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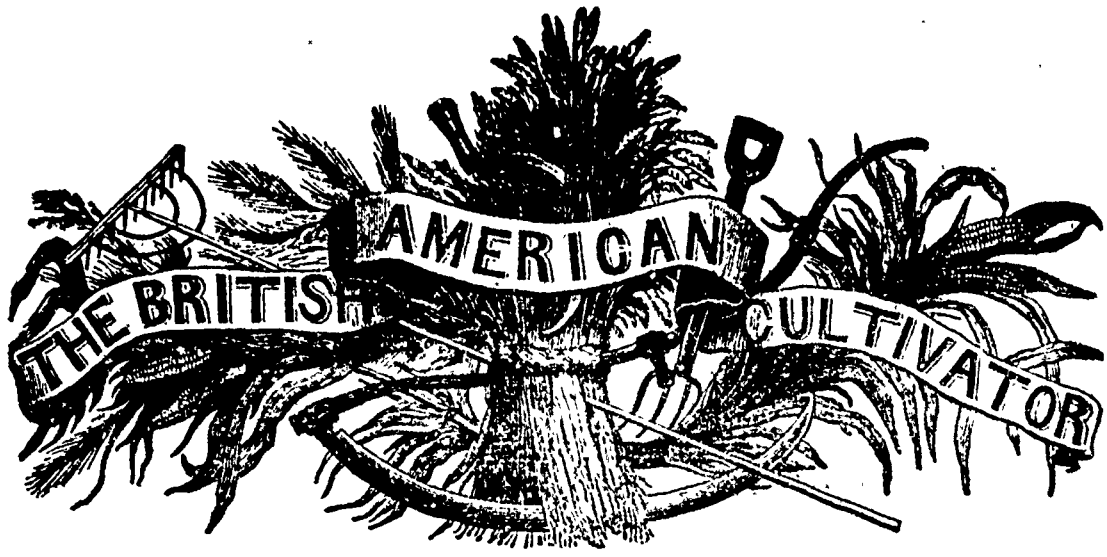


"Agriculture not only gives Riches to a Nation, but the only Riches she can call her own."

New Series.] TORONTO, DECEMBER, 1845. [Vol. I.—No. 12.

WORK FOR THE MONTH.

The winter is now fairly commenced, and the frugal farmer will loose no time in having his outhouses snugly repaired to protect his stock from the extreme cold. If animals are provided with comfortable quarters, they will require much less food to carry them through the winter than if exposed to the chilling blasts of wind, snow, and sleet, which are invariable concomitants of a Canadian winter. Provender, especially hay and oats, are a much shorter crop than the farmers of this country are in the habit of harvesting, and it therefore behoves all to deal out their winter's stock of food with the greatest possible degree of economy. True economy in wintering stock upon a short allowance of food, will be found in giving extra attention to the comfort of the animals, in regular feeding, and in preparing the food so that they will be induced to eat it without waste. The latter particular may be performed by employing a straw cutter, which will pay for itself in a single season of scarcity like the present.

A twelvemonths' stock of firewood should not only be prepared before the close of the month, but a quantity of logs should be made ready for drawing to the neighbouring saw mill. Every farmer who cultivates his own land should attend to this particular if possible, and make every necessary preparation to erect a few hundred rods of post and board fence each year, until the whole farm becomes enclosed with a permanent neat fence. The expense of doing this will not be very great if the logs are drawn into the mill, and the boards and posts be drawn to the spot where they will be required for use, in the winter, by the hands and horses that are employed on the farm during the summer months. This advice can best be attended to by those whose farms are entirely cleared, and whose circumstances will admit of the necessary outlay. There are few indeed who could not do much more in this way than has been done; and if a few hundred rods cannot be made consistently, probably fifty rods of such fence could be made the coming spring. On

land free from gravel, by the aid of an auger, an able-bodied man will plant thirty posts in a day, and even more when the ground is moist, as it invariably is in the spring. Where board fences cannot be made, or where the farmer is not prepared for this improvement, this will at least be a suitable period to get out rails for fencing.

Much of the grain will be thrashed in the course of this month; and when the travelling machines are used for thrashing, it is usually the case that large quantities of straw are thrown into the yards and wasted; this we trust will not be practiced by those whose limited stock of hay and roots would admit of no such prodigality.

The labor to be performed on the farm during this and the other winter months, principally consists in marketing what was produced in the summer; and therefore any little advice that we may have to give our readers, in this article, in addition to the foregoing, will have a more direct reference to the theory of husbandry than to its practical details.

This may truly be styled an age of improvement, but how far the farmers of this colony have availed themselves of the light which men of deep research and science have thrown as it were broadcast upon the civilized world, we leave them to judge for themselves. This month closes the year; and every intelligent farmer should ask himself a few pertinent questions like the following: What knowledge have I gained during the year which is about closing, that is calculated to improve my condition as a farmer? Have the surplus products of my farm, and the increase in value of my live stock, been greater than in former years? And if I have increased my practical stock of agricultural knowledge, the products of my farm, and also the value of my farming stock, what steps shall I take to ensure an additional increase of these essential features of improved farming? As I am ever anxious to reap any little advantage that can be gathered, by perusing and hearing related the most successful systems of agriculture as practiced by others, would it not be only neighborly and patriotic on my part, to furnish my brother farmer with the details of my most successful experiments, describing at the same time the various influences that operated favorably or otherwise in perfecting them? Some may possibly ask themselves those questions, whose stock of useful knowledge is so limited that it would be difficult for a judge in these matters to ascertain whether any improvement had taken place or not, or whether the products of the farm, or the value of stock, had been increased the present year.—If such should unfortunately be the case, what shall the man of improvement say to such an one? Why, he should certainly try all lawful means to argue him out of this false position, by convincing him if possible, that man was made to make use of the good things of this world, and not abuse them; and by showing by incontrovertible argument, that if each individual of the productive classes, were only to produce the bare necessaries of life that they require for their own individual comfort, what would become of the increase of that population as ushered into the world, and the numerous grades of helpless objects who demand the attention of the philanthropist; and lastly, though least, the hangers on, or rather the drones of society? We very much apprehend that there are men, yes objects, styled by this appellation, who are so grovelling in their desires, that they have

