, to be sown with seeds. Clover cannot be sown too early, and rarely succeeds well if sown after the tenth of May. The quantity of seed that is calculated to produce a thick growth of hay, is six pounds of clover and four pounds

of timothy per acre. Grass seeds should not be covered deep with the harrow, and the ground should be made perfectly clean and rolled. The success of clover culture depends greatly on the state of the land upon which it is sown.

Prepare ground for flax; the deeper it is ploughed the longer and better the flax. Land for this crop requires to be made very mellow and tolerably rich; six pecks of seed per acre is a liberal seeding. Much less will answer if the seed be the principal object with the farmer. The flax crop will unquestionably remunerate the cultivator, if skill and proper machinery be employed in preparing it for market. The most feasible plan of engaging in this business is the factor system, which will take the trouble of preparing the fibre for market off the farmer's hands.

Twelve hundred acres were sown last spring in one township in N. Y. State upon this plan. The factors were bound to give the farmers one dollar per bushel for the seed, and eight dollars per ton for the flax or straw. No crop is on the ground a shorter period, and both seed and fibre will always find ready sale the moment that the business receives that attention that its importance warrants. Flax-seed is valuable food for stock, especially horned cattle and horses, and the fibre is well adapted for the manufacture of bagging and strong linen, which might be spun and wore by the farmer's family, or it would give employment for the poor. Every farmer should sow at least one acre—the seed to be fed to the calves, horses, and cows, and the fibre to be manufactured into articles for domestic use. If the land be rich and strong, the flax crop will prepare the ground as well for wheat as a naked summer fallow.

Prepare for sowing vetches; this is an excellent soiling crop, and one which might take the place of a naked fallow with great advantage to the farmer.—Tares require to be sown thick, about two bushels per acre is not found too much seed. That quantity of tares or vetches mixed with one quart of rape seed, and sown upon an acre of well prepared ground, will yield an abundant crop, which might be fed off with sheep or lambs in time to plough once for wheat. Ten acres of land thus sown with vetches and rape, would abundantly fatten fifty wethers from the first of July to the first of September, and the stock would yield an ample supply of manure, and the treading would put the land in a sufficient state of firmness for the reception of the wheat. The average yield per acre is twenty-five bushels, and the present value of seed is 7s. 6d. per bushel. Three bushels of tares are equal to two bushels of peas as food for stock. Rape, when sown alone upon fallows, should be cultivated in drills, about fifteen inches apart, which should be well hoed in the rows, but not thinned. The quantity of seed used should be four pounds per acre, which should be sown by the tenth of May; and the sheep may be put upon it in ten weeks from the time it has been sown. The ground may be thoroughly cultivated between the rows with horse hoes, which will as thoroughly clean the ground as if naked summer fallowed.—After being fed off with sheep, it may be sown with wheat, which will produce a heavier crop than any other preparation of land for wheat.

Ploughing when the land is wet converts the soil into a mortar, and does it more injury, especially if clay, than cropping. Deep ploughing on most of the land in this country would be productive

of great advantages; it would not only lessen the chance of injury from drouth, but would increase the amount and quality of produce upon the land, to an extent that can scarcely be credited by those who have never practiced it. Every farmer should experiment upon deep ploughing, and in this way the merits of the system will be better understood. In proportion as the soil is deepened may fresh barn-yard manure be applied, without entailing the evil of premature growth of the plant.

Plaster may be sown upon the young clover during the latter part of this month. From one to two bushels per acre upon sandy, and four bushels upon strong clay land, is the quantity that is generally used by those who have had the most experience with this manure. By the application of the above quantity, the clover crop may be doubled. It is also a valuable manure for turnips, potatoes, Indian corn, and all other broad-leaved plants.

Ashes for a top dressing is found highly beneficial on strong, cold, and wet soils, or low spongy meadow or pasture ground, and all other land that is rank with vegetation; on strong loams it is an admirable manure. From ten to fifteen of unleached, and from fifty to sixty bushels of leached ashes, will be found sufficient to dress an acre. No manure is more efficient upon deep vegetable soils than ashes, and every farmer should make it a point to collect them, to top-dress the wheat, potatoe, and grass lands.

All the short manure upon the farm should be collected together in a compost heap for a top-dressing for the meadow. This matter is too much neglected by the Canadian farmers. Meadow grounds should not only be top-dressed with vegetable matter from the compost heap and gypsum, but strict regard should be paid in keeping every description of animals off the fields during the spring and summer months. Meadows are often destroyed in this way, without any sensible advantage to the stock.

Look strictly to the ewes; they should be provided with warm, dry, sheltering places, and an abundance of hay and succulent food. A farmer who has a flock of forty ewes, should sow in drills, not less than one acre of parsnips, which should remain in the ground during winter, to be fed through this month to the sheep. From 600 to 800 bushels of parsnips may be grown upon an acre of land, as readily as half that number of bushels of potatoes. This crop requires a good deep hazel loam, and upon such soils no crop will pay better. Indeed it is somewhat singular that this root has not been more universally cultivated in Canada, as it not only withstands the frost, but its quality is thereby greatly improved; and it contains a large portion of saccharine matter, which makes it palatable to animals, and greatly conduces its fattening properties. They should be sown in rows fifteen inches apart, and the plants should stand about the same distance asunder in the rows. Those who intend cultivating the parsnip should lose no time in preparing the ground, which should be done something after the style of garden ground.

The Jerusalem artichoke certainly deserves more attention from farmers than it now gets in Canada. The artichoke will yield with similar culture 50 per cent. more than the potatoe, and upon poor land they will yield double the quantity per acre that can be raised with the potatoe, and the expense of culture is no more. Hogs will get fat upon this root, without any trouble in harvesting; and

the objections urged against its culture, owing to the difficulty in thoroughly eradicating it from the soil, may be wholly removed by careful cultivation and good management. As soon as the ground is open the artichoke may be planted with cuttings similar to potatoes.

The garden and orchard will now require attention. No farmer should neglect either of these departments. The labour and skill expended in the garden and orchard remunerates very handsomely; and every farmer who values the interests and comforts of his family, will pride himself in having a well cultivated garden, and an orchard of well selected fruits adapted to the climate of the country.

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MERCANTILE AND GENERAL AGRICULTURAL SOCIETY OF THE DISTRICT OF JOHNSTOWN.

The public dinner in connection with this society, took place on the 4th February in the town of Brockville, and it appears to have been the most spirited affair that we have had the pleasure of recording. The attendance was general, and the collections amounted in all to the sum of *one hundred and thirty-one pounds five shillings*. This we believe is as large an amount as has yet been raised by any district society in one year. The speeches delivered gave evidence of the highest order of talents, and also, that those who addressed the meeting had the true interests of the country at heart.—The merchants of Brockville have identified the interests of the agriculturist with theirs; and it appears to us, that if a general union of the farmers, mechanics, and merchants, could be brought about, that in less than two years the prosperity of Canada would be without a parallel in any other country. "United we stand—divided we fall," should be the motto of the friends of Canada. Party spirit has hitherto been the order of the day; and the result of this has been, that the best men in the country have been arrayed against each other, and the productive interests have not received that attention that they otherwise would have done, if the people had been more united. A new order of things appears to be dawning upon the people of Canada, and the signs of the times clearly indicate, that all classes and grades of society will ere long unite to promote the agricultural, mechanical, and commercial interests of the province. These classes are so much dependant upon each other, that the whole should be bound together in a spirit of brotherhood. This union can alone be brought about by the powerful influence of associations, such as have been recommended to the notice of the public from time to time in the *Cultivator*, and such as those classes have instituted in the Johnstown District. The speeches delivered on the occasion referred to, together with other proceedings of the society, occupied a large portion of three numbers of the *Brockville Recorder*. We copy the following extracts of Mr. Matthie's speech.

The Mercantile interests of our District, and we may truly say of our country, from Sandwich to Quebec, are so intimately blended with that of Agriculture, that to speak of the one, we must not only speak but think of the other; for without it, at this age of Canada, Merchandizing would be but a mere shadow. Agriculture is, truly, to Merchandizing, in what *Guano* is represented to be to a poor soil, it enriches and makes it produce many-fold.

The family connexion that exists between the two, may be more fully illustrated by going back to the early history of the Country, and to come nearer home, of our District.

Some half a century ago, Gananoque, Brockville and Prescott, were mere clearings; a few Shanties their only building; the country in rear a dense forest, save where here and there the handy settler had found his way, by the Surveyor's blaze to his Lot, and commenced laying the foundation of Agriculture in the District; *Where and what then were the Merchants?* The cor-

ner of a log-house their shop; a chest of tea, a keg of tobacco, and a few pieces of cotton their extensive assortment. The producers and consumers being but few, *the merchants and their stock of goods* were in proportion. But watch the increase of the one with the gradual advancement and progress of the other. In 1820 the population of the district was about 15,000, producers and consumers; and about 20 merchants In 1843, the population had increased to about 36,000, and in the whole district there were about 80 merchants. Here, it might be asked, what was then its trade, and how and with what was that trade supported?

By a rough calculation, it is supposed, that the goods sold in the district in 1843 were about £120,000; and of this sum were sold to and paid for by other districts, about the sum of £25,000, leaving a balance of £95,000 consumed in and to be paid for by the district. Now who were the consumers, and where did they get the means to pay this large sum? This may be answered by stating, that ⅘ths at least of the consumers were those engaged in agricultural pursuits; and the means of payment were the labour of their hands, and the productions of the soil. It has been calculated, that the district in 1843 has a surplus, after reserving for the necessary consumption, the following.

| | |
|---|---|
| 210,000 Bushels of Wheat *a* 4s. 9d. | £48,750 |
| 5,000 Kegs Butter, *a* 30s. . . . | 7,500 |
| 40,000 Bushels of Oats, *a* 1s. . . . | 2,000 |
| Beef, Pork and other surplus products, | 5,000 |
| Total. . . . . | £63,250 |

And to be added to this £63,250, and which was produced by the labour of the inhabitants in the district, viz:—

| | |
|---|---|
| 2,000 Bbls. Ashes *a* £5 per bbl., . | £10,000 |
| Squared and sawed Lumber, say . | 15,000 |
| Amounting to in all, . . . . | £88,250 |

To this sum of £88,250 should be added the profit made upon whatever was manufactured for foreign districts, as foreign Wheat ground for export, Snaths, Hames, &c. and not named before,

By these calculations, Mr. Chairman, which are not by any means given as perfect, it will be seen who are the consumers and producers of the country: and to take away this trade, the greater part of which is created by the farmers, *what would be the use of the Merchants? There occupation like "Othello's" would be gone.*

This may be more clearly shewn, by comparing the surplus yield of wheat in 1843, with that of 1844. The former, as has been named, gave a surplus of some 210,000 bushels, while 1844, it has been calculated, will not yield of good wheat more than 40,000 bushels, showing a deficit of 170,000! which at even 4s. per bushel would give £34,000. This is, indeed, an immense deficiency in the great staple export produce of the district. This is what may be termed a short crop; and are its effects felt by the mercantile body? I would ask any merchant here present, whether doing business in the town or country, is, or has been much over half as good since the harvest was gathered up, to the 1st of February, as it was during the same period the previous season? Mr. Chairman, do these effects of a short crop not show *to you, to me,* and *to every one here present, more and more* conclusively *our dependence upon the Agriculturist, and that his interest is our interest: when the hand of Providence blights his prospects, ours cannot flourish.* This is so, and must continue so to be, while agriculture is the root and foundation of our trade, and Canada remains an agricultural country.

I would ask, Mr. Chairman how is this large amount of *Export Produce* to be made good: what substitutes can be introduced, which will pay to send to a Foreign market, while the danger from the insect to our Fall wheat is so justly to be apprehended? There are some gentlemen here present, who are no doubt prepared to give some useful suggestions on the subject of new kinds of *Spring Wheat*, which, will to a certain extent, be proof against the *inroads* of the *insect* and *impervious* to the *rust*, and that can with great safety be sown on the land prepared for wheat last fall, but in consequence of the failure was left without seed. I will therefore not touch upon it. But, Mr. Chairman, there are other articles of export, which are now produced to a considerable extent, but which, unfortunately, do not turn out in quality suitable for the market.—There is Beef, Pork, Butter and Cheese, might all be improved very much. *All* these articles are now exported largely from the United States, and by the news per the last Steamer from England, we may read "that the trade in American provisions had become one of great importance, and has been fully confirmed by the experience of the past twelve months." It is true, that the U. States have important advantages over us in the production of some of those articles, but in others the difference is very little. For instance, Butter and Cheese. Respecting Cheese, I will make no remarks, as there are some gentlemen present, who I doubt not understand and will throw some valuable light on the subject.

The article of Butter, from Canada, until last summer, was selling in the English market for about 4d. to 6d. per lb., about one-half the price of Irish. What has been the reason of this? The inferior quality of the article, growing, in a great measure out of the want of care in sorting, packing, and curing it. To show that this is so, a friend informed me, a few days ago, that last spring, he had packed about two hundred kegs with great care, intending to test whether or not we could make and cure butter that would sell as well as that made in other countries and sell in the English market. He took full bound rough hooped firkins holding about 84 lbs. each, and soaked them in salt and water for about two days. As the butter was brought in, in pails, he sorted each shade of color by itself, worked it over with

the hand, cut it into thin slices with a wooden knife, putting it down in layers of about five inches thick, and between each, sprinkled loaf or crushed sugar and fine salt, in proportion of about three of salt to one of sugar; headed up his kegs, bored a whole in each and covered the top with brine made of salt and a little saltpetre permitting the butter to soak in all the brine it would. And this butter sold in the English market for 9d. per lb. or equal in currency to about 11¼ per lb. Butter might be made a very important article of export from this District, and in place of sending out of it 5000 kegs of an inferior quality, *we might make and send out* 20,000 *kegs that would command the first price in any market.* And supposing, Mr. Chairman, it were only increased to 10,000 kegs of 84 lbs. each and the importers realizing only 7½d. currency per lb. this would give the large sum of over £26,000. There are a number of good reasons why this branch of our industry should be fostered and encouraged. The extent of grazing land in this District at this time is probably quite sufficient to feed two or three additional cows to every farm; the very *low price* of hay throughout the District, is annually all but a drug in the market, and warrants me in saying that there would be no lack of provender in winter. The butter being usually made by the females of the household, would cause very little additional cost of labour. The necessary increase of cows might be gradually added from their present stock. The freight and expense of handling a keg of butter between this and the English market does not exceed much over one-half as much as that of a barrel of flour, and the value at even 6d. per lb. would exceed very much the average value of flour for the past number of years. These reasons appear to me to be good that the making of butter should be fostered and encouraged; not in the shape of large dairies, for they usually have their profits confined to a few, which is all right as a special business is made of it; but every farmer ought to be encouraged, not so much to have an extensive dairy, as to have a good one—what butter they do make to make good. How can all this be done? By the merchants discriminating properly between good and bad butter, and paying a price accordingly. Make it for the farmer's interest to produce good butter and it will be done. Now, many, I fear, take no pains to make good butter, for good and bad bring about the same price.