no wish to improve their own minds; nor do they care whether their country advance in improvement or not, so long as their own individual interests are cared for. For men of such uncultivated minds we may have some sympathy, but we court not their favor nor friendship. We want to see an intelligent and progressive community of farmers in Canada; and to aid in accomplishing this truly desirable object, we want every man who is in possession of even a spark of patriotism, to join us in our endavours to accomplish the agricultural reform which he have been now for some years contending for. The agricultural products of Canada might be vastly increased, if only those who are engaged in this noble calling would adopt the proper course to consummate this desirable object. It shall be our almost only aim in the future management of this journal to clearly point out the means by which the British Americ n Provinces, and especially Western Canada, could be made to compare in point of prosperity with any other section of this vast continent.

It is useless for us to advocate measures for the improvement of agriculture unless the farmers themselves evince an interest in carrying them out. Most of the practical agriculturists argue that they have no time to read, and therefore cannot afford to purchase books and magazines to lie on the shelves untouched for months and years. *No time to read!* —we hear this hacknied sentence repeatedly sounded in our ears, by men whose years and better judgment should teach them better things. The truth of the matter is, they have not the *will* to read; if they had they would go to some little pains in selecting the choicest modern works that afford a fund of invaluable information upon the science and practice of agriculture, for their amusement, or rather as a means of profitable pastime during the long winter evenings. Those who have not had the advantage of even a common education, might spend their evenings very profitably in hearing others read valuable agricultural works. We wish to impress the idea upon the agricultural community, that if they wish to make the most of their time and capital, they must become acquainted with the best systems of agriculture practiced in their own and other countries; and especially, obtain a knowledge of the causes and effects of the various results, that have a favorable or unfavorable influence upon their prosperity. No means are so wisely calculated to consummate this object as that of consulting agricultural works, particularly those that have been written by practical farmers. Five or ten dollars per annum expended for such works would supply a stock of reading matter for the farmer that would be worth some hundreds of pounds in the course of an ordinary lifetime. Every shilling so invested, would give a return of at least a pound in the farmer's pocket, if he would make a judicious selection of works, and devote only two hours in twenty-four, the year through, excepting sabbaths, to reading and reflection. This small period of time, could be spared, if by no other means than a little less indulgence in sleep and idle gossip. The most industrious man in the country can set aside a fraction of each day for useful reading. Entertaining the above views, we beg to crave the indulgence of our friends, when we again press upon their attention the importance of taking both their time and money to some considerable extent, in endeavouring to elevate the character of this province, especially in an agricultural and mechanical point of view. Every inhabitant exercises an influence either in favor or against the welfare of the country; and each individual should honestly ask himself the question, whether is the course I pursue in my business calculated to benefit or injure my native or adopted country?

The intelligent husbandman who takes an interest in the leading improvements of the day, is of himself an invaluable settler in a new country like Canada.—We want to see every farmer intelligible, and each vieing with his neighbor, in exercising a healthful influence upon the community. The means of doing this good are accessible to all; and we wish to see every farmer avail himself of the great and inestimable privilege of conferring a lasting benefit upon himself, the nation, and his fellow-man—the means of doing which is placed within his reach upon the most easy terms. Works on agriculture have not been encouraged to any great extent in this province; but we are glad to observe that the far-seeing farmer is of late duly appreciating such publications—an evidence of which we see exemplified in the additional interest which is manifested in behalf of the *Cultivator*. We flatter ourself that with well directed efforts on the part of the five thousand subscribers which we now have to this journal, that its circulation might be increased to twenty thousand in the course of the present winter. The work in which we are engaged is a progressive one,—both conductors and supporters must not tire in their efforts. Assuredly as much depends upon the latter as the former; and while we resolve to put forth double diligence in preparing useful matter for our readers, we desire to see a corresponding degree of effort put forth in extending its circulation. A portion of this month might very profitably be employed in extending the circulation of this journal; indeed we know of no better method for the farmers spending their Christmas holidays than by exerting their influence in creating a zeal among their neighbours for agricultural improvement. While this interesting department of operations are going on, due attention will also, we trust, be given to the interests of the Common Schools. The hints we gave in our last upon this important subject will no doubt have their desired effect upon all who feel an interest in the prosperity of this favoured Province. It is to be hoped that the hints we have here dropped will be well received by a discriminating public, and that none will allow themselves to settle down in supineness and indifference when subjects of such vast importance are placed before their notice. The present is probably the most important period that Canada ever witnessed. The capitalists of England, especially those belonging to the landed interests, have their attention closely fixed to this country, and our future prosperity depends greatly indeed upon the course which its present inhabitants pursues. They have done much the past year to gain the confidence of their brethren in the mother country; and we have good reason to believe that the work of improvement so well begun will progress with rapid strides.

THE FARMER'S LIBRARY & MONTHLY JOURNAL OF AGRICULTTRE.