Mr. Chairman, in thus speaking of the importance of increasing the production of butter, the market to which we would point for its sale is England. *England! What would we and the rest of the world do without you?* That market of which Mr. McCullough says, referring to 1832—12 years ago, respecting the consumption of butter in London, and that used for the shipping of that port, alone, was about 48,000,000 lbs. Now, supposing that each district in Canada West was to export 10,000 kegs, and each keg containing 84 lbs. this would give about 220,000 kegs, or about 18,500,000 lbs, only about one-third of the quantity consumed alone by London and its shipping in 1832. Are we, Mr. Chairman, by any means likely to glut such a market as England presents for our surplus of this article? Surely not.

I fear, Mr. Chairman, that I am taking up too much of the valuable time of the company, but the subject and the importance of our trade is almost inexhaustible. Before closing, however, I would remark, that there are many articles which we at present import from the United States, which, if raised in the District to the extent of our consumption, would be just equal to the same amount added to our *export produce.* Garden seeds, clover seed, dried apples, broom corn, and cheese, I am sorry to say, are still somewhat extensively imported into the district. The money has to be paid for every pound's value of these articles which we import and consume.—The United States take scarcely any thing but cash in return for what we buy of them of this kind.

In conclusion, Mr Chairman, I would humbly and respectfully urge the necessity that exists to foster and encourage the cultivation of *export products.* Of those necessary for our home consumption, unless the population increase more rapidly than it has for the past ten years, we can always raise a sufficiency. But we want more than this; we were created for other purposes than simply to eat and drink; we want education; we want implements and tools for our mechanics, which are not made among us; we want many necessaries of life which are not grown or produced on our soil; and I may say that there are a few luxuries which have forced themselves upon us, and taken their place in the list of our wants, that we also require. Now, none of these can be obtained unless we have the means to obtain them with. They must be paid for in cash or in produce; the money is created by the produce; if we have no produce to sell there is *no money—no trade.* We, as merchants, mechanics, and millers, should put our shoulders to the wheel unitedly, steadily, and perseveringly, to promote this important object. Whatever investment of time and contributions are now being made towards it, rest assured they are only out at interest, and not thrown away. *The interest of the Farmer is our interest; the sun* of his prosperity shines golden rays upon ours.

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*To make Salt Butter Fresh.*—When butter has too much salt in it, put to each pound of it a quart of fresh milk, and churn it an hour; then treat it like fresh butter, working in the usual quantity of salt. A little white sugar worked in, improves it. This is said to be equal to fresh butter. Salt may be taken out of a small quantity of fresh butter, by working it over in clear fresh water, changing the water a number of times.—*American Housewife.*

## ON MANURING AND STEEPING OF SEEDS.

The following very able article appeared in a late number of the *Farmers' Cabinet.* But few of the Canadian farmers are prepared to make many experiments, especially those of a doubtful nature; but the modes for preparing seeds, here described, are within the reach of many, and may be practiced no doubt with great advantage. The mixtures might be varied to suit the convenience of the experimenter, and others might be employed, such as the phosphate, and sulphate of lime, charcoal, guano, and many others that might be mentioned, and if this plan was adopted by even a few of our farmers, most important results would ultimately accrue to the cause of agricultural improvement. There can scarcely be a doubt but that the system of steeping seed grain in some powerful stimulating manure will, ere long, be practiced pretty generally, for it is obvious that many soils have been robbed of the true elements of production by injudicious cultivation; and the cheapest way that those substances can be restored to the soil, for the use of the crop is, by preparing the seed with such solutions as may be deficient in the soil. Agricultural chemistry most beautifully points out the necessity of supplying the land with such food as is found in the crop when in a state of perfect growth; this can only be known by analyzation and practical experiment. The latter method of ascertaining the description of manure, and the amount required for the various crops and for different soils, is the one which the practical farmer must employ in the present infant state of agricultural science. In experimenting in agriculture, it is the wisest course to do so upon a small scale, and by this method most important discoveries may be made without entailing loss. The diseases and casualties more or less subject to the crops cultivated in this country may almost wholly be prevented, if those who cultivate the soil would consult their own interests by studying into "the why and the wherefore" of the causes and effects which influence their operations.

Another German pamphlet on this subject has lately appeared from the pen of a Mr. Vietor, an apothecary at Neiderholm, in Hesse Darmstadt, under the title of "The Manuring of Seeds, or a simple and cheap cultivation of the soil by the artificial manuring of seed, by which, at the same time, the rust and other diseases of the corn-crops are prevented, practically tried for five years, and proved on a large scale." By C. L. Vietor. This author describes his methods, and is so far more worthy of the attention of the practical man. Before detailing these methods, however, I shall insert a few of his preliminary observations.

As the principle upon which the manuring of the seeds ought to be preferred to that of the soil, he remarks "that the manure can never be so equally distributed through the soil that the due proportion of food shall be given to each seed or plant; and that, besides, before the plant comes to require it, much of the organic matter of the manure has become decomposed and lost, and that even the inorganic matter is liable to assume forms of combination, in which it can with difficulty be made available to the nourishment of the growing plant."

These disadvantages, he says, may be avoided by manuring the seeds themselves which we wish to grow, while, at the same time, the following advantages will attend the adoption of this method:

"1. The same crop may be repeated on the same soil, though already exhausted, or even in any usually unfruitful soil.

"2. We can manure the seeds with those special substances only which it is not likely to find in the soil, or of which it has been exhausted by previous crops."

This is an advantage which is possessed by all saline and mineral manures, and is one of those benefits which will appear more clearly and strikingly to the practical man as he becomes more familiar with the natural wants of the crops he wishes to raise, and with the kind of substances which are present in his soils and in the manures, such as farm yard manure, which he usually employs in preparing them for the seed.

"3. As the rotation of crops is rendered necessary chiefly by the abstraction of saline substances from the soil, it may be rendered unnecessary by adding again these substances, in such a way as to be within the reach of the seeds only. Thus, by steeping the seeds in salammoniac, and drying

them with flour, the deficiency of salts may be supplied.

"4. The rust and other diseases of corn plants are owing either to an excess or to a deficiency of food in the soil. These extremes can be best avoided by manuring the seed itself with the proper materials and in the proper degrees. Thus," he says, "in a field of wheat after oats, upon a poor soil, a portion of the seed, which had been prepared with sal ammoniac, gave only a light crop, while another portion, prepared with oil also, gave a crop twice as heavy.

Influenced by the considerations above stated, some of which may, to a certain extent, be regarded as unquestionable, Vietor has been induced to try the manuring of the seeds before they are sown, and from the success which has attended his results, to recommend it to others. The substances he employs, and his mode of using them are as follows:

*Substances employed.*—1. *Blood, in the liquid* state, is mixed with one-eightieth of its weight of glauber salts, dissolved in a little water; when thus mixed, it may be kept for a long time in a cold place without congealing or undergoing decomposition; or clotted blood may be dried either alone or mixed with a little earth or powdered clay, and then reduced to fine powder.

2. Wool, hair, parings of leather, horns, hoofs, and bones are charred in close vessels, until they are capable of being reduced to powder.

3. The dung of all animals is dried and reduced to powder.

4. Fats and oils of all kinds are mixed with so much earth, clay, or rye meal, as will enable the whole to be reduced to powder. Oil-cakes are also powdered for use.

*Mode of using them.*—He makes up a semi-fluid mixture with which he mixes the seeds, and then he dries up the whole by the addition of the powedred manures already prepared. His semi-fluid mixture is thus prepared. For a bushel of wheat or other grain, take

20 to 30 pounds of clay in fine powder.

1¼ pounds of pounded sal ammoniac, or 3 pounds of common salt.

3 to 5 quarts of whale, rape, or other cheap oil.

15 to 20 quarts of fresh blood, or blood kept in a fluid state by means of glauber salts, or in the absence of blood as much water.

3 to 5 pounds of linseed meal or pounded oil-cake.

These are mixed together intimately, and water added, if necessary to make a half-fluid mass. The seed is then to be poured in and stirred about till every seed is completely enveloped by the mixture. A layer of one of the following dry mixtures is then spread on the floor, over it the manure seed, and then another layer of the dry powder. The whole is then stirred together and left to dry.

*Dry Mixtures.*—Of these drying mixtures he describes several, consisting chiefly of powdered clay, mixed with one or other of the dry powders already mentioned. Thus he recommends mixtures of

1. 75 of powdered clay, 8 horn shavings, and 17 of bone dust.

2. 85 of clay, with 15 of fluid, or 5 of dried blood.

3. 85 of clay, 5 of charred hair, and 10 of oil-cake.

4. 60 of clay, and 40 of powdered dung.

5. 70 of clay, 25 of charred leather, and 5 of bone dust.

6. 80 of clay, 1 of fat, tallow, or oil, and 2 of powdered dung.

These are all to be finely powdered and intimately mixed. The principal alleged use of the clay is to make the other substances cohere together, and to attach them more strongly to the grain.

When the mixture of grain and manure is dry, it is broken up with the hand and thrown upon a fine sieve, which allows the loose powder to pass through and the uncovered grains, and then put upon a coarser sieve, through which the dressed seeds pass, leaving the lumps, in which two or three seeds may be present, and which are to be carefully broken up. He prescribes further, that much caution is to be used in completing the operation so quickly that the grain may not be permitted to sprout, and thus become liable to injury during the succeeding operations.

When it is wished to grow corn after corn in fields manured in the usual way, Vietor recommends mixing, for each bushel of seed, two or three pounds of sal ammoniac, or four to six pounds of common salt with ten to fifteen rye-meal, adding a little water, stirring the seed well among it, and drying the whole in a stove.

Such is the substance of Vietor's pamphlet and observations. I have stated them pretty full, because I think he deserves this much at the hands of those who are interested in the progress of practical agriculture; because he has stated the reasons for his procedure, has described his processes fully, and claims neither great merit nor great reward for alleged great discovery. Besides, there is a show of reason in what he states. For though he may very fairly doubt, or perhaps entirely disbelieve, that the quantity of manure with which he envelopes his seeds, can be sufficient to supply the wants of the crop that is to spring from them, yet there can scarcely be a more economical way of employing the same quantity of manure—one in which there will be less waste of it, or in which it will be more useful to the growing plant. In every way of applying manure to the soil, which has hitherto been adopted, a large portion never reaches the roots of the plants. Even when drilled in along with or near the seeds, a notable quantity escapes from the neighbourhood of the roots, and is more or less completely lost to the crop it is intended to feed. Such must obviously be the case to a very much smaller extent where it is in actual contact with the seed it is to nourish, and actually envelopes it.

Still it is doubtful whether the gain or saving effected by this method, will be equal to the cost of time and labor which it involves. Should such

a mode of manuring be found easily practicable, more skiilful mixtures than those of Vietor, (such as would be more certain to succeed, and such as would be fitted especially to aid the growth of this or that kind of crop,) could easily be suggested.

In illustration of this opinion, I will here briefly state the facts from which I am led to believe that considerable benefit may in reality hereafter accrue to practical agriculture, from a careful study of the effect of certain known steeps or prepared mixtures upon the after-growth of the seeds upon which they have been tried.

1. The quantity of inorganic matter contained in the grain of wheat, oats, barley, &c., is comparatively small. In wheat and barley it varies from 1½ to 2 per cent. of the whole weight; in oats it is about 3½ per cent., but a considerable proportion of this is contained in the husk with which the oat is usually invested. But, though small in quantity, this inorganic matter is absolutely essential to the perfect condition of the seed, and to the healthy growth of the plant that springs from it.

2. When seeds are steeped in water, they swell and increase in bulk. They absorb a portion of the water and of any saline substances it may hold in solution. Now, if the small quantity of saline or inorganic matter which exists in seeds does really promote their growth, may not a larger quantity promote it more? May not the growth be more luxuriant if the seed be steeped in water containing saline substances in solution, and be thus made to absorb an additional proportion? It does not appear unreasonable to suppose that a bushel and a half of seed wheat may be made to absorb a pound of saline matter. This appears, indeed, to be only a very small quantity, and yet, if absorbed, it would add one-half more to that which the seed naturally contains. We cannot pronounce beforehand, with absolute certainty, that by this absorption the growth of the seed would be greatly promoted, though both theory and practice concur in rendering it probable. Thus the experiments of Bickles (whose mode of preparing seeds appears to be a simple steeping in saline solutions) appear decisive in favour of the opinion that such artificial additions to the saline matter of the seed do really, in some cases at least, greatly promote the growth of the seeds, and increase the luxuriance and produce of the after crops.

The fact that saline manures are beneficial, in many cases to the growing crop, when merely applied to the soil, is in favour of the same view. The salts, it is true, when applied to the soil, enter the plant by its roots; but, nevertheless, their action is simply to yield saline matter to the plant in larger quantity, than it could otherwise readily obtain it from the soil. This additional supply might be given it, to a certain extent, by steeping the seed itself.

3. Further, we know that some seeds germinate much more rapidly and certainly than others. We know, also, that the proportion of inorganic matter, or of ash they leave when burned, varies in different samples of seeds of the same kind. That contained by wheat, for example, is sometimes 1½, sometimes 1¾, and sometimes nearly 2 per cent. of its weight. Can this difference in the growth of seed and the difference in the proportion of saline matter, have any connection with each other? Do some germinate feebly, do others fail entirely because they contain too small a proportion of the usual saline constituents of the seed? Would they germinate better if more were by some means given to the seed? The same experiments of Bickles, upon the effect of steeping, seem almost to answer these questions in the affirmative; they at least, render it very probable that some such relation does exist between the two differences to which I have alluded The same may also be said of the observation made by Mr. Fleming, of Barochan, that seed wheat, which had been dressed the previous year, with certain saline substances, grew more luxuriantly, and gave a better crop than that which, though grown on the same field, had not been so top-dressed. It is not very unreasonable to suppose that this better growth of the dressed seed might be owing to its having obtained, from the substances applied to the soil, a larger proportion of saline matter than that to which no top-dressing had been applied. Still these circumstances only render probable the opinion to which I have adverted. They point out, however, new series of researches, both in the field and in the laboratory, by which the opinion will be tested, and either refuted or confirmed. In the field, experiments must be made with different seeds, dressed and undressed. In the laboratory these seeds must be examined, the proportion of inorganic matter they respectively contain determined, and if this inorganic matter be equal in quantity in seeds exhibiting different powers of germination and growth, the difference in the kind of quality, as well as in the quantity of the ash, must be more or less rigorously ascertained. By these united methods of investigation, we may hope, by and bye, to make out what are likely to be the real and constant effects of steeping upon seeds—to what kind of seeds or roots it may be applied most beneficially—under what circumstances this treatment ought to be especially adopted—what kind of saline substances ought to be applied to each species of seed, and in what proportion—and what is the nature of the influence they may be found to exercise in promoting or otherwise modifying the growth of the after-crop.