The four first numbers of this work have been received, for which favor we tender our grateful acknowledgements to its venerable and talented editor. Mr. J. S. Skinner must be considered the father of the American Agricultural press, being the founder of the *American Farmer, Baltimore;* and since his connection with that journal, the author of a number of able treatises on agriculture, and a steady and persevering advocate of the agricultural interests.

The *Library and Journal of Agriculture*, of which Mr. Skinner is editor, is published in the city of New York by

Greely & McElrath, *Tribune Office.*—Its price is five dollars per annum for two volumes containing 600 pages each. The work is divided into two grand divisions—the one entitled the *Farmer's Library*, and the other the *Monthly Journal of Agriculture*, which appears in monthly numbers, each number containing 100 pages and upwards. Each number of the work is beautifully illustrated by numerous engravings; and to judge from the specimens before us, we would pronounce it the best Agricultural Magazine published in the English language. Any farmer who would carefully read the four numbers already published, must frankly acknowledge that he had received more real benefit than twice the subscription price. If such an event should take place, that we should find it our interest to disconnect ourself from the management of the *Cultivator*, almost the first act we should do, would be to subscribe for the *Farmer's Library and Monthly Journal of Agriculture*, and by doing so, we would calculate that we had made an investment, which would be worth more to us in our business than twenty times its subscription. Owing to the great anxiety we have for the success of this great mammoth undertaking, we beg to inform our friends, that we should feel a pleasure in procuring the above work for any who may remit to our address, Newmarket Post Office, the sum of five dollars.

MOUNT HOPE BOTANIC GARDENS AND NURSERIES.

We have been favoured with a descriptive catalogue of fruits, ornamental trees, flowering shrubs and plants, of the above establishment, which is entitled to a fuller notice than our present space will admit of. It is, however, due to the intelligent proprietors, Messrs Ellwanger & Barry, to give considerably more than a passing notice of the Mount Hope Nursery, inasmuch as they have lately associated themselves with Mr. Leslie's Toronto Nursery, by which arrangement the farmers of this country are enabled to get as good an assortment of fruits, &c. at as cheap a rate as they can be had on the other side of the water. In looking over the catalogue, we find there are 171 varieties of apples, 141 of pears, 35 of plums, 48 of cherries, 8 of apricots, 38 of peaches, 6 of nectarines, 6 of quinces, 26 of grapes, 7 of currants, 8 of raspberries, and 24 of strawberries. Of ornamental forest trees, there are 70 varieties; ornamental shrubs, 78; ornamental evergreen trees and shrubs, 37; vines and creepers for covering walls, &c., 18; twining honey suckles, 8; and upright honey suckles, 4 varieties.

The assortment of summer, and perpetual or autumnal roses; of herbaceous pæonies; of tree pæonies; of carnations and picotees; of pinks; of bulbous flower roots; double dahlias and herbaceous plants, are quite as extensive as the fruits. When the whole establishment is taken into account, it will certainly bear comparison with any similar one west of Albany. We lately visited the Mount Hope Nursery, and through the politeness of one of its proprietors, had the pleasure of examining very carefully the whole of their most extensive grounds. We were delighted to witness the remarkable neatness and order which are displayed in the cultivation of every department of the nurseries and flower gardens; indeed those grounds have become so noted in this respect, that they make a very agreeable place of resort for visitors to the city of Rochester during the summer season.

TO THE PATRONS OF THE BRITISH AMERICAN CULTIVATOR, AND THE FRIENDS OF AGRICULTURAL IMPROVEMENT IN BRITISH AMERICA.

We feel it due our numerous patrons and friends, to record our most heartfelt thanks for the able manner in which our enterprise has been sustained during the year which is now about closed. The experience of the past has given abundant evidence that a cheap journal cannot prosper, unless the cash system be rigidly enforced; and we therefore beg to announce to our present subscribers, that in strict conformity with the system which we have invariably observed, none will be supplied with the *Cultivator*, but such as forward their names and subscriptions to the Publisher, Toronto. Some few have taken umbrage at the summary manner we exact payment for the extremely small subscription of our paper, but to those we would say, that no other system would have answered, unless we doubled our subscription price, by which means the prompt paying would be charged with the default of non-paying subscribers. This system of injustice would not be calculated to increase the popularity of the work. The small sum of *Two Shillings and Sixpence* can as well be paid down as at six or twelve months hence; and the *Cultivator* need not cost any a greater sum than this, if they feel disposed, in conjunction with their neighbors, to avail themselves of its wholesale price.

We wish to be distinctly understood that the forthcoming volume will be sent only to such as renew their subscriptions; and as this rule will extend to all, none will have just ground of complaint.

We mentioned on a former occasion, that our present supporters might with a trifling effort extend our circulation to ten thousand subscribers, and by doing so we would devote a large share of our time in the management of our journal: we therefore hope that all who have a desire to see the *British American Cultivator* improve in matter and appearance, will put forth an extra effort in increasing its circulation.