In the meantime, there are two principles by which our trial of steps ought to be regulated, by which the saline substances we may employ with advantage in our first experiments in the field and upon different crops are distinctly pointed out. In a future paper I shall explain these principles and state the practical suggestions which may be drawn from them in regard to experiments upon the steeping of roots and seeds.

TOWNSHIP OF WHITBY AGRICULTURAL SOCIETY.

This society now numbers 230 members, each of whom receive the *British American Cultivator*. The list of members to this association in 1843 did not exceed 50. In the early part of 1844 the society was re-organized, and the plan of supplying each member with a copy of the *Cultivator* was adopted; by the new plan the list of members soon amounted to 150, and it is confidently expected that before the close of the present year the list of members will exceed 300. In the village of *Oshawa* alone, upwards of 80 members have been added to the society, which speaks volumes for the merchants, millers, mechanics, and professional men of this country village. Well may the farmers engage in this great enterprise, when such a spirit is exhibited in the matter by persons who are not directly interested in the prosperity of agriculture. The officers of this society drew up a chart of their township, dividing it into sections, and appointed two collectors to each, whose duties were to canvass their several divisions for members; by this means every individual was called upon and solicited to patronize the institution.

There are in Western Canada upwards of 300 townships, and if each of those townships were to adopt the system which has been so successfully practiced in Whitby, they might be made to average at least 50 members to either district, county, riding, or township agricultural societies, which would secure a circulation of 15,000 subscribers to the *Cultivator*, at the low price of 2s. 6d. per copy. By being thus tolerably patronised, its editor could afford to occupy his whole attention in conducting the Journal, and its columns could be illustrated with valuable engravings, and in fact it might be made the most useful agricultural magazine published on this continent.—The *Cultivator* is already pretty liberally supported, but at the low price at which it is afforded, it is essential that its list equals 10,000 paying subscribers to remunerate the proprietors for the expenditure of time, trouble, and money that they are subjected to in managing it.—That number of copies might be sold if the farmers generally were to evince the same lively interest in the matter as is done in Whitby and some other localities.

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The monthly meeting of the Township of York Agricultural Society will take place on the 15th inst. at James Nightingale's Inn, Yonge Street, at six o'clock, p. m. precisely. The subject for the evening's discussion is, "*The best variety of Spring Grain, and the best mode of Draining.*"

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GOVERNMENT AGRICULTURAL PATRONAGE.—The friends of agricultural improvement will no doubt be rejoiced to learn that the Government Bounty for the encouragement of agriculture, has been encreased to the very handsome sum of £250 to each District Agricultural Society in Canada West, £150 to each County Society in Canada East, and £500 each to the Districts of Montreal, Three Rivers, and Quebec Agricultural Societies. We have not seen the Agricultural Societies Bill, but we hope to be able to give further particulars in the May number.

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*Worms and Grubs.*—A mixture of salt and saltpetre (nitre) in the proportion of eight parts of the former to one of the latter, applied about the roots, will, it is said, destroy the worms, and greatly promote the health and thrift of the tree.

## AGRICULTURAL CHEMISTRY TAUGHT IN SCHOOLS.

At a late convention of parish school teachers in Scotland, Professor Johnston delivered two able lectures upon agricultural chemistry, the purport of which were to show the necessity of having agriculture taught in the common schools of that country. It is difficult to judge whether the tastes of the farmers of Canada would lead them to favour such a project or not, but *one thing is evident*, that other steps must be taken than those at present employed, or else much valuable talent will be lost to the country.—The highest order of talent may be found among the yeomanry of this province, but unfortunately in too many instances, it is like the marble in the quarry. In a new country like this, no effort should be spared in giving the young a plain practical education, and for this reason we would advocate that those branches which will ultimately be practiced by the rising generation, should be taught. We are aware that this is a dry subject to many of the farmers of this country, nevertheless we shall press it upon the attention of the readers of this journal, because the day will come when more interest will be felt in this and kindred subjects. The closer the subject of agricultural chemistry is investigated, the more interesting it will become. Every young man who follows the plough should carefully read the following lecture, and if the truths unfolded should not have the effect of creating a thirst for a deeper draught from this almost inexhaustible fountain, it would show most conclusively on the part of the reader, that he sets a low valuation upon the noblest and most interesting sciences that was ever studied by the agriculturist. This lecture being in our estimation of such great importance, we copy it entire, and recommend it to the careful perusal of our readers.

Gentlemen, there was a time when this hill upon which we now stand was nothing but a naked rock of lava. That old lava gradually decayed, as modern lavas do, and crumbled down and formed loose matter on the surface, in which seeds of plants grew, died, and left their remains. Thus by degrees the soil accumulated to such as you now see on the surface of this rock on which plants now grow. Such is the history of nearly all the soils on the surface of the globe. Suppose you take a portion of any one soil, and put it upon the end of a piece of metal, such as I am doing just now, and in any way expose it to the action of the fire, you will see that part of the soil will grow blacker at the edges; by and by that blackness will disappear, and the soil will assume a color more or less dark, according to the nature of the substances of that which remains consists. If you take this portion of the soil before it is heated and weigh it, you will find that after it is exposed to the fire it is not so heavy as before. That portion of the soil which has burned away consists of the remains of those vegetables of which I have spoken; of those animals who have died and been deposited in the soil; and of the manures which have been applied by the farmer. Thus vegetable matter forms what is called the organic, and the other portion of the soil the inorganic matter. The quantity of organic matter varies very much—in some soils it exists to the extent of two per cent., in others, 15 and 20 per cent., and in peaty soils, sometimes as high as 70 per cent. If you take a piece of vegetable matter, and burn it, such as this wood, you will find here, also, that a large portion will not burn away, but remains, forming wood-ash. It is the same, then, with regard to to the plant as to the soil,—a part burns away, and a part remains. If you look at the tables, you will see that different plants have different proportions of inorganic matter,—thus, meadow hay leaves nine or ten per cent. of incombustible matter. Again, as to the animal substances,—take a piece of muscle, dry, and burn it, and you shall find that the greater part of it will burn away, which is the organic matter, the remainder being, as in the soil and in the plant, the inorganic and incombustible matter. Now, one hundred pounds of fresh muscle contains phosphate of lime and other saline substances to the extent of one per cent. of incombustible matter. Thus, the three different substances, soil, vegetable, and animal matter, consist of organic and inorganic matter; but there is this difference, that in the soil there is a larger portion of inorganic matter than in plants and animals,—in the latter, the greater portion burns away. I shall call your attention now to the inorganic portion of soil. By looking at the table, you will observe that the inorganic matter consists of different substances, such as silica, which forms a very large proportion of flint; alumina, a substance which forms a large proportion of pipe-clay; oxide of iron, which is the rust of iron; potash, of which the potash you get from the shops may serve to give you an

idea; chlorine, which is a kind of air; and then *there is manganese, phosphoric acid, and carbonic* acid. These substances are found in all soils, but not in equal proportions. You will see in the *table before you the details of the constitution of* a soil which would yield good crops for perhaps a hundred years. Were you to possess such a rich *soil as that,—and such soils are to be got in the* virgin land at the Cape of Good Hope, on the banks of the Ganges, and the Mississippi,—you would always find that it would contain a notable quantity of all these different elements. In the second column of the table you have a list of the quantities of the different substances of a soil capable of yielding good crops, but which would require to be regularly manured. You will observe that opposite three of the substances the word "trace" is put, which means, that though the substance was not absent altogether, yet it existed in so small a quantity that it could not be weighed. In the rich virgin soil stated first, you observe that there is of lime fifty-nine per cent., while in the second column there is only nineteen. Of phosphoric acid there is four in the one, and two in the other. In the third column of the table is the constitution of a soil so barren, that though *manured, it could not produce a good crop.* You see that there is a great many gaps in the list; in short, there is only five substances which *exist in anything like quantity.* So much for the substances which exist in all good soils; and you may be sure that if any soil does not produce a good crop, some one or other of these substances are awanting. The question arises,—how do soils come to have such different compositions as these? I stated to you how the crumbling down of rocks formed the soil along with the accumulation of organic matter in it; and if I had time, I would have directed you to a geological map, and shown that in every country the rock on which the soil rests is different; and if it be true that the crumbling down of rocks forms the soil, you learn at once how soils must differ very much in their composition. In feldspar soils, of which rocks principally consist, you will observe only silica, alumina, and a few others. A soil formed from this must therefore contain a large quantity of these substances which are on all soils, while it would be deficient in many others. As soils differ in this way, we are led to this practical question,—how can we make this soil to be like that soil, or how can a bad soil be made equal to a good one? The answer is simply, that you must supply those substances which are wanting in the soil—you must supply as much potash or lime as are awanting in the third or poor soil—and as much lime and phosphoric acid as is awanting in the second, to make up all the constituent elements which exist in the first or rich virgin soil, and which are necessary to enable the soil to produce a good and profitable crop. This shows you the benefit of an analysis of the soil, by which a farmer is enabled to decide what the soil requires, and proceed accordingly. I shall *next speak of vegetable substances; and first, as* to the inorganic part of them. If you take the ash which remains behind, when a plant has been exposed to the fire, and analyze it in the same way as with the soil, you will come to this result, that the inorganic part of the plant contains precisely the same substances as the inorganic portion of the soil. In the table on my right hand, *you see the composition of a 1000 lbs. of hay.*

The different kinds of hay have different quantities of the same substance, which substance is the same as in the soil. In reference to the ash of vegetables, 100 lbs. of wood would leave behind not more than a half a pound of ash. Perhaps you may be inclined to ask why, seeing that out of 100 lbs. one half pound only is ash, can that half pound be necessary for the existence of the plant, or is it rather merely accidental, and in no respect making any difference to the plant? No such thing, gentlemen. That half pound of ash is just as much an essential part of the plant, as the 99½ lbs. which burned away. The same is the case with wheat, which leaves 2 lbs. of ash. I state these facts, in order to bring you along with me in my exposition of the principles of the science—that you may see how I come to the conclusion, and which must be true, that the plant could not live,—that it could not fulfil the purposes of nature, unless it contained this small quantity of inorganic matter. If you look to the table on the ash of hay, you will find there is an analogy between it and the soil. Red clover contains in one thousand pounds thirty-one pounds of potash; rye grass as little as nine pounds. Of phosphoric acid, rye grass contains one-third of a pound, red clover less than 7 lbs., white contains five, and lucerne 13 lbs. We learn, then, that these substances are present in different proportions in the ash of different kinds of hay, and from that we draw several important practical deductions. Let us inquire whence do the plants derive the organic and inorganic parts of which they consist. They derive the organic partly from the soil and partly from the air; the inorganic solely from the soil. In the air float certain proportions of all those substances which enter into the organic part, but none of those which enter into the organic part of the plant. Now, the different kinds of plants in the soil will materially affect its constitution, and have a remarkable influence upon that constitution. Suppose I grow lucerne upon the very fertile soil detailed in the table, as the lucerne takes out a large quantity of lime and of phosphoric acid, you will see that the crop would rob the soil of a large proportion of lime and of phosphoric acid, and that therefore it would not grow the same crop with that luxuriance that characterised it at first, because it could not supply with the same ease and abundance those peculiar substances upon which lucerne lives more than upon any other. Take the ash of the different kinds of grain, and you will find that each in its own way affects the soil. Wheat, oats, and rye, require a large quantity of phosphoric acid, and so if you grow wheat along time in the same soil, it will draw out this phosphoric acid among

other things, and thereby reduce its quantity. This is what is meant by exhausting the soil. If rye grass is the plant used, it will exhaust the soil generally, because it does not take away a great portion of any one of the substances. In the same way, different crops make the soil poor; but if I take the same crop, say fifteen or twenty times,—a practice which, as is well known to the most of you, existed not many years ago, it would by that time produce no crop at all. The land then may be exhausted in two ways,—generally of all the substances, and specially, of particular substances; and from this circumstance we are enabled again to make two or three practical deductions. In the first place, inasmuch as the soil contains a limited quantity of these subtances, and inasmuch as different crops carry off different portions, you at once see why it is judicious to have a rotation of crops,—that the longer the time is which elapses before you take a similar crop, the longer will the soil last and continue productive. A soil may produce one crop, when it cannot produce another. Let us enquire next why land is manured. The composition of the soil would tell you in the first instance, for it is obvious that manure is applied to restore those things which are wholly or comparatively awanting. Chemistry tells practical men how to renew their exhausted soil. Suppose that 15 crops of cats have been taken off a piece of land, it will lose a large quantity of lime, phosphoric acid, and potash, and in order to restore it you must supply the soil with these ingredients of which it has been robbed. Manure being composed of the remains of vegetables taken off the land, and containing all these things of which the plant consists, the farmer, generally speaking, is enabled by its application to retain the fertility of the soil. But then, observe you, he adds all these things which are required for a fertile soil, which may be a great deal too much, and may not supply an adequate abundance of that partieular substance which the land actually requires, and thus a great expense is entailed which he may not be able to undertake, and thus the land fall short of that richness which he wishes, and which, at a less expense, he might be able by other means, under the guidance of chemical knowledge, to provide for his land. If the farmer knows chemistry, he will, at far less cost, and far more effectually, secure good crops. I come next to the organic part of the plant. You observe, when I take this wheat flour dough, and wash it in water, it diminishes in bulk, and the water becomes milky. The portion that remains, for it will not all wash away, is a sticky substance, and this is called gluten. If the water is allowed to stand a short time, the white will fall to the bottom and form starch. The flour is thus easily separated into two parts, the starch and the gluten. If lint or hemp seed is put into a press and squeezed, a large quantity of oil will come out, but not the whole that the plant contains, and this is the case with all seeds, more or less, though the fatty matter may not be so abundant perhaps as to produce oil by pressure merely. Wheat contains gluten to the extent of from ten to thirteen per cent.; meadow hay forty per cent. of starch. Of fat, wheat contains from two to four per cent.; straw, sometimes three per cent., cats, six per cent.; Indian corn, nine per cent., and meadow hay, from two to five per cent. Thus the organic part of vegetable matter contains gluten, starch, and fat. I shall now make a few observations on the composition of the animal. Of what does the ash of animals consist? The body you know is composed of various parts,—of muscles, fat, bone, and other elements which I need not detail. Let us examine the composition of the muscle, and we shall find that it contains two and a-half per cent. of phosphate of lime, and a third per cent. of other saline matters. In bones you do not have all the substances which exist in wheat, but you have some of them, such as lime, magnesia, &c. In ten gallons of milk, there is three-fourths of a pound of saline matter; so that if you take the composition of the muscle of the bone, and of the milk together, you will find that animals contain the different substances which are to be found in the soil. Thus it is we learn the intimate connection between the composition of the inorganic matter of the plant, of the animal, and of the soil. But where does the animal get this inorganic matter? They obtain it from the plants. In bone, six-tenths of the whole consists of phosphate of lime and magnesia. Now an animal could not support itself or walk about without some bone or firm substance to uphold it. It feeds upon herbage, which it must have, in order to obtain these different substances of which it is made up. But if the plant had no soda or magnesia, the bone could not be built up no more than the walls of this house could be erected without lime, stone, and other substances. It is necessary, then, that the plant should have all these substances, in order to supply them to the animal creation—a purpose which it could not fulfil unless it contained all that is necessary to build up their bodies. And where does the plant get these substances? It gets them from the soil; nor can a plant live without them. And here we have a beautiful example of the provisions of nature, for a plant cannot grow, it cannot appear at all, unless it can acquire these elements, and that, too, just because, if it did live, it might indeed deck the surface of the earth, but it would not be able to feed animals, which is its great purpose in the creation. (Loud applause.) Thus a beautiful thread of philosophy pervades and connects all these different substances. Of what does the organic matter consist in animals? It consists of two parts, the muscle and the fat, and you will remember that we have three things in the plant, fat, gluten, and starch. If I take a piece of muscle and wash it, I shall wash out the blood and make it like the colour of fat, and upon tearing it out it will be seen to be fibrous. When the fibre is analysed, it is found to be the same thing as the gluten in wheat. If you take the fat of animals, and compare it with the fat in plants, you will find a remarkable analogy to each other, though they are not absolutely identical, and I

believe they could very easily be converted into each other. The organic matter of vegetables contains the same substances of the muscle of animals. Vegetables contain a large proportion of that which will very readily form the fat of animals, the only difference being that animal matter contains no starch. Let us now see what is the purpose for which the animal eats its food. Unquestionably for the support of the different parts of which it consists. You see again what a beautiful connexion exists between the organic part of the plant and that of the animal. The animal eats gluten in order to form the fibre. When I eat rolls to breakfast, I eat a quantity of gluten and starch, and that gluten saves the digestive organs the trouble of manufacturing gluten for the frame. Out of those rude elements which constitute the soil, and which float in the air, it is the duty of the plant to prepare those substances,—those bricks, as it were, to be carried away by the builder to fill up different gaps which are continually made in the body. There is a great difference between starch and gluten. That substance called nitrogen exists in the latter, but not in the former; in the fibre, and not in the fat of animals. This nitrogen is obtained wholly from the soil, therefore it is necessary it should be in the soil. In beans gluten exists to the extent of twenty-eight per cent. If, therefore, you or I eat beans, we eat that which is capable of building up a much larger proportion of muscle in the body. Again, if the soil contains a large proportion of gluten, beans will grow when no other plant would. Some animals lay on the fat very abundantly, and some, like myself, lay it on very sparingly. (Laughter.) If you have an animal inclined to lay on fat, feed him with Indian corn. There is an important difference between the composition of the vegetable and that of the animal; in the former there is gluten, starch, and fat: in the latter, muscle and fat only. The lungs are a sort of carbonic acid manufacturers. The starch we throw off to the air the plants suck in; and thus it is the leaves are continually in motion, beating against the air, forming a thousand little mouths which perpetually suck in the carbonic air which forms starch. A man throws off about seven ounces per day of carbonic acid. Thus it would not be enough to eat merely of fibre and fat, but we require to eat the vegetable substances which contain starch, gluten, and fat, because the general purpose of nature is to save the stomach the trouble of manufacturing these substances for itself. The lungs might suck in the same as plants do, but such is not the order of nature, and it falls to the plant to supply the deficiency. The stomach can build more easily from carbonic acid than it could from muscle. In feeding your stock, the farmer must give as much as will not only supply the daily deficiency, but also supply an increase of muscle and bone. You all know that every part of our body is continually undergoing a change, and that a certain quantity of gluten must be eaten every day to supply it, and it is the same with young animals; and therefore they require an extra supply of the elements of muscle and bone, in order that they may increase in size. You may, by attending to the different qualities of the kind of food, make your animal either very fleshy, very bony, or very fat. Animals reject in dung and other excrements a great many substances, and as the plants contain substances which are soluble with water, it is of great consequence to take care of the liquid excresences, and to mix it with the solid, so that the whole the animal ate may be preserved, which, being taken back to the soil, it is provided with the same substances almost forever. If you allow the liquid to run into the rivers, you bare the land of what the plant gets from the soil, and which the animal gets from the plant. When the animal dies, all those things which it got is returned to the soil, and thus the same revolution goes on from the soil to the plant, and from the plant to the animal. (Applause.) These are some of the points, gentlemen, by relating which I wish to interest you, which demonstrate the overruling presence of One mind, directing practical operations to the same end. If there was not the same spirit and intellect pervading in the nature of the soil, the plants, and the animals, there would be some confusion; but as they do exist, there is manifested the presence of One mind and of one principle, directing the whole cycle of animal and vegetable life, as there is to be seen in all the cycles and motions of the planetary bodies. (Loud applause.) In wishing to teach those under you the elementary principle of agricultural chemistry, I don't wish you to leave out of view the beautiful and powerful evidence which it affords of the existence of a Deity who is present at all times, and regulates in his infinite wisdom all our affairs and intercourse. I therefore concur entirely in the remarks of Mr. Pyper, that moral training is above all things necessary for the young Moral training comes first, intellectual next, and practical last of all; but yet all are here combined, for by this practical knowledge you can give the young mind a new view of natural theology. It is not merely chemistry or physiology, but this science seems to be one of the most beautiful pictures of natural theology.—(Applause.) I might tell you there is a great deal of poetry in the sketch I have presented to you. The whole planetary system in dead masses float in space, and the dead earth form the subject which geologists contemplate; but on the surface of this dead earth you have a soil, a vegetable and an animal life, subject to changes which must interest and concern every inquirer. Suppose the soil contained no seed,—that no vegetables grew, and no animals existed, still no doubt the other parts of the creation would go on; and this subject of ours is just one idea, an episode, as it were, in connection with the planetary system. And this little episode in the mighty poem of nature presents to us the Divine bounty, goodness, wisdom, forethought, benevolence, and the exalted intelligence of divine mind. * * *

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*For Chopped Hands and Lips.*—Wash two or three times in the day with *tincture* of lobelia, or steam-doctors' No. 6. Honey mixed with water is said to be good.

The following extracts from J. S. Skinner's address delivered before an agricultural society in Wilmington, on the 11th of September last, is well worthy of attentive reading. Mr. S. the founder of the *American Farmer*, is the oldest and best authority upon American farming in the United States, and we are happy to see him again in the field as the champion of improved agriculture. His description of the success of the Lowell manufactures beautifully portrays the advantages of manufacturing towns to agriculture. After reading this address, who will deny but that by far too little capital and skill is employed by the Canadian farmers in the management of their soil? In this country there appears to be a great deficiency in knowledge respecting the necesssity of investing the profits made from the land, in valuable improvements, such as are briefly hinted at by Mr. Skinner. The great *mania* for adding acre to acre, and farm to farm, so far pervades the minds of the farmers of Canada, that they actually begrudge to lay out a single shilling for improvement upon the land that they can by any possibility avoid. A greater error than this cannot possibly be conceived; but the facilities for buying land are so great, that any thing we may advance, will scarcely have any effect in changing the views of the people,—one thing, however, is certain, that in proportion to the increase of knowledge of the science of agriculture among the rural classes, will be the desire of employing a greater amount of capital in agricultural operations.—The best lands in Canada are comparatively unproductive for want of skilful management; a few acres well cultivated, will give a greater return in profits than many acres impoverished by injudicious cultivation. Large farms may be cultivated well, as easily as small ones, but the whole secret lies in employing the same ratio of capital and skill.—This important question will be better understood when the farmers of this colony have had the benefit of reading a few volumes of this work. This, as well as other subjects of interest to the farmer, will be freely discussed in future numbers of the *Cultivator*.

"I should not fulfil my duty were I not here to relate something of what I observed last week in old Massachusetts, where, short as my sojourn was, to meet my engagement here, so much occurred to fill me with admiration and personal gratitude. Not from any view to invidious comparison, but to stimulate you to inquiry and reflection, note was made of the progress of a single town whose situation is analogous in some striking respects to Wilmington, especially in local advantages, in vast water power, and in vicinity to a large city of enormous wealth like Boston, whose capitalists, with an enterprise and sagacity all their own, leave no resource neglected that art and opulence can make available. I was in that venerable State when Lowell was little more than a farm. The oldest of their manufactories was chartered in 1822, and on the 1st of January last, there had been consumed within the past year, of cotton, 22,880,000 pounds. The monthly wages distributed in cash, were $150,000; one establishment alone, the Middlesex mills, manufactures the fleeces of 1230 sheep daily; and through the year, American wool of the finest quality, of the value of $500,000. The same establishment consumes annually 15,000 gallons of American lard oil, besides 7000 gallons of sperm oil brought by American vessels—four millions of teazles of American growth—eight hundred tons of Pennsylvania coal, besides other articles of American production, and of the value of more than a half a million—giving steady employment to 805 hands, who are paid monthly in cash. The machinery is all American in manufacture and principle. The capital embarked in this one establishment is $750,000, and what constitutes the salutary distinction between American and English establishments of this character, the practical operatives who daily work in the Middlesex mills, own $60,000 of the stock. Lowell, which, as I before said, was scarcely more than a farm when I was last in Massachusetts, now boasts a population of 25,000 people, and to crown the whole they levy on themselves, and pay without grumbling, a school tax amounting to $24,000 a year. Note in all this, my friends, the mighty energies of an industrious, economical, educated people!

I was pleased to learn, from one of the accomplished and liberal proprietors of the works to which I have particularly referred, that the descendents of the fine-wooled Saxony sheep trans-

planted to Ohio, were supplying his mill with wool of longer staple, and equally fine as that of the original stock.

To return to the causes of your slow progress in population and the obstacles presented by it to a more general diffusion of the knowledge necessary to a high cultivation of the art of husbandry, to say nothing of one great drawback which cannot now be reasonably applied, to Delaware or New Jersey, there are yet other causes of blight which seem to have stinted the growth of the old states on the Atlantic slope south of New England, sufficiently obvious and remediable to warrant me in referring to them. Among the most prominent is the inherited habit or prejudice of mistaking and going for *quantity* rather than quality of land, which pervades the region referred to, and which is said by some to be the monomania of the Saxon race. How many are there who own from 400 to 500, and even more acres of land, of which one-third, or at least one-sixth part, lies totally unproductive in useless brush-wood, in uncleared swamps, or in land rendered worse than profitless, for want of proper draining? the owner not seeming to remember, that for every such acre not yielding something in grass, in pasturage, in tillage, or in growing timber, he should charge himself, as with so much lost or thrown into the fire or the sea. Of how much more are men robbed by their own indolence and short-sightedness, than by thieves who break in and steal.

There is no mistake more common than that of supposing that the more land a man has, the greater must be his profits—forgetting that the profits arise not from the land itself, any more than from an idle mill or an empty ship, but from the skill and manner of using it.—and so indispensable is capital in the business of farming, that in general it may be laid down as an axiom that money employed in agriculture, will yield an interest in an inverse ratio to the area to which it is applied. Thus, if $100 be expended, and yield ten per cent. on ten acres, the probability is that it would yield much more if applied to half that area. In England where this matter is so well understood, the land-steward of the Marquis of Suffolk, a practical man, being asked the amount actually required to stock and carry on a farm, said that in Staffordshire, a farm of 250 acres medium quality land, bearing a proportionable quantity of good, fair, and inferior qualities, and one-fifth in permanent meadow, would require a cash capital of $12,500 in an ordinary state of entering and an additional capital in proportion to the estimated extent of land improvements to be effected in the way of road-making, fences, and under-draining.

Numerous instances must be familiar to all who hear me, of the wonderful effects of *lime* and other manures, in enhancing the value of Delaware lands, especially since the establishment of this Society, and the excitement and rivalry produced by it—raising it in many cases from $8 to $10, up to $50, and even $100 an acre. I will detain you to mention but one instance of the efficacy of lime, and of the necessity of some chemical knowledge of the nature of manures, soils and crops, related to me on undoubted authority since I left home to meet this engagement.

Mr. Collins, residing on Scuppernong Lake, in North Carolina, a gentleman of large fortune, and, to his honour be it mentioned, as it does not *always* follow, of liberal temper, had a large field of rich black alluvial soil, which yielded heavy crops of Indian corn, but, as often happens, was ill suited to wheat, producing not over 13 bushels to the acre. He purchased and applied to this land 250 bushels of lime to the acre, and then reaped 47 bushels of wheat! For this lime, the refuse of kilns on the Hudson river, brought into Ocracock as return freight, by lumber vessels trading to New York, he gave 10 cents a bushel. This made, you will perceive, an outlay of $25 capital to the acre, at a single dash; but mark the result! Deducting 13 bushels, the most that land of the same quality alongside of it produced, and there remained 34 of wheat against $25; the land being left permanently impregnated with an elemental and alimental ingredient and food for that noble grain, of which, with all its capacity for producing other crops, it was until then nearly destitute. Most of you are doubtless familiar with instances of the efficacy of capital applied in like manner.

When it is considered that labour becomes cheap, or what is the same thing, more productive, exactly in proportion to good tillage and the richness of the land combined, either naturally or by force of the manure applied, is it not self-evident that if the owner of unproductive land cannot otherwise command the requisite capital, he had better sell off one half for the means of improving the remainder, rather than retain the whole in a state of paralysis, that he may vainly boast, "I am monarch of all I survey," even though it be but a barren waste? No spider in the midst of his web, is more circumspect of whatever approaches, than is the capitalist in the midst of his strong boxes; and if the farmer, whose all is in land, cannot by force of his character for economy and intelligent management, command the requisite capital, and will not alienate, had he not better divide at once among his sons, giving to each if it be but 50 or 25 acres, with a set of centre-draught ploughs, together with a subsoiler, a pair of mules, or a span of New England-like oxen, and a *drag-log*; and thus instead of running riot for want of employment, or going to seek through a life of exposure and hardship a precarious livelihood on the frontiers, his children would cluster around him, constituting, as well in the vigor of manhood as in his declining years, his safest friends and most delightful companions. Not a week since, having the pleasure to pass a delightful day, in company with the enlightened, liberal, and zealous editor of the *New England Farmer*, and other gentlemen distinguished for intelligence and character, at Indian Hill Farm, the residence of Col. Benjamin Poore—Poore in name, but rich in all the

qualities that "give assurance of a man"—I heard him remark that, as a young man, beginning life, to make his way by industry, and without capital, he would sooner commence on *one acre* than on one hundred. You may estimate the weight of his authority when I add, that he took the premium for not only the *best managed farm* in the State, but for the *best specimen of under draining* on a large scale, and for the *best system of keeping farm accounts!* There were among other proofs of uncommon energy and skill, about forty acres of originally worthless waste land, which he had so reclaimed as to produce two and a half tons of the finest hay to the acre, while his own flourishing plantation of forest trees, concealed and ornamented rocky precipices inaccessible to the plough.