The province of Canada contains three hundred thousand practical farmers, every one of whom could derive much profit from an ably conducted Agricultural Magazine; and if it were practicable to induce every proprietor of land to tax himself to the extent of only thirty pence annually, for the purchase of such a paper as ours will be in future, we venture the opinion that the effect of such a movement would be productive of an abundant increase of wealth, and that this province would shortly become celebrated for its great and numerous agricultural resources. The same argument would apply with equal force to the other provinces; but it is to Western Canada that we have hitherto received the largest share of patronage, and to the farmers of this highly favored portion of British America, we mainly rely for patronage. Instead of the large circulation, of which we have been picturing to our fancy, we only ask for the forthcoming volume a circulation of ten thousand copies; which would be only double the number that was subscribed for during the year which is now about closed. To obtain this large subscription, some extra effort will have to be put forth by the friends of agricultural improvement. The best means yet devised, to give a liberal circulation to an Agricultural Journal, is the one which the Township of Whitby Agricultural Society has most successfully practiced for the past two years. This old and wealthy township, at the two last annual meetings of the society, was divided off

into sections, and a Director elected to each, a part of whose official duty was to call upon every individual residing in his division in the month of January, to solicit the small annual subscription of *One Dollar*, for which he would receive *the British American Cultivator*, in addition to the other advantages which would result from being a member of the society. The present year the Whitby Society has *three hundred and forty paid subscribers*, and in all probability that number will be greatly increased the next year. The improvements in agriculture in this wealthy township, exceed any thing of the kind with which we have any knowledge; and if the friends of agriculture only remain true to themselves, they will ere long have the gratifying intelligence to announce, that every proprietor of land in the township has his name enrolled upon the subscription book of the society. Other sections of the province have pursued a very similar course in canvassing for the *Cultivator*; and wherever it has been liberally circulated, the outcry about hard times is no longer heard, and all grades of society vie with each other in the productions of the soil or the workshop. This is precisely the state of things that we are anxious to have brought about in every section of the British American Provinces; and one of the most efficient agents for consummating this desirable object is, an extensively read and talented agricultural paper. Such a paper as we have described, will be embodied in the second volume of the *British American Cultivator* (new series); and when the talents of the editor falls short of supplying such a work, others who are also practically engaged in agricultural operations will be employed to assist him in his arduous task. The next volume will be worth to any practical farmer, at least twice as much as any of the preceding ones; and as we intend more time and talent shall be invested in preparing it for the press, we also ask for it a corresponding increase of support. We fully intend to so liberally store the columns of the *Cultivator* with valuable information, that every spirited farmer in the country will not fail in becoming its patron. The foregoing exposition of our views and intentions, will serve at least to show, that we not only intend to please others, but that we also intend to be pleased ourselves. The great aim and object of our enterprise is to assist in increasing the wealth of this highly favored portion of the British Empire.

CAUSE OF THE DELAY OF THE ISSUE OF THE SEPTEMBER, OCTOBER, AND NOVEMBER NUMBERS OF THE CULTIVATOR.—Our subscribers have no doubt been considerably disappointed at the irregular issues of the above three numbers of the *Cultivator*, and we should have mentioned before the cause of our delay.—Mr. Eastwood, the publisher, failed in supplying paper for the above numbers at the regular period, in consequence of some improvements which were made to his mills during the past summer. It is highly probable that a like occurrence will not again take place for a long period; and as it is our intention to publish each number a few days in advance of its date, so that our subscribers will be in the regular receipt of this journal on the first day of each month, we trust that any irregularities will be forgotten.

ERRATA.—Our readers have no doubt observed several errors in the last four or five numbers of the present volume of the *Cultivator*, which unavoidably crept in through our not having had an opportunity of seeing the proof-sheet before being put to press. We intend in future to be more careful in correcting the proof-sheet, by which means the work will go before the public free from errors.

The Cultivator now receives so liberal a share of patronage at the hands of the agriculturists, that no pains shall be spared in its management. Such of our readers as detect the inaccuracies we by have alluded to, will do us a kindness pardoning us this once, and we do assure them that in future we shall endeavour to guard against errors of any description.

The September and October numbers of the *Cultivator* have lately reached us, and we are delighted to see that the exalted character which the late Judge Buell and Willis Gaylord had earned for this journal, is fully sustained by its present conductor. Through some mistake or other of the publisher, we have not been in the regular receipt of the *Cultivator* the present year; and our readers who were formerly subscribers to that excellent work, have doubtless experienced a loss, as well as ourselves, in not having the pleasure of perusing *the cream* which we might have gathered from our able contemporary. Without further dilating upon the merit of the magazine before us, we would, for the information of our readers, extract a few articles which we trust will be read with interest.

Deep Ploughing.—Dr. D. H. Robinson, of Farmington, Ontario Co., N. Y., ploughed a piece of grass land late in the summer for wheat, to the depth of nine or ten inches. This was thoroughly harrowed, with a light dressing of well rotted manure, and the seed sown upon the inverted sod. The product was thirty-five bushels per acre, on land where twenty are usually considered a heavy crop. Another skilful farmer finds as much benefit from the mixture of the subsoil, that he considers a decided advantage would result, so far as fall wheat is concerned, if six inches of the surface of his land were entirely removed and carried off.

Pine Apple Cheese.—Mr. Lewis M. Norton, of Goshen, was the first manufacturer of what is called pine-apple cheese, in America. He commenced making this article in 1808. He had at this time no knowledge of the mode in which it received its peculiar form and qualities. He saw some which came from England, and set himself to work to imitate it. His first trial succeeded so well that he was encouraged to persevere, and he has continued to progress, until at this time, he has so perfected the whole process, from the "running up" of the curd, to the sole of the cheese, as to entirely distance all competition.

Mr. Norton is this year using the curd from ninety cows, for making pine apple cheese. The principal portion of this curd is bought of his neighbors, for which he pays them the same price per pound that common new milk cheese brings, which is five cents this season; so that those who sell him their curd, save all the labor of pressing and curing their cheese, besides gaining considerable from the greater weight of the curd.

The curd is kept for twenty-four hours before it is made into cheese. The advantage of this, is supposed by Mr. Norton to be, that a degree of fermentation takes place, which being checked at a critical time, by the cutting of the curd, preparatory to its being formed into cheese, is not renewed after it comes from the press; thus preventing the defect of the cheese being hoven or blown.