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It will be seen by the following communication, that the farmers of the Gore District are determined to sustain the character of their agricultural institution. By proper exertion the number of members may be increased to 1200. Nothing short of a systematic canvass could secure that number of members. From what we know of the intelligence and wealth of the farmers of Gore, we would be disposed to calculate upon a much greater acquisition of members under the new arrangement than the number mentioned. Our friends in this district will pardon us we trust, for offering the following suggestions, which may upon trial be found to be the most successful method that could be adopted for a large list of members to their association. We would recommend that the officers and board of directors should meet at an early period and appoint a *collector* for each school district in the entire district; and that such collectors should be instructed to call upon all within their several limits, and solicit them to become members of the association. As a guarantee that each member would get value received for his subscription, each collector should be supplied with a few full sets of the back numbers of the current volume of the *Cultivator*, which should be handed to the members upon payment of the subscription. For the towns and villages two collectors might be appointed to each, and by these means every inhabitant of the district would be made acquainted with the objects and benefits of the institution, and would be courteously solicited to patronize it. *Hamilton*, *Dundas*, and *Brantford*, would collectively number 500 members, if the respectable portion of the inhabitants of these towns were called upon by parties who have the confidence of the citizens.

The fifteen townships in the Gore District might be made to average each 80 members, and even more, if the plan we mention were adopted. By this calculation we may startle the officers of the Gore District Agricultural Society, but we assure them that our prediction might be realised, if only a systematic canvass were adopted:—

GORE DISTRICT AGRICULTURAL SOCIETY.

*Mr. Editor,*—

Having rather a rambling disposition, I bethought myself of attending the Grain Show of the Gore District Agricultural Society, which took place on the 4th inst. in the beautiful village of Dundas. Notwithstanding the heavy snow storm which was then raging with all its fury, the attendance of farmers was greater than usual, and the samples of wheat much superior to those of former years. More than a dozen varieties of winter wheat, and some fine specimens of spring wheat were exhibited; the roots were also of a superior quality, and gave evidence of a high state of cultivation. A few years back, grain and roots of a similar quality could not have been procured in this District.

An important change was introduced on that day into the constitution of the Society; a change which will do more in my humble opinion to elevate farmers to that position in society to which they ought to aspire, than the expenditure of thousands of dollars in premiums for fat sheep and unwieldy cattle. I allude to the new rule, that *each member shall be furnished, at the expense of the Society, with a copy of the British American Cultivator.* There is no doubt that the Society will now flourish more than ever,

and that its usefulness will be multiplied a hundred fold; and let proper exertion be used, and the number of subscribers will be easily increased from 300 to 800.

As some encouragement to the supporters of our District Society, I shall finish this short communication with a quotation from an American author, describing the condition of the Royal Agricultural Society in England, and shall pray that this description may ere many years be applicable to the "Canadian Agricultural Society." "The Royal Agricultural Society of England is in a high state of prosperity; it numbers now (1841) about six thousand members, (two thousand of which have been added the past year,) the annual subscription is one sovereign each,—this, with the receipts from the show yard, and donations from wealthy members,—makes a large income to expend annually in premiums. We look upon it as one of the noblest and most exalted institutions. Its aim is to cheapen, and perfect, and multiply the prime necessities of life; and to attain this object, the talents, the learning, and the wealth of Great Britain are lavishly bestowed; and the return for all these, we venture to say, will be a thousand fold. We hope soon to see this liberality imitated in all its best features by an American National (*Canadian!*) Agricultural Society.—What comforts, what intelligence, what happiness might it not be the means of introducing among us; let every lover of his country then, and of his species, arouse to the establishment of this, together with State (District) and County (Township) auxiliaries throughout the land."

B. A.

Hamilton, February, 1845.

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*Coal Dust for Strawberries.*—Dr. C. Dean, of South Plympton, writes to the editor of the *Ploughman*, that last November he set out twenty-four of Hovey's seedling strawberries; that several of them produced fruit last summer; that he put coal dust about some of them, and that these were the ones that bore fruit; the others bore none.—*West. Gard.*

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*To extract Rancidity from Butter.*—Take a small quantity, that is wanted for immediate use. For a pound of the butter, dissolve a couple of teaspoonsful of saleratus in a quart of boiling water, put in the butter, mix it well with the saleratus water, and let it remain till cold, then take it off carefully, and work a teaspoonful of salt into it Butter treated in this manner answers very well to use in cooking.—*American Housewife.*

*Preservative Composition.*—For a composition for coloring and preserving gates, roofs, and timber generally, from the weather, melt twelve ounces of rosin in an iron pot or kettle; add three gallons of train oil and three or four rolls of brimstone; when they are melted and become thin, add as much Spanish brown, (or red or yellow ochre, or any other color you like, ground as usual with oil,) as will give the whole the shade wanted, Then lay it on with a brush as hot and as thin as you can. Some days after the first coat is dried, lay on a second. It is well attested that this will preserve plank for years, and prevent the weather from driving through brick work.—*Monthly Visitor.*

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*How to make Arrow Root.*—The *Cleveland Herald* gives the following method of making potatoe starch, which it says is veritable arrow root, so highly valued for invalids: "Take a dozen of large and smooth mealy potatoes, wash them, and then carefully pare off all the rind. Next, grate them fine with a suitable tin grater. The pulp must be mixed with a pailful of cold water, and thoroughly agitated and squeezed by the hand or any suitable instrument, at the same time throwing away fibrous matter, and permitting the starch to sink to the bottom of the vessel. This must have a fresh washing in cold water, till the pure farina is obtained free from all the other matter. This should be spread on earthen dishes, and dried in a warm airy situation. "The good housewife will exclaim, "Why this is nothing but potatoe starch!" True, it is not—nor have you used any other article under the same name of arrow-root, for the sick members of your family, though you may have purchased it at the rate of several shillings per pound.

By proper modes of cooking, known to every nurse and house-keeper, this article becomes a delightful beverage for invalids weak in their digestive powers, while as a pleasant diet, even to persons in good health, it possesses a very strong attraction."

## FORCING FRUIT TREES TO BEAR.

*Dear Sir*,—Having addressed you an epistle a fortnight ago, I did not at that time intend to write you again until I saw your comments upon the project proposed in that letter; but being under the conviction that I could not write too much for the good honest yeomanry of the land, provided I kept in the limits of valuable information, I have, by the idea of facilitating the labour of the producing man in some measure, been prompted to address you at this time, the main object of which is to apprise the agricultural community of a novel mode of raising apples. I do not wish to be understood that it is novel with all, for it has been practiced in Europe for many years, by the farmers in Germany in particular, who probably are the inventors; but I mean that it is novel to me, and if not so to all, in my knowledge is at least not practiced by them. The steps are to be taken by the farmer to force his fruit tree to bear, as it is termed, are of a very simple nature, and can consequently be executed by any person who turns his hand to it without the aid of a practical operator, further than a description of the process. I hope, therefore, that my agricultural friends will not deem the description which I am about to give of the process to force trees to bear, unnecessarily minute. With a sharp knife (the blade of a penknife is the best) make a cut in the bark of the branch which is meant to be forced to bear, and not more than eight or nine inches from the place where it is connected with the stem, or if it is a small branch or shoot, near where it is joined to the large bough, (three inches or less,) the cut is to go round the branch, or to encircle it, and penetrate to the wood. Care must be taken not to cut the wood, which would necessarily cause detriment to the branch or shoot operated upon. A quarter of an inch or nearly, *from the first cut*, make a second in the same way round the branch or shoot, so that both encircling the branch or shoot, a ring is formed thereon a quarter of an inch broad between the cuts. The bark between these two cuts is now taken clean away with the small blade of a penknife, down to the wood, removing even the fine inner bark, which immediately lies upon the wood, so that no connexion whatever remains between the two parts of the bark, but the bare and naked wood appears white and smooth; but this bark ring, to compel the tree to bear, must be made at the time when the buds are strongly swelling, just before breaking out into blossom. In the same year of this operation, a callous is formed at the edges of the ring on both sides, and the connexion of the bark that had been interrupted is restored again without any detriment to the tree or branch operated upon, in which the artificial wound soon grows over. By this simple (though artificial means of forcing every fruit tree with a certainty to bear, the most important advantage will be obtained by those who watch the time nature is ripe for it. Three years ago, (the time when I was first informed of this singular way of forcing trees to bear,) I made an experiment on an apple tree. Being somewhat cautious of humbuggery, I confined the experiment to one branch of the tree, which was about a fourth part of the whole top of it. I did not notice it until May. I had partially forgotten it, as I had but little faith in its having any effect towards making the tree bear, and called by, rather to see if the limb which I had cut was not dead, than to observe any thing else; but to *my astonishment* I found the limb which I had expected to find dead in a vigorous state of life, with as much young fruit on it, apparently, as all the rest of the tree. On examining the young fruit, I found that on the branch which I had cut to be sound and firm, while that on the other parts of the tree were dwindled and very much decreased. I expected at first that it was owing to the cut which I had made on the branch, but I satisfied myself by examining other trees which I found to be in the same way, and which I found shortly afterwards to be falling off. *In September, when* I gathered the apples, I found that the branch of the tree which I had made the experiment on, had five bushels on it, and the rest of the tree had not above one bushel on it, and that was inferior fruit. I would therefore recommend that farmers who have orchards would try the experiment. It would be well for them to be particular in the operation at first, for fear of damaging the trees.

WILLIAM R. THOMPSON.

Greenup Cty, Ky., March 3, 1842.—*Am. Far.*

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## ON THE DRAUGHT OF CHIMNEYS.

Suppose a chimney with the back to the North, with a fire-place opening to the South, in a tight room; the chimney to be pefectly straight, but leaning to the South one foot in ten; the fire to be kindled close to the back of the chimney.—The hot air from the fire being lighter than cooler air, will ascend in as near a perpendicular line as possible, and will occupy only the North part of it: in the meantime, cold air will descend on the South or lower side of the chimney, (the two currents not interfering with each other,) to supply the vacancy or partial exhaustation made in the air of the room by the warm air from the fire passing out of it.

This fact of two currents of air—one ascending, the other descending—has often been observed in good chimneys in close rooms; and it would be unreasonable to suppose that a strong current of air, occupying the whole size of the chimney, could be supplied by the crevices of an ordinary room. This chimney, according to the theory, would draw well.

Again: Suppose that the same chimney, when arrived at some point near the middle of its height, should, without any inclination to the East or West, be curved so as to incline to the North: the hot air, when it arrives at the curve, would pass to the opposite or South side of the chimney, (being inclined to ascend in a perpendicular line,) and leave no space for a descending current, unless it should pass through the ascending current, which would be impossible. Both currents would be nearly destroyed, and the chimney certainly be a smoky one.

From the foregoing, two causes of chimneys smoking may be reduced, viz:

1st. The partial exhaustation of the air of the room to supply the draught of the chimney. That this would impede the draught, is evident; and that it exists, is proved by the air forcing itself through the crevices into the room—a part more observable in smoky rooms than others.

2nd. The interference of a downward current with the upward current, made by the hot and lighter air from the fire.

These two causes may be removed by so constructing the chimney that the hot air from the fire should occupy but one side or part of the chimney, leaving room for a descending current of cooler air, which is inclined to descend in a perpendicular line. The two currents will always be found choosing opposite sides of the chimney.

This can be accomplished without additional expense or inconvenience, by slightly inclining the chimney as far as may be convenient; then, instead of a direct curve, to make one to the right or left, so that the ascending current will pass to the corner, and to an adjoining side, but never to pass through the middle of the chimney to an opposite side. A straight leaning chimney, or a spirally curved one, or parts of both combined, will draw well.—*South. Planter.*

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## "NEVER LOSE ANY THING—NEVER FORGET ANY THING."

A distinguished financier and citizen of this State, lately related an anecdote which occurred in early life, which he said afterwards proved of the greatest utility to him, and which may teach a valuable lesson to others. When just commencing in life, he was deputed by an eminent man of business on an errand of considerable importance, and after receiving instructions at length, the business man handed him a paper or instrument, which he was to use in case of a certain contingency not likely to occur. "Here," said he to the young man, "take this paper and hand it to———if you should see him, but you must not lose it."

"Very well, I will try not to lose it."

"But you *musn't* lose it."

"Well, I'll *try*, but as I may not need the paper, perhaps I had better not take it, for fear I *might* lose it."

"No!—take the paper, but you MUST NOT LOSE IT!"

He took the paper—and set out on his journey—but the idea that a fixed determination to *accomplish the object, would certainly accomplish* it, was new to him; the last emphatic words, "*you* MUST NOT *lose it*," continually re-echoed in his ears, and made such an indelible impression on his mind, that throughout a long subsequent life, he proved most effectually the practicability and eminent utility of the injunction, as well as of its counterpart and almost its necessary consequence, "never forget any thing,"—that is in the transaction of active business.

These two maxims, if thoroughly adopted and carried out by all our farmers, would work a revolution indeed in the appearance of many premises. Instead of tools lost in one place, and forgotten, neglected and spoiled from a year's exposure in another, with the consequent loss of time in hunting, and loss of temper by delay and disappointment,—instead of these disasters, there would be "a place for every thing and every thing in its place;" and confusion no longer usurp the throne of order, neatness and regularity. Whenever an implement is taken from its place for use, the words must be vividly impressed on the mind, you *must not* lose it—you *must not* forget it!"

And who doubts the possibility of attaining this? Some persons forget, *habitually*, and lose, habitually; but if habit has brought these evils upon them, then it may also remove them; or at least it might have prevented them, if an early determination to the contrary had been adopted.—Habit "begins in cobwebs and ends in chains,"—let it then have a right direction at the outset. Be *determined* to do a thing, and you need not fear of success,—ultimately, if not now. The most perfect penman I ever knew, had a distorted and crippled hand—and the most accomplished Grecian orator, when young, was hump-backed, lop-shouldered, and had to talk with pebbles in *his mouth to correct his mumbling voice.* Sir Isaac Newton said that whatever he had attained was by perseverance and close application, and not by any eminent powers of mind which he possessed. Who then need despair?—*Alb. Cult.*

*Idleness.*—There are but few who know how to be idle and innocent. By doing nothing, we learn to do ill.