The curd is rapidly cut into pieces of not more than a fourth of an inch square, with a machine invented by Albert Loomis, Torringford, Ct., which Mr. N. prefers to any curd-cutter he has seen. After being cut, the curd is put in a cheese cloth, placed in warm water, and the temperature gradually raised by pouring in water that is still warmer, till it reaches 105 degrees, by the thermometer. This does not scald the curd, which according to the practice of the best cheese-makers in England and in this country, is, we think, discountenanced. The curd is next cooled, by adding cold water, to the temperature of 88 degrees, when the whole of the water is drawn from the vat, and the curd weighed, and salted with the finest kind of table salt—four ounces of salt to ten pounds of curd—and after being well stirred is put in the press, where it remains twenty-four hours, or a longer time, as is convenient, as it takes no hurt by remaining forty-eight hours. The curd is weighed immediately over the tub, being drawn up by a pulley, and when this is done, is again lowered into the tub, where it is salted.

The cheeses are pressed into moulds, made of sound blocks of oak timber, about twenty inches long and ten inches square. They are sawed lengthwise through the middle, and each half is carved or worked out so as to give the general shape of a pine apple—one half in each part. From the cavity to the upper end of the block, a groove is cut in each part, which, when the parts are placed together, makes a round channel of about two and a half inches in diameter, for passing the curd into the mould. When the two parts of the block are put together in such a manner that the cavities match each other, and are strongly keyed into a frame, they form the mould for pressing the curd. The pressure is applied by means of a screw, operating on an upright, round piece of wood, which fits the channel in the block, and as it is forced down compresses the curd in the mould. The presses are very compact and strong, and appear to answer the purpose well. He has sixty-eight of them, and makes twenty-eight cheeses per day, weighing when dried five pounds each. When the cheeses are taken from the press, they are trimmed, and then placed in nets and hung in water of the temperature of 130 degrees. This is to soften the outside, that it may receive the desired impression from the net, which is done by taking them from the water while enveloped in the nets, placing them in a frame and straining the nets tightly over them by means of screws. This indents the threads of the net into the cheese in such a manner as to give them the external appearance of the fruit from which they are named.

After this operation the cheeses are hung up in the nets from three to five weeks, from the outside to harden, and are then set on shelves having suitable hollows or concavities for the cheeses to rest on. In the centre of each concavity, a hole two inches in diameter is cut through the shelf, the more freely to admit air to the cheese, and to allow any liquid which may come from it, to run off. The nets used for the cheese are made of three-threaded flax-twine, and the manufacture of them costs, exclusive of the material, about 5 cents each. They will last three or four years.

Mr. Norton sells his cheese in New-York, Baltimore, and other southern cities. It usually nets him about ten cents per pound, after deducting commissions. How much greater are the actual profits derived from this kind of cheese than are obtained from other kinds, we cannot tell. Mr. Norton has evidently incurred great expense in his fixtures, and in the time and study he has spent in bringing the manufacture of the article to such complete perfection, and this ought, in justice, to secure him some corresponding advantages. He, however, makes no secret of any of the discoveries or improvements which his protracted and indefatigable labors have effected; but with a highly commendable liberality, freely permits the most minute examination of his systematic operations.

Cotton Beds is recommended to be equal to feather beds:—A correspondent thus describes them:—"I have been using them in my family for several years, made of batting. In summer they are cool and comfortable, and in winter equal to any feather bed. They are made like mattrasses sewed through and through at every six or eight inches."

Profitable Farming.—The Editor condenses the leading features of Mr. James Gowen's mode of husbandry, as reported by him to the Philadelphia Society for Promoting Agriculture. The details laid down by Mr. G. are not explained sufficiently clear, but nevertheless, a close observer will be able to trace out in his own mind the particulars omitted in the report—sufficient is stated to prove, most conclusively, that as good a return can be realised from agricultural pursuits, where a large amount of capital and skill are invested, as from any other productive calling. The soiling system of feeding cattle has not as yet been practiced in this province, and we trust that Mr. Gowen's great success in this particular, will induce members in this country to practice it.

Fine Pickle for Meat.—Brown sugar, bay salt, common salt, each five pounds; saltpetre one pound; pimento (bruised) five ounces; black pepper (bruised) three ounces; nutmegs (rasped) one ounce; boiling water five gallons. Mix. This not only imparts a fine red color to the meat, but also gives it a most delicious flavor.

The Tanning process.—A discovery has recently been made, which seems likely to revolutionize the tanning trade. By means of a tanning machine, or pair of horizontal rollers, fixed over a tan-pit, between which is fixed a band or belt of hides attached by ligatures to each other, to the number of 50 to 100, and by which the rollers are constantly fed or supplied, the hides are lifted out of the pit on one side of the machine; as they pass between the rollers, the exhausted ooze or tanning liquid is pressed out of them, and they are deposited in folds in the pit on the other side, where they absorb another supply of fresh tanning. The first hide having been inserted between the rollers, the others follow in succession, and upon arriving at the end of the band, the motion of the roller is reversed, and the belt is returned through the machine to receive another squeeze. This alternating motion is constantly repeated, the pit being replenished from time to time with fresh solutions of tan, till the operation is completed. The effects produced by this simple plan, are—1. The shortening of the time of tanning to one fourth of that generally required. 2. The production of a considerable increase of weight. 3. The leather tanned by this method resists water longer than that tanned by the old process. 4. The new method is cheaper than the old. 5. It is applicable to the existing tan-yards, at a comparatively trifling expense, with a capability of working in rounds or series, and of expending less tan or liquor. 6. That it is available for all sorts of leather.—*Johnson's Far. Encyclopædia.*