THE NATURE OF SOILS.

"The study of the soils and of the rocks that lie beneath them has led geologists to conclude that the loose materials of which the soil is composed are derived from the solid rocks that lie beneath them—that there was a time when these rocks were everywhere on the surface; but that gradually, by the operation of the rains and other natural causes, these rocks have been worn down and disintegrated, till what had been solid rock became the loose materials which form the soil. These rocks are essentially of three kinds—limestone, sandstone, and clay or slate, the latter in various degrees of hardness; so that if you want to know the kind of soil in any given district, you have only to inquire into the nature of the rocks which form the substratum of that district. But, besides this, the physical examination of the soil tells a good deal of its nature. For instance, if you were to take a quantity of soil of a given weight, and pour water over it in a vessel, then allow a minute or two for the heavy particles to subside, and pour off the water with the lighter particles floating in it into another vessel, and repeat this till all the lighter particles were carried away, then again dry the heavy materials and weigh them a second time —the difference between the first and second weight of the soil would give the amount of the fertilizing matter contained in the soil; for all the vegetable or fertilizing substances would be carried off in the water, leaving the inorganic and unfertilizing substances behind. Exactly the same result would be arrived at by heating a quantity of soil of given weight in an oven or other place—the vegetable matter would be burnt out, and the difference between the first weight and that of the residum would be the amount of fertilizing substances in the soil. These are rude chemical texts, but when you examine the soil by more refined analysis, you discover that there are eleven substances, every one of which are necessary for the growth of vegetation." This the Professor said he would dwell upon more particularly in his next lecture. He then referred to the subsoil and that part of the soil to which the vegetables did not usually penetrate.—"Every farmer knows that a few years after he has limed the surface of his fields, the presence of the lime becomes gradually less and less, till it altogether disappears. Now, it happens that this lime is to be found sunk into the subsoil. So it often happens that the very substances of which the upper soil is most deficient are to be found in the subsoil. The cause of this might be easily explained, for when you consider the action of the rains, &c., you see that their tendency is to carry fertilizing substances from the surface down to the subsoil. It becomes, therefore, a matter of importance to know whether it would be advisable to bring up the subsoil to the surface and mix the two together. This is not in every case advisable. For instance, here is a section of a soil 18 inches deep, which I have received from a place in Renfrewshire, the surface of which contains a certain quantity of fertilizing substances, while the subsoil contains only half the quantity. It is clearly unadvisable, therefore, in this case, to do more than, by draining, to open up the soil, and let the roots of the plant draw from the subsoil that nourishment which it is capable of affording."—*Lecture at Edinburgh on the 10th January by Proffessor Johnson.*

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GREATEST DISCOVERY OF THE AGE

*The Electro Magnetic Light.*—Messrs. J. Milton, Sanders, and John Starr, have at last succeeded with their Light; and a brilliant affair it is. We have had the pleasure of frequently witnessing their experiments with differently formed machines, having for their objects the production of this wonderful light. Yesterday we were invited to attend the last one to be made in the West. It proved successful. The apparatus with which their light is made is small, to allow of easy transportation. But it may be increased to an indefinite extent, and with its enlargement is the increase of the size of the light. From our own observation we should suppose the power of the light could not be increased. We never could conceive a light more brilliant. Though

but the size of a pea, it is sufficient to illuminate quite a large room, and forbids the steady glance of the eye. The blaze of a candle twenty feet distant from the apparatus, and three feet from the wall, casts upon the wall a thick shadow—so much more brilliant is "the light," though not one-twentieth of the size of the candle's flame. What will be the power of this light when increased to the size of a gas-light? We cannot conceive.

At a distance the light looks unlike other illuminations—throwing out most beautiful rays, which, finely colored, spread magnificently from the bright centre. The inventors say they can make the light of different colors, and even alternately change from one color to another. The apparatus for producing this illumination displays great ingenuity, and a thorough knowledge of that portion of science which relates to the principles they have so successfully applied.

While witnessing that portion of its operation visible to the eye, we perceived a bar of iron revolving rapidly. The bar was tolerably heavy, and nearly a foot long, and can be made to revolve with a swiftness sufficient to fling itself, in spite of all workmanship to the contrary, from its pivots. It will go weeks with undiminished velocity, and without assistance, once started, from man.—This, we fancy, is an approach to perpetual motion. Cannot it be applied to locomotives, &c.? The inventors say, without doubt it can. Truly this is the age of inventions. They say also, that this latter will in many things supersede steam; the light will supersede many other artificial lights—what next? Once started, the light may be said thereafter to be of no expense.

The apparatus will not cost a very great amount. It may be bept in one part of the city and the light produced by connecting wires in any other part. Or it may be stowed away in the cellar or garret, as it is not affected by dampness, and wires be carried to different rooms, to the street, or to the neighbouring streets. What it cannot do in the way of illuminations, remains yet to be discovered; what it *can* do we may partially conceive. The inventors start immediately to Great Britain, to secure their patent.—*Cincinnati Mechanic.*

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*Cure for Fistula in Horses.*—Put a seton in the fistula, at the lower part of it. This will discharge the *pus* or matter. Then inject soap suds, made from fine soap, (Castile is the best,) frequently for one day. Next inject a weak solution of oil of vitriol, two or perhaps three times a day, for one or two days. After this wash clean with soap suds. In a short time the fistula will be well. Poll-evil may be cured in the same way.—*Am Ag.*

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*The Glanders.*—Messrs. Editors,—While writing, I will mention a fact for your Veterinary department. More than 30 years since the glanders of the most virulent kind, was amongst the horses of the neighbourhood in which my father lived. Great numbers died off. His horse was taken, and under the belief that he also would die, my father commenced an experiment on him with a strong decoction of tobacco juice, given internally. In a short time the horse broke out all over his body in sores. These cured up in a month or so, and the horse was sound, soon fatted, and was, as long as I knew him afterwards, a sound and healthy animal. This was the only horse in all the neighbourhood that recovered. Some farmers in this vicinity, noted for fine sleek horses, give occasionally Scotch snuff to their horses. J. B. COOK.
—*Alb. Cult.*

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*To improve the Wicks of Candles.*

First steep the wicks in a solution of lime-water, in which saltpetre has been dissolved. To 1 gallon of water add 2 ounces saltpetre and ½ pound of lime. Dry well the wicks before using. It improves the light, and prevents the tallow from running.

*Liquid Japan, for Boots and Shoes, Harness, &c.*

Take treacle, 8 parts; lampblack, 1 part; sweet oil, 1 part; gum arabic, 1 part; isinglass, 1 part. Mix well in 32 parts of water. Apply heat. when cool, add one ounce of spirit wine. You may add an ox's gall. Place the bottle by the side of the fire before use, and apply the liquid with tip of the finger or a sponge.

## WASHINGTON'S OPINION OF AGRICULTURAL LIFE.

It is refreshing to us, and we hope it is to every lover of freedom, to read anything from the pen of Washington—and still the more refreshing, when it may happen to be upon the subject of Agriculture. In the belief then that the following opinion of the farmer's life from the father of his country, may serve to reconcile every tiller of the soil to his lot, we give it insertion. But why need we say, that it may serve to reconcile the tillers of the soil to their lot? Surely there is no man owning a farm, who is discontented with his position; for, of a truth, if there be one condition more than another, which any man might desire without incurring the sin of covetousness, it is to be the owner of a good farm, well stocked, to be out of debt, to have a good wife, and a family of children around him. There are other situations where a man may possibly make more money. The merchant, for instance, may realise more profit in a month, than a farmer would in half a life time. But then, where one merchant *dies rich*, there are ninety-nine who become bankrupt—and then, their gains, if gains they make, are realized amidst the cares, anxieties and tortures of the mind; for their's is a life of hazard and uncertainty, dependent upon so many contingencies for success, as, in numerous instances, to make even the most brilliant success, a dear price for the wear and tear of mind and the laceration of feelings. While the owner of a fertile farm, unless avarice be his besetting sin, has everything around him to gratify all the aspirations of his heart, sweeten the pathway of life, and make him happy. Come what may—drought or rain—luxuriant crops, or short ones—high prices, or low ones, if he be prudent and frugal, the bosom of the earth, in its generous yieldings, will always afford to him and his both food and raiment, and a little to spare, either to be laid by for a rainy day, or dispensed to his fellow man, in "binding up the wounded heart, or pillowing the aching head,"—and what more, pray let us ask, does man want while he may be permitted to remain on earth? He that wants more, is not imbued with that becoming sense of gratitude, which is due to the author of his being. Riches, we are aware, have their attractions, and often weave around the brow of the undeserving chaplets which but ill become it.—We are aware also, that although an eminent philosopher hath said that "knowledge is power,"—it would have been much nearer the truth, had he said, that *wealth* is power—but with this belief firmly impressed upon our mind, by the daily evidences of tame submission to the power of money by which we are surrounded—still, we would not exchange that glorious state of independence which belongs to the thrifty owner of a homestead of two or three hundred acres of good land, for any other condition. Although such an one may amass wealth slowly and moderately—though he may realise but a competency, is earned by the most pleasurable, healthful and virtuous of all human pursuits.

But as we find ourself running riot under the influence of enthusiasm, we must cry halt, and introduce the opinion which Washington entertained of the calling of an Agriculturist.

In one of his letters to *Arthur Young*, Gen. Washington used the following language:

"The more I am aquainted with agricultural affairs, the better I am pleased with them; insomuch that I can no where find so great satisfaction as in their innocent and useful pursuits. In indulging these feelings I am led to reflect how much more delightful to an undebauched mind, is the task of making improvements on the earth, than all the vain glory which can be acquired from ravaging it by the most uninterrupted career of conquest."
—*Am. Far.*

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He who thinks no man above him but for his virtue, and none below him but for his vice, can never be obsequious or assuming in the wrong place; but will frequently emulate men in stations below him, and pity those nominally over his head.

## MANAGEMENT OF BEES.

Having tried, during a period of 27 years, all the different systems of bee-keeping possesing any merit, and having found in each defects prejudicial to the welfare of the bees, I have directed my attention towards establishing, if possible, a sound and advantageous system. All wooden hives or boxes are objectionable They are too hot in summer, and are too cold in winter; besides they retain moisture, which is injurious to the comb and health of the bees. I consider ventilation to be not only unnecessary but injurious; for the higher the temperature inside the hive is, the greater is the draught. Bees are very uncomfortable and irascible in windy weather, or if blown upon. At all times they may be seen anxiously stopping up every hole which they can find, particularly those, if any, in the upper part of the hives. This, therefore, speaks against ventilation. The natural heat of the hive is conductive to the health and activity of the bees, no instance to the contrary being known. It is only when the warmth of the external air somewhat assimilates to that of the hive, that they come out cheerfully. I have known a very high degree of summer heat drive bees apparently from their hives, and upon examination the honey and wax was more or less liquefied on account of the hive being exposed to the direct rays of the sun. This is a very serious evil, but one which is remedied by colonies of my construction. The following objects carried out are essential to the profitable keeping of bees; viz., large well made straw hives to contain strong stocks, having no other opening than that at the bottom, and having no metal in any part of them, that being a conductor of heat. The best possible protection against mice and every kind of insect. Easy access by the bees to the glasses, &c., for working in, and facility for removing the latter: the whole to be impervious to the weather, heat, cold, and wet. For effecting these ends, I would recommend a straw case, worked with split cane, 3 feet 9 inches in length, 61 inches in height, and 14 in width, inside measurement. At 3 inches from the bottom, a floor of ½ inch deal should be fixed on supports at each end, and two bridge-shaped pieces should be placed at 14 inches from the ends. This case should stand on a wooden bottom 2 ins. in thickness, 18 ins. in width, and 50 in length, a little cement or mortar being put all round. For the purpose of preserving the case, I sew canvass on the outside, and size and paint it green, every spring giving it a fresh coat. A circular hole should be made in the middle of the floor 10 inches in diameter; on this should be placed early in April a large last year's swarm in a new bell-shaped hive. Two or three convenient holes, 3 inches in diameter, must be also made in the floor on each side of the stock-hive, and fitted with thick bungs. A door-way should be cut in the bottom at twelve inches from each end, 2 inches in width, and 3-8ths of an inch in depth; and a small appropriate piece of something should be nailed under each doorway for resting boards on. The doorways should be nearly closed in August with slips of wood, and opened again in April. The stand should have four legs, and each leg should rest in an iron or flower-dish containing water, with a little oil on the top of the water; over the top I tie canvass to keep out moths, spiders, &c.; a neat span-shaped painted wooden roof should cover the whole well over. In the first summer the bees will probably only fill the space under the floor, but if they appear, by collecting about the entrances, to want room, a small glass may be placed over one of the holes, first removing a bung by turning it round. Early in April is the proper time to commence putting on glasses, and when they are quite filled with honey fresh glasses should be put on, and in a day or two the full ones may be removed by drawing a fine wire under them, and replacing the bungs. These hives will last for many years, and will yield in good summers one cwt. of honey, with but little trouble. Every three or four years the inside stocks should be examined by fumigating with fungus, and any old comb used for breeding should be removed. When additional stocks are required the glasses should not be put on until the bees have swarmed; at night the young swarm may be put into a straw case. I do not find that the queen quits this hive to breed in the glasses, nor do I ever find bee-bread in them. Early in November I close the doorways with mortar, leaving a quill as a passage for air; and it is advisable, at the same time, to hang a piece of sacking in front until early in February, in order to prevent any warmth from the sun from affecting the stock. By bee-keepers pursuing this system, they will establish really valuable colonies. The cask-hives made by Mr. Sholl, are defective, and must cause disappointment at the royal Apiary at Windsor, where some have been placed. The awkward metal entrance, when the bees can alight upon it, will in summer burn them, and in winter cramp them; and the bottomless cases, when filled, cannot be removed on account of their being fixed down with comb.—*G. L. Smartt, Enfield.—Gar. Chron.*

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*Slander.*—No decent man can get along without it; at least, one who is actively engaged in the struggle of business life. Discharge a bad fellow who has been in your employment, and he goes round and slanders you. Let your conduct be such as to create the envy of another, and he vilifies your name. In fine, we would not give a cent for a man that is not slandered—it shows that he is either a milksop or a ninny. No, no—earn a bad name from a bad fellow, (and you can easily do so by correct conduct,) and it is the only way to prove that you are entitled to a good one.