Cultivation of the Gooseberry.—First select a soil, neither stiff clay nor loose sand, but of good, rich, deep mould, in a position where the midday sun will never reach. Plant your bushes three feet apart, train them into heads at least two feet from the ground, let the heads be formed nearly round and open. After the head is once formed, attend to the bush, from the time the blossom shows itself until the fruit is ripe, and whenever a branch is pushing forward to make wood, nip the end with the fingers, thus throwing all the juices into the formation of the fruit, beside keeping the bush more open to the air; with the hoe, dig well among their roots, being careful not to break them, but yet to keep the earth loose and most. As often as once a week from the time the fruit sets until ripe, water with liquid manure upon the soil, and use the hoe directly after it. In pruning, let it be borne in mind that the Gooseberry produces fruit on the wood not only of the preceding summer's growth, but also on spurs from old wood. Should any appearance of mildew become visible, sprinkle the bushes with weak lime water, and scatter lime and sulphur underneath upon the ground.—*Western Reserve Magazine.*

Bees generally eat more honey than they collect after the first of August. Weigh your hives, and see for yourselves.

AN ADDRESS TO THE AGRICULTURISTS OF GREAT BRITAIN, EXPLAINING THE PRINCIPLES AND USE OF ARTIFICIAL MANURES.

BY PROFESSOR JUSTUS LIEBIG.

ON ARTIFICIAL MANURES.

Twenty-five years ago, the manufacture of spaw and mineral waters began; they met with violent opposition from the members of the faculty, as being deprived of all the good qualities of the natural ones—as wanting, in a certain *conditio, sine qua non*—in a *spiritus rector*, or vital power, which alone gave them any medicinal qualities. Those times have passed now—chemistry has demonstrated to a certainty what the constituents of those various waters are, and under what forms and compounds they are united in them. It has succeeded in combining them exactly in the same proportions, and in rendering them not only equal to the natural ones, but even more effective. Only from that time physicians were induced to connect certain effects on the human body with certain elements in the waters, and were enabled, by the light of science, to add more of this element, or more of that; nay, to apply, instead of the waters themselves, the one active element alone, as is, for instance, the case with iodine in indurations and struma. It is well known, that at this moment there are extensive manufactures of mineral waters in England, at Berlin, at Dresden, at Vienna, &c.

Now, I believe, that the same principle may be applied, partially, at least, to the use of manufactured manures, which in England, has just been called into existence. Guano, that powerful manure, the efficacy of which, in a judicious application, has been clearly demonstrated by the testimony of the most intelligent farmers, cannot be supplied for a much longer period, because the rich stores in Chili and Africa must be shortly exhausted. As it is only in very dry countries that it is found, we cannot expect to discover many more places containing it, and what are we *then* to do? My attention has often been directed to the question, whether according to our experience, and the present state of science, a manure might not be composed which could replace the genuine guano in its effects, and whether I could not, by a series of experiments, point out a way of preparing one equal to it in all its chemical and physical properties? You are well aware that we know with certainty all the elements of the guano, as well as of the urine and solid fœces of men and animals. In like manner it seems to have verified the opinion which I have laid down in my work on agriculture, that the salts manufactured in the laboratory have the same effect on the growth of plants, if they are embodied to the fields, in the same forms in which the animals furnish them in their excrements. This must be evident to every one who knows, that to produce these compounds in the laboratory, the same agencies and means are made use of which are employed by nature. The fabrication of a manure, equal in its composition and effects to the solid and fluid excrements of animals and men, seems to me one of the most essential demands of our time—more especially for a country like England, in which, from various circumstances, a rational agriculture without a supply of manure, in some shape or other, *from without*, seems nearly impossible. Our reasoning will appear the more correct, if we remember how different are the resuls which have been obtained by the numerous analysis of the different sorts of guano—how little the farmer can depend upon producing from a given *quantity* a certain *effect*, as the latter naturally varies according to the composition of the former. There are scarcely any two samples in the market with the same composition—nay, not even similar. The following salts may be regarded as the essential constituents of a powerful manure applicable to all descriptions of soil:—

Earthy Phosphates.—The most important of these is *Phosphate of Lime*, which occurs in nature as a mineral called *apatite*. It is the principal component in bones, which, it may be observed, have been found most efficacious if calcined, and consequently deprived of their animal matter. The rapidity of the effects of phosphate of lime on the growth of plants depends upon its greater or lesser solubility. Its amount of glue (gelatine) diminishes this solubility if the soil is rich in vegetable matters, which furnish carbonic acid by their decomposition, and which acid is required for rendering the phosphate of lime soluble in water, and introducing it into the organization of the plants. In the calcined state the bones act sufficiently quickly; but in those soils in which this cause of solubility is wanting their action is slower. In my work I had recommended the addition of a certain quantity of sulphuric acid, both in order to render the bones more soluble, and to change the neutral phosphate of the bones into gypsum, and into a phosphate which contains more acid—super-phosphate of lime. I have been informed that this advice has been most extensively adopted, that the superphosphate of lime has been found to be a most efficacious manure, and that it forms already a most important article of commerce. A second earthy phosphate, not less important, is the *Phosphate of Magnesia*, which it is well known enters into a still larger proportion than the *phosphate of lime* into the composition of the grain.

The *Alkaline Phosphates*, although not originally found in nature, are important elements of the seeds of grain, of peas, beans, &c. A rational farmer must provide them in sufficient quantities to those plants which require them for their developement, from knowing that human excrements increase the produce of grain in a far greater proportion, as they *contain* more alkaline phosphates, than the animal excrements, in which they *do not exist*.

The *Alkalies*—potash and soda—must be constituents of every rationally composed manure,

because, by them the original fertile condition of the fields is preserved. A soil, which contains the *alkalies* in too small a quantity is, perhaps, fertile for grain; but is not necessarily so for turnips or potatoes, which require a great quantity of alkali. By supplying an alkaline manure, fallows, or the cultivation of those plants which are grown during the time of fallowing, becomes less necessary.

Sulphate of Potash is a constituent of all plants, although in small quantity, as well as *common salt* and *chloride of potassium*, which are found in milk in rather a large proportion. The *salts of lime*, especially *gypsum*, are important nourishment for the leguminous plants. *Silica* is never wanting in all sorts of soils—it is a constituent of all rocks, by the decomposition of which all productive soils are formed, and the cerealia find it everywhere in sufficient quantity, and in a form capable of being taken up by the plants, *if the alkalies are provided* wherever they are present in too small quantity.

Salts of Ammonia.—It may be regarded as certain, that the nitrogen of the plants is derived either from the ammonia of the atmosphere, or from the manure which is provided in the shape of animal fluid and solid excrements, and that nitrogenous compounds exercise an effect on the growth of plants, only in so far as they give up their nitrogen in the form of ammonia during their decomposition and decay. We may, therefore, profitably replace all the nitrogenous substances with compounds of ammonia.

Decaying vegetable matters, which contain carbon, are useful to the fields in so far as they provide a source of carbonic acid; but they are quite dispensable in manure, if it be rationally combined, as the atmospheric air is an inexhaustible source of carbonic acid, from which the plants derive their carbon, *i. e.*, if in the manure, the mineral substances are provided which are necessary for the assimilation of the carbonic acid. These are the substances which *together* give fertility to the soil; but, although each of them may, under certain circumstances, viz., where the soil is defective, or where it is not indifferent to the plant to take up one instead of the other, as, for instance, may be the case with soda instead of potash,—increase the fertility, no one of them can be regarded as manure, according to the common meaning of the word, for the simple reason, that only *all of them, in certain proportions*, will fulfil the purpose for which the common manure is applied. This purpose is the restoration, or an increase of the original fertility, and by manure we must replace all the constituents of the plants which have been taken away in the harvest, or which are contained in the plants which we are desirous to cultivate.

What, then, are the consttiuents of the soil which we remove by the straw, seeds, tuberculous roots, stalks, &c., of our plants of culture? It is obvious we must know these first, in order to restore them in sufficient quantities. To this we answer, by giving the analysis of the ashes of plants and their seeds. Hundred weights of the ashes of the following plants contain—

	Beans.	Straw of Peas.	Potatoes.	Clover.	Ashes of Hay.
Alkaline Carbonates	22.38	12.43	4.34	31.63	3.0
Carbonate of Lime	39.50	47.81	43.68	41.61	6.9
Phosphate of Lime	6.43	5.15	5.73	1.18	40.8
Phosphate of Magnesia	6.66	4.37	7.82	0 91	
Sulphate of Potash or Soda	12.50	10.15	----	2.23	8.84
Magnesia	----	----	----	----	----
Chlorate of Sodium or Potassium	0.28	4.63	2.8	2.27	3.06
Phosphate of Iron	----	----	----	----	----
Phosphate of Alumina	----	----	----	----	----

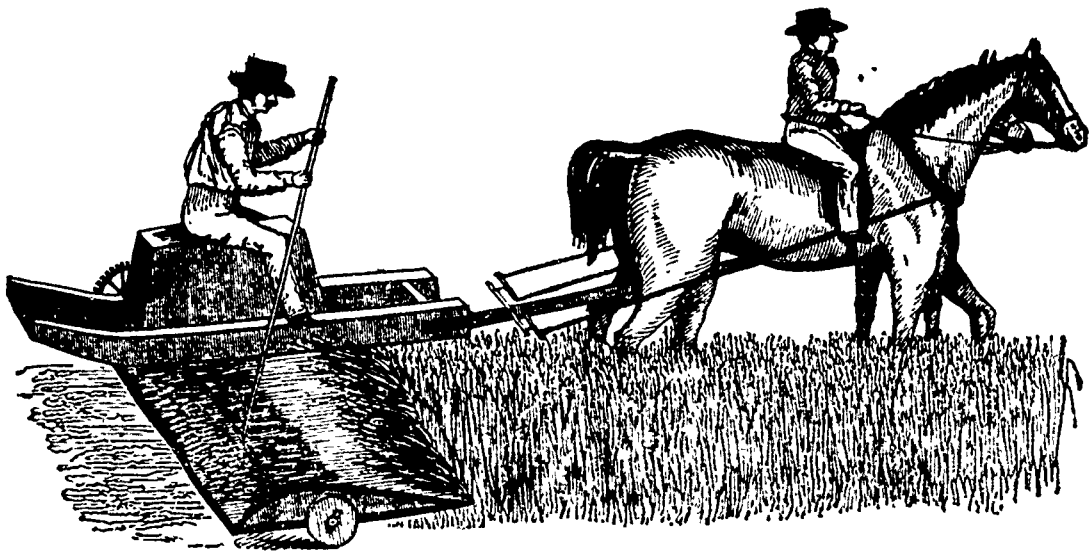
In these analysis Silica has not been taken into account, as it is found in all soils, and need not be supplied. One hundred weight of the ashes of potatoes, and the seeds of the following plants, contain