## FLAX CULTURE.

Our last extracts shall be on the cultivation of flax—a crop which is becoming every year more extensively cultivated in this and the sister country:—"Mr. Crosthwaite, whose intimate acquaintance with all branches of this industry renders his authority highly valuable, considers that there are about 100,000 acres under Flax in Ireland, and that the produce is about 30,000 tons, of an average value of 50*l.* per ton. This is 6*s.* 3*d.* per stone, and should give about 12*l.* 10*s.* for the usual produce of the statute acre."—"The Flax, when it has grown to suitable maturity, according as the design is to allow it to ripen its seed or not, is pulled, and either immediately, or in the next spare season, according to the circumstances of the locality, it is subjected to the process termed rotting or watering. In the stem of the flax there may be recognised three structures—the outer skin or epidermis, covering a close network of fibres which incloses the plant as in a sheath, and in the centre a stem of dense pithy material. The fibrous network is connected together by a glutinous matter which must be decomposed before the fibres can be separated from the stem, and it is to soften and rot this substance that the plant is steeped. If the steeping be continued too long, the fibre itself may rot, and be weakened and injured in quality; if the steeping be not continued long enough, the fibres are not thoroughly separated from each other, and the quality of the flax is coarser than it might be."—"When the Flax is steeped, the water acquires a darker colour, a disagreeable odour, and it is well known, becomes poisonous to fish. This arises from the solution of the glutinous material which had cemented together the pure fibres."—"The author of the Survey of Somersetshire (Mr. Billingsby) says: 'Having myself cultivated Flax on a large scale, and observing the almost instantaneous effect produced by the water in which the Flax was immersed, I was induced, some years ago, to apply it to some pasture land, by means of watering carts similar to those used near London for watering the roads. The effect was astonishing, and advanced the land in value 10*s.* per acre.'"—*From the Industrial Resources of Ireland by Prof. Kane.*

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## RECIPES.

*For Burns.*—Burns or scalds may be relieved, and speedily cured, by an application of ink and raw cotton, to take out the fire, and a salve of lard and Jamestown weed, to heal the wound. The salve is made by stewing the leaves or seeds of the weed in lard, and straining through any thin cloth. This is an excellent article for sores of any kind. Fresh cuts are soon healed by its use, and if you have a horse with galls or sore back this is a superior remedy. Every family would act wisely to have the salve in readiness.

*Another.*—Another good remedy for burns is a preparation one part of lard, one part of rosin, and a half part of turpentine, simmered together till all are completely melted. The burns, with an application, should be washed daily and dressed with fresh ointment.

*For Croup.*—Roast a n onion, slice it, and press out the juice; Mix this with honey or brown sugar, forming a syrup, and a teaspoon-full every fifteen minutes till your child is relieved. This is convenient and a good remedy.

*For Cross Words and Bloody Deeds.*—If you find yourself angry, pause long enough to count ten before you speak, and if you think there is danger of doing violence, think of the "*judgment,*" and offer up a short prayer before you strike the first blow, and you · *feel* a brave and delightful relief.

*For Head Ache.*—Examine the cause. If it is cold feet, put on woollen stockin·s and thick shoes. If the cause is a foul stomach, take a vomit, and do not gormandise when you eat.

*To Select a Good Wife.*—Choose a woman who has been inured to industry, and is not ashamed of it. Be sure she has a good constitution, good temper, and has not been accustomed to "*dashing*" without knowing the value of the means, is not fond of novels, and has no giddy and fashionable relations, and you need enquire no farther—*she is a fortune.*

*To Select a Good Husband.*—Let the man of your choice be one who is punctual in h·s promises, and is industrious, sober and frugal. He should not smoke cigars, read "fashionable" books, or visit balls and theatres. Let him be dignified and have *common* sense, and all will be well.—*Tenessee Ag.*

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*Young Trees.*—An excellent mode for preventing young fruit trees from becoming hide bound and mossy, and for promoting their health and growth, is to take a bucket of soft soap, and apply it with a brush or old cloth to the trunks from top to bottom; this cleanses the bark and destroys the worms or the eggs of insects, and the soap becoming dissolved by rains, descends to the roots and causes the tree to grow vigorously.

*Directions for Washing Calicoes.*—Calico clothes, before they are put in water, should have the grease spots rubbed out, as they cannot be seen when the whole of the garment is wet. They should never be washed in very hot soap suds; that which is mildly warm will cleanse them quite as well, and will not extract the colours so much. Soft soap should never be used for calicoes, excepting for the various shades of yellow, which look the best washed with soft soap, and not rinsed in fair water. Other colours should be rinsed in fair water, and dried in the shade. When calicoes incline to fade, the colours can be set by washing them in luke-warm water, with beef's gall, in the proportion of a teacup full to four or five gallons of water. Rinse them in fair water—no soap is necessary, without the clothes are very dirty. If so, wash them in luke-warm suds, after they have been first rubbed out in beef's gall water. The beef's gall can be kept several months by squeezing it out of the skin in which it is enclosed, adding salt to it, and bottled and corked tight. The water that potatoes have been boiled in is an excellent thing to wash black calicoes in. When there are many black garments to wash in a family, it is a good plan to save, during the week, all the water in which potatoes are boiled. The following method is said to set the colours of calicoes so that they will not fail by subsequent washing: Infuse three gill's of salt in four quarts of boiling water; put in the calicoes, (which should be perfectly clean, if not so, the dirt will be set.) Let the calicoes remain in till the water is cold. I have never seen this tried, but I think it not improbable that it may be an excellent way to set the colours, as rinsing calicoes in cold salt and water serves to set the colours, particularly of black, blue, and green colours. A little vinegar in the rinsing water of pink, red, and green calicoes, is good to brighten the colours, and keep them from mixing. All kinds of calicoes but black, look better for starching, but black calicoes will not look clean if starched. On this account, potato water is an excellent thing to wash them, if boiled down to a thick consistence, as it stiffens them without showing.---*Ib.*

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*Cure for the Distemper in Cattle.*—I cannot resist giving a receipt for the treatment of beasts that may take the prevalent distemper. It showed itself last winter in one of my yard stock, by discharging abundant saliva from the mouth, with sore and inflamed tongue and gums, no appetite, confined bowels, and very hot horns. I desired the bailiff to give him one-half pint of the spirit of turpentine, with one pint of linseed oil, repeating the oil in twenty four hours, and again repeating it according to the state of the evacuations At the end of twenty-four hours more, the bowels not having been well moved, I repeated both turpentine and oil. In two days the beast showed symptoms of amendment, and in three or four took to his food again, and did perfectly well. All the yard beasts and two of the fattening beasts have had it, and all have been treated in the same manner, with perfect success. Little beside oatmeal gruel was given.—*Quarterly Journal of Agriculture*

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*Cautions relative to the use of Copper and Brass Cooking Utensils.*—Cleanliness has been aptly styled the cardinal virtue of cooks. Food is more healthy as well as palatable, cooked in a cleanly manner. Many lives have been lost in consequence of carelessness in using brass, copper, and glazed earthen cooking utensils. The two first should be thoroughly cleansed with salt and hot vinegar before cooking in them, and no oily or acid substances, after being cooked, should be allowed to cool or remain in any of them. —*American Housewife.*

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*To Pot Cheese*—Cheese that has begun to mould, can be kept from becoming any more so, by being treated in the following manner: Cut off the mouldy part, and if the cheese is dry, grate it—if not, pound it fine in a mortar, together with the crust. To each pound of it, when fine, put a table-spoonful of brandy; mix it well with the cheese, then press it down tight, in a clean stone pot, and lay a paper wet in brandy on the top of it. Cover the pot up tight, and keep it in a cool dry place. This is also a good way to treat dry pieces of cheese. Potted cheese is best when a year old. It will keep several years without any danger of its breeding insects.—*American Housewife.*

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*Buckwheat Cakes.*—As this is the season for buckwheat cakes, the following recipe will at this time be valuable to those who are fond of them; a friend who has tried the experiment says, that it makes decidedly better cakes, with half the trouble necessary in the usual mode of raising them with yeast: To three pints of buckwheat flour, mixed with batter, add one tea-spoonful of carbonate of soda, dissolved in water; add one ditto of tartaric acid dissolved in like manner; first apply the carbonate, stir the batter well and then put in the acid, —thus the use of yeast is entirely superseded, and cakes "as light as a feather" are insured. One great advantage is, that the batter is ready for baking as soon as it is made.—*West. Far. & Gard.*

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## *Cure for Headaches.*

Liquor of ammonia (Qy. the strength?,) 100 parts; distilled water, 900 parts; purified marine salt, 20 parts; camphor, 2 parts; essence of rose or some other scent, in the necessary proportion. The whole dissolved cold. A piece of linen is to be steeped in this solution and applied over the part of the head that the patient points out as the seat of pain, taking care, if it is on the forehead, to apply a thick bandage over the eyebrows, to prevent any drops of the fluid passing into the eyes.

## ON THE MANAGEMENT OF HORSES.

The principle of horse breeding consists in matching the horse and mare, in respect to size, substance, blood, and a certain conventional symmetry, so as to obtain a form in the foal in which may subsist a union of strength and ability for labor, with the powers of activity and speedy progression.

The procreative faculty in the horse remains to a very late age, sometimes upwards of thirty years. Four years is generally the earliest period in England; three years is common in America.

The head of the horse should be lean, neither long nor short, and set on with somewhat of a curve; the thropple loose and open, the neck not reversed, (ewe-neck,) but rather arched; the loins wide and substantial, more especially the back should not be long; the tail not drooping, but nearly on a level with the spine; the hinder quarters well spread, as a support to the loins, and as a security against the approach to each other of the pasterns in progression, whence results cutting them with the hoofs. The hinder legs should descend straight laterally from the hoofs, as a preventive to the defect styled *stickle hough-ed*, or hammed; at the same time, the curve from the hock should be to the degree that the feet may be placed sufficiently forward to prop the loins, and that the horse may not be said to leave his legs behind him. The muscles of the thigh and fore arm should be solid and full, though some horses are heavy and overdone by nature in those parts. The horse, of whatever description, should not be leggy, and of the extremes, short legs are preferable. The canon, or leg bone below the knee, should not be long, but of good substance, and the pasterns and feet of a size to accord with the size of the horse; the hoof dark, feet and frog tough, heel wide and open; the fore feet should stand perfectly level, the toe pointing forward in a right line, else the horse will knock or 'cut on the speed," however wide his chest; in plain terms, he will either strike and wound his pasterns or his legs, immediately below the knees, or both. A full, clear azure eye.

The feed of the horse through the winter should be plenty of hay, (clover, timothy or millet,) fodder occasionally, with a plenty of cut oats, and a moderate feed of corn twice a day; and when they suckle, meal, instead of corn, with their oats, till grass is plenty; their corn and oats night and morning, without hay.

The best food while the mare is with the horse, is meal and oats. A colt, before weaning, should be pushed by feeding its dam high, and also put in fine pasturage, and especially if intended for early training and running.

A mare should not be ridden any distance, after being with the horse, and a mare not accustomed to use, should be rested a few days.

Colts that come before the 1st of May, may be weaned between the 1st of September and 13th of October. Those foaled late, suck six months; and fall foals through the winter. The operation is not gradual, but sudden, and thus performed; they are enclosed in the large stable for about a week: watered, and fed with meal and cut oats, and their mother's milk, and crop grass. They are then turned into a corn field, and salted once or twice a week.

Both stallion and brood mare may be put to accustomed labor, that of the mare particularly being moderate. The term of gestation with the mare is variable; from eleven months and odd days, to three hundred and sixty-three days, which latter may be deemed the utmost. She is supposed to carry her first foal longer than the succeeding. The approach of parturition is indicated a few days previous, by the swelling of the udder, the appearance of milk, the swollen state of the matrix, and the thrusting out of the tail. She should then be watched night and day. In cold, wet, and bad weather, best under cover. At the eleventh month the mare should be watched, or taken to a place of safety. She should afterwards have the best and most succulent pasturage, without which the growth of the foal will be nipped in the bud.

The country chosen should be dry, hilly, and irregular; the soil calcareous, with sweet herbage, and good water in abundance. Should the mare have foaled successfully abroad, in a well sheltered pasture, her milk appearing copious and fluent, and the weather favorable, she may be suffered to remain, requiring nothing more than daily inspection and her allowance of corn, if such should be bestowed. If her milk should be obstructed or should fail, she should be taken to the stable, and enticed to lie down on straw. Warm ale should be allowed, with mashes of corn and pollard. In cases of chill and great weakness, the cordial ball may be given. But should the case be inflammation, from previous high condition and fullness of blood, cordial balls and all stimulants should be strictly avoided, and the regimen confined to warm water and gruel in copious quantities; and a moderate quantity of blood may be drawn. Daily walking exercise abroad should succeed.

During the inability of the mare to suck, the foal must be sustained on cow's milk. Foals should not be weaned till as late in the fall as possible. Castration is best performed at two years old.

Colts are generally broke at two years old; but it is well to accustom them to the halter as early as possible. The only remedy in the case of shying, is to hold hard and sit quiet. To whip a shying horse is utterly useless, and indeed makes him worse—unless he is an *affected* shyer.

The long hairs around the eyes are pulled, and those upon the nose and lips cut with scissors, as well as those of the ears exactly within their margins. The mane is pulled with the fingers. The heels are trimmed close with comb and scissors.

The snaffle and curb bridle—the curb not being severe—is a good bridle; but a single snaffle is best.

As a tribute to the horse, to bring him into condition and fine hair in the spring—*Receipt*

Take half a pound of saltpetre, half a pound of alum, and half a pound of alum salt; pulverize and mix them well together, and every eight days give him a table spoonful in his food. His coat, flesh and spirits will soon reward his master for his care.—*Western Far. and Gar.*

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## DIRECTIONS FOR TRANSPLANTING AND REARING FRUIT TREES.

*Transplanting.*—The tree should generally be set about four inches deeper than it stood before it was removed for the purpose of being transplanted. In a dry, rich soil, it will only be necessary to make a hole to receive the tree to the depth required, and replace the soil. In a cold or clay soil they should be set about two inches shallower, and soil placed around them to the height of two inches above the surface of the ground. If the soil be wet the tree should be set on the surface, and soil placed around it to a distance sufficient to make a good bed for the roots, and also raised high enough to be equal to the depth for planting in dry soils. A preparation of well rotted manure and soil, (one-third manure) made into the consistency of a thin mortar, should be provided, and the roots of the tree dipped into it before they are planted. The hole to receive the tree must be wide enough to allow the roots to be placed in their natural position.

The Trees should not be set so deep that the roots will go into the cold earth, nor so shallow as to be dried up by the sun. In a thin or cold soil a hole may be dug about 18 inches deep, and a mixture of well rotted manure and soil put in until the hole is left deep enough to receive the tree according to general directions. The manure and soil must be trod down hard, and the trees set on it.

*Management.*—The trees should be hoed about once a week (except in wet weather,) during the first season. After the first season place straw around them to the distance of three or four feet; but not so as to touch the tree; or, they may be cultivated every season. In March all the sprouts should be cut away from about the root, and if the tree be small it should be trimmed not more than a foot up the stock the first time it is pruned. If it be of good size it may be pruned higher. Each succeeding year the tree must be trimmed higher, always leaving a good top. Be careful to keep the sprouts off as they come out below the top of the tree. The advantage gained by leaving a good top is, that the stock and roots both grow better than when the top is trimmed too close. The growth of the tree must determine how high it should be pruned. If the growth be rapid, about two feet, if not rapid, about one foot may be the height of pruning each succeeding season until the trunk of the tree is high enough.—*Prairie Farmer.*

*The Rose.*—We take up this favorite again; it has long been, and will long continue to be the most popular of plants, either for house or out-door culture. Great additions have been made to it within the last few years, most of which are mentioned in "Buist on the culture of the Rose," a small work which should be in the hands of every *rose fancier*. We propose to condense from it, and present some of its descriptions in that way to our readers.—There is hardly a door-yard, or small or large garden in the country, where roses do not grow, but in many, most instances, without care, and of an indifferent quality. At a very small expense this may be remedied. Almost any soil will answer for them, but the flowers will be infinitely better, and the plants stronger, if the beds are made *rich* with a good proportion of well rotted manure and leaf mould from the woods, with a mixture of sand, when it can be had; dug *deep* and well mixed. Beds for flowers are now often cut of some fanciful form in the sod; when so, or if mounds are made, they should not be made small, unless when it is necessary; eight to twelve feet diameter is little enough, and is not so large but that they can be seen to advantage, and be kept clean with ease. I may say here, that for a small bed, the roses that bloom during the whole season are now considered the most desirable.—*West. Far. & Gard.*

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*Hemp.*—The following statement of hemp received at New Orleans may help to show the rapid increase of the cultivation of this important article. In 1841 and 1842, the entire receipts at New Orleans were only twelve hundred and eleven bales; in 1842 and 1843, they rose to fifteen thousand bales; and in 1843 and 1844, they reached thirty thousand bales, or about five thousand tons,—the increase being almost exclusively from Illinois and Missouri.—*Western Gar. and Far.*

*For Corns.*—Keep them closely trimmed, wear large shoes, and you will never suffer much; by perseverance you will, perhaps, out live your corns.

## FROM THE PRACTICAL RECEIPT BOOK

### *Blacking, to make.*

Put one gallon of vinegar into a stone jug; add one pound of ivory-black, well pulverised; half a pound of loaf-sugar; half an ounce of oil of vitriol, and one ounce of sweet-oil; incorporate the whole by stirring. This is a blacking of very great repute.

### *Horse-radish to have in keeping.*

Grate a sufficient quantity during the season, while it is green, put it in bottles, fill up with strong vinegar, cork them tight, and set them in a cool place.

### *Powder for Hiccough.*

Put as much dill-seed, finely powdered, as will lie on a shilling into two spoons-full of syrup of black cherries, and take it presently.

### *To Perfume Clothes.*

Take dried red roses, and, to increase their smell, pour on them fresh rose-water, and still drying between in the shade; then take cloves, cinnamon, spikenard seed, storax, calamita, benjamin, violet roots, nutmegs *aa* 3iiij. to a pound of roses; beat them all into small pieces, and mix them with the roses, and put them into perfuming bags.

## FARMERS BEWARE!!!

### BLACK SEA WHEAT.

AT a Meeting of the Board of Directors of the County of Northumberland Agricultural Society, held at Grafton on the 5th day of March 1845, the following Resolution was moved, seconded, and unanimously carried:—

"That the following Advertisement be printed in the *Cobourg Star* and Toronto *Cultivator*, and in 200 Handbills or Posters, to be distributed throughout the Country."

Notice is hereby given that some of the Seed Wheat imported by Mr. L Card, said by him to be

"BLACK SEA OR ODESSA WHEAT,"

has been examined by us and ascertained to be infected *by the Hessian Fly or Weavel.* We therefore do hereby caution every Farmer from purchasing such Wheat for seed, as the introduction of the disease above-mentioned would cause the ultimate ruin of the wheat trade in this Province, in the same manner that it has ruined the wheat trade in Lower Canada and many Districts in the United States.

(Signed by) Messrs. R. Hare, J. G. Rogers, A. Moore, J. Beattie, R. Wade, C. Vernon, A. A. Burnham, J. Montgomery Campbell, W. King, T. Page, J. Steele, J. Phillips, W. C. Irish.

Extracted from the Minutes of the Meeting by

D. McTAVISH,
*Secretary.*

Grafton, March 5, 1845.

N. B. All Newspaper editors are respectfully requested to copy the above notice *Gratis.*

## CATTLE SHOW.

### HOME DISTRICT AGRICULTURAL SOCIETY.

*Under the Patronage of His Excellency the Governor General of British North America.*

THE SPRING FAIR and CATTLE SHOW will be held upon *Wednesday the 14th day of May*, 1845, at the CITY of TORONTO, on the enclosed Space in front of the New Gaol and Court-House, and the Exhibition of Implements, Dairy Produce, and Domestic Manufactures, on *Thursday, 15th of May*, 1845, at the Court-House, when the Society will award the undermentioned Premiums for the following Stock, viz:—

### *On Wednesday, 14th May*, 1845,

| CATTLE. | 1st. £ | 1st. s. | 2d. £ | 2d. s. |
|---|---|---|---|---|
| Bulls, 3 years old and upwards, | 3 | 0 | 2 | 0 |
| Bulls, under 3 years . . | 2 | 0 | 1 | 0 |
| Bulls, yearlings . . . | 1 | 0 | 0 | 15 |
| Cows, 3 years old and upwards | 2 | 0 | 1 | 10 |
| Heifers, under 3 years . . | 1 | 0 | 0 | 15 |
| Heifers, yearlings . . | 1 | 0 | 0 | 15 |
| HORSES. | | | | |
| Blood Stallion . . . | 1 | 10 | 2 | 0 |
| Draught Stallions . . | 2 | 10 | 2 | 0 |
| Draught Mares . . . | 2 | 0 | 1 | 0 |
| Saddle Mares . . . | 2 | 0 | 1 | 0 |
| Yearling Colts . . . | 1 | 10 | 0 | 15 |
| Yearling Fillies . . . | 1 | 10 | 0 | 15 |
| SHEEP. | | | | |
| Fat Spring Lambs, not less than 3 in number . . . | 1 | 10 | 0 | 15 |

### *On Thursday, 15th May*, 1845,

FARMING IMPLEMENTS MANUFACTURED IN THE HOME DISTRICT.

| | 1st. £ | 1st. s. | 2d. £ | 2d. s. |
|---|---|---|---|---|
| Iron or Wooden Scotch Plough | 2 | 0 | 1 | 10 |
| Subsoil Plough . . . | 2 | 0 | 1 | 10 |
| Fanning Mill . . . | 2 | 0 | 1 | 0 |
| Cultivator, or Horse Hoe . | 1 | 0 | | |
| Drill Barrow . . . | 1 | 0 | | |
| Ribbing Plough . . . | 1 | 0 | | |
| Straw Cutter . . . | 2 | 0 | | |
| Clover Machine . . . | 2 | 0 | | |
| Horse Rake . . . | 1 | 0 | | |
| DAIRY. | | | | |
| Butter, not less than 25 lbs . | 2 | 10 | 1 | 0 |
| DOMESTIC MANUFACTURES. | | | | |
| Pair of Woollen Blankets : | 1 | 0 | 0 | 10 |
| Twenty yards of Fulled Cloth | 2 | 0 | 1 | 0 |
| Fifty yards of Woollen Cloth | 2 | 10 | 1 | 5 |
| Twenty yards of Flannel . | 1 | 0 | 0 | 10 |
| Six pairs of Woollen Socks | 0 | 15 | 0 | 5 |
| Maple Sugar, not less than half a cwt. . . . . | 1 | 0 | 0 | 5 |
| Beet Root Sugar, not less than 10 lbs. . . . . | 2 | 10 | | |

*The amount of Premiums to be awarded for Stock, Farming Implements, Dairy, and Domestic Manufactures, is . . £72 15s.*

—

RULES AND REGULATIONS.

Members who have paid their annual subscriptions, are entitled to show Stock without any extra charge.

Persons who are desirous of competing for any of the above Premiums, who are not members of the Society, must pay the sum of Twenty shillings on entering their Stock.

N. B. Members of the Township Societies, may compete for any of the above Premiums, upon producing their certificate of membership, signed by the Secretary or President of their respective Societies.

The Certificates of Stock, &c., entered for competition, with the name and residence of the owner, must be handed to Mr. GEORGE D. WELLS, the Secretary, at the Court House, before eleven o'clock on the morning of the Exhibition—at which hour the lists will be closed—and no Stock, not included in the Secretary's list will be allowed to enter into competition.

No Mare shall be entitled to receive a premium, unless she either have a Foal or a Filly by her side, or the owner prove that she be with Foal.

No Stallion shall be entitled to receive a premium, until after he shall have regularly stood to cover Mares within the Home District during the Season.

All Bulls, except yearlings, must be secured by a ring in the nose, with a chain or rope attached to prevent accident.

As an encouragement to those enterprising Farmers who have already imported Stock into this Province, and as an inducement to others to follow their example, if any animal entered for competition be deemed by the Judges worthy of the first prize, and if the owner of the same, prove to the satisfaction of the Judges, that such specimen of Stock has been imported from Great Britain since the last May Fair, he shall upon producing Certificates of the Age and Breed of the animal, be entitled to the thanks of the Society, and receive double the amount of the Premium which would otherwise be awarded.

No person or persons must interfere with the Judges when in discharge of their duties, by conversation or otherwise.

GEORGE DUPONT WELLS.
*Secretary, H. D. A. S.*

Davenport, March 7, 1845.

N. B. A large number of superior Stock, will be offered for sale at public Auction, upon the first day of the Fair. An Auctioneer has been engaged for the day, and Members of the Society may, without charge, have their stock exposed to public Sale.

A member of the Society will pay the highest market price for any quantity of BUTTER, properly packed in Firkins and half Firkins, and the Society will give a premium to the largest and best sample produced upon the day of the next October Fair.

—

The Society hereby give notice, that they will award at the October Fair and Fat Cattle Show, the following premiums in addition to their usual Autumnal Prizes, viz:—

*Five Pounds* for the best portable *Threshing Machine*, manufactured in the Home District, not requiring more than two horse power, and capable of threshing one hundred bushels of Wheat, in a day of twelve hours.

*Three Pounds* for the best portable *Flax and Hemp Dressing Machines*—manufactured in the District.

For the best *Essay* upon the profession of Agriculture as a science, a Gold Medal, to be worth at least three pounds.

For the Second Best a Silver Medal.

The *Essays* to be sent under Seal, to George Dupont Wells, Esq. the Secretary, on or before the *First Wednesday in August next*, and their respective merits to be decided on by a Committee to be appointed on the next regular day of the Meeting of the Society, to be held on the second Wednesday of the same month.

For the best cultivated and well managed Farm in the Home District, taking in view the Land, Stock and produce, with the appendages, a Gold Medal will be given by the President of this Society.

For the second best, the Society will award a Silver Medal.

The sum of Ten Pounds has been appropriated by the Society, to be awarded in premiums at the Spring Ploughing Match, and the *President*, with Messrs. *Torrance*, *Alexander Gibb*, and *George Harrison*, have been appointed a Committee, with power to make all the necessary arrangements for the same.

☞ A good dinner will be prepared by Mr. Thomas Smith, Farmer's Arms, upon *Thursday*, the 15th May, at Three o'clock, and Farmers generally, as well as those who are friends of Agricultural pursuits, are requested to attend. Tickets can be obtained from Mr. William Atkinson, the Society's Treasurer, and from Mr. Smith, *Farmer's Arms*.

☞ N. B.—No politics!!! ☜

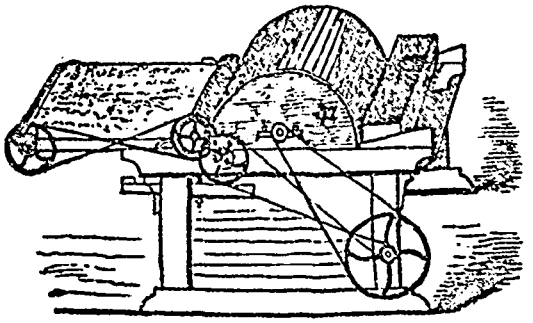
By order.

GEORGE DUPONT WELLS.
*Secretary, H. D. A. S.*

Davenport. March 7, 1845.

GOD SAVE THE QUEEN.

## PATENT WOOL PICKER.



## TO WOOLLEN MANUFACTURERS.

THE Subscriber begs leave to inform the public 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, Condensers, 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.

## TOWNSHIP OF WHITBY AGRICULTURAL SOCIETY.

THE Committee of the Township of Whitby AGRICULTURAL SOCIETY, give Notice that the following list of Premiums will be awarded at the SPRING SHOW, to be held on the 7th of May next.

| | | |
|---|---|---|
| Best Draught Stallion - - - | £2 | 10 |
| Second best do - - - | 1 | 10 |
| Best Brood Mare with Foal or a foal by her side - - - - | 1 | 0 |
| Second best do do - - - | 0 | 10 |
| Best 2 years' old Mare Colt - - | 0 | 15 |
| Second best do - - - - | 0 | 10 |
| Best yearling Colt - - - | 0 | 15 |
| Second best do - - - - | 0 | 10 |
| Best Bull - - - - - | 1 | 0 |
| Second best do - - - - | 0 | 10 |
| Best Breeding Cow - - - | 0 | 15 |
| Second best, do - - - | 0 | 10 |
| Best 2 years old Heifer - - - | 0 | 10 |
| Second best do - - - - | 0 | 5 |
| Best sample of Maple Sugar, not less than 25 lbs. - - - - | 0 | 10 |
| Second best do do - - - | 0 | 5 |

JOHN RITSON,
*Secretary.*

March, 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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*Advertisements will be inserted for One Dollar if not exceeding Twelve lines, and in the same proportion, if exceeding that number.*

*Terms*—One Dollar per year; Four copies for Three; Eight for Five; Twelve for Seven; and Twenty for Ten Dollars.

*All payments to be made invariably in advance, and free of postage.*

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

Toronto, Jan, 1845.