Alkaline Phosphates	15.75	52.98	68.59
Phosphate of Lime and Magnesia	9.00	38.02	28.46
Phosphate of Iron	0.20	0.67	0.00
Sulphate of Potash	15.07	0.00	1.84
Carb. of Potash and Soda	51.70	0.00	0.00

What is wanting in the 100 of the above analysis is sand, coal, or loss. From these researches it appears, that for stalks and leaves we require other elements than for seeds. The former contain no alkaline phosphates, but they require for their development and growth a rich supply of alkaline carbonates and sulphates. On the other hand the carbonates are entirely wanting in the seeds, which, however, are very rich in phosphates. It is sufficiently obvious that a rational farmer must supply both, as well as all the others. If he supplies only phosphates, and does not restore the alkaline carbonates, his soil will become gradually barren—it will be exhausted in these necessary elements for the development of stalks and seeds, without which no formation of seeds can be expected. If he supplies the alkalies, lime, and sulphates alone, in a given time he will get no more grain. All constituents of the manure, if they are supplied *alone*, have this great defect, that by them the soil is impoverished in other equally important substances.

REPORT OF THE NEW YORK STATE AGRICULTURAL SOCIETY'S EXHIBITION.

(Continued from last Cultivator.)



[DRAWING OF MR. OBED HUSSEY'S REAPING MACHINE.]

Mr. Obed Hussey's Reaping Machine (of Baltimore, Maryland), being one of the most labor saving machines of the age, deserves to be introduced in this country. We shall submit a few additional particulars in relation to this useful implement, in the hope that some of the enterprising members of your society will take the necssary steps to have them brought into this part of the province, before the commencement of next harvest. If one of those machines were employed the whole season, it could be made to earn its price twice over; and when worked upon land free from stumps and stones, we should say that it would last six or eight years. We have read quite a number of testimonials from parties who purchased Mr. Hussey's reaper, and they all agree, that the average quantity of grain that they will cut per day, is twenty acres; and that they cut it with such neatness and precision, that the cleanings were not sufficient to pay the labour of raking, and upon a fine even surface, the stubble, after the sheaves are removed, appear as though they had been cleanly swept with a broom.

Corn and Cob Crusher.—Two machines of this kind were exhibited, one by Mr. Obed Hussey, and the other by Mr. I. A. Pitts, of Rochester. Mr. Hussey's cost him from five to eight pounds each, and appeared better calculated to grind shelled corn, peas, oats, barley, and other coarse grains for feeding stock, than for grinding corn and cobs. Mr. Pitts, was constructed on an entirely new principle, and appeared a most perfect machine for grinding corn and cobs into meal. It would make from eight to ten bushels of excellent meal per hour, and would grind nearly a like quantity of pease and barley. The latter implement was better for corn and cob than other coarse grains. Both are driven by horse-power; and probably are the best machines for the purpose that have yet been invented. Mr. Pitts, Corn and Cob Crusher cost £12 10s.; and for any person who cultivates Indian corn extensively, it would be found an invaluable apparatus for preparing that important grain for feeding stock.

Fanning Mills.—Of these machines there were a very great variety exhibited, nearly all of which had some peculiar merit over those in common use; but there were only two which attracted our attention, as being improvements upon the best machines in Canada. James Patterson's Mills, of Canandaigua, could be so adjusted that three distinct currents of air could be given at the same time, each performing an important office in separating the chaff and light grains from the marketable grain. It also had a balance wheel in addition to the cog wheels, which increased its speed and lessened the required power in turning; and it had twelve sieves of the largest dimensions. The sieves were made in a very superior style; four of which were expressly for the purpose of cleaning clover, timothy, and flax-seeds. The

principal merits of this mill consists of the balance wheel and the three currents of air. The price which Mr. P. asks for his machines at the factory is from £6 to £7 10s.

The other which we considered would be an improvement upon the mills in use in Canada, is manufactured by Clow & Crolin, Port Byron, N. Y., Cayuga County. The price of these mills is also £7 10s.; and their chief merit consists of a rolling screen, attached to the lower part of the mill, occupying the place of the seed-box. This screen is eighteen inches in diameter, and is so constructed that the grain, after it has been cleaned with the fans and riddles, enters into the rolling screen, and passes over eighteen feet in length of small sieve work, which thoroughly separates chess, cockle, and small grains from the pure sound grain.

Persons engaged in the manufacture of Fanning Mills, would find it greatly to their interests to combine the leading features of improvement which these mills possess, and substitute them for the imperfect machines at present manufactured in this country. A machine combining those qualities would be as well worth £10 as the latter are worth £5.

Straw Cutter and Corn Sheller.—On the score of mechanical ingenuity E. Taylor's Patent Straw Cutter and Corn Sheller, excelled any thing of the kind we have seen. To all appearance it combined durability with simplicity in its construction, and would not be very liable to get out of repair. The knife is made very heavy, and is worked by eccentrics which gives it a drawing stroke of great power. It is said that it cuts about twice as fast as most of the other machines in use. It is adapted to cut all kinds of straw, hay, and corn-stalks, and is regulated by a self-feeding apparatus which can with ease be made to cut straw of any length. The most ingenious part of this machine is the corn-sheller, which performs its work with wonderful rapidity—removing every kernel, and leaving the cob perfectly whole. We believe they may be had of Beardslee & Badger, Rochester.

Clover Mills.—Only one Clover Mill was exhibited, and it was the most substantial, and efficient machine for cleaning clover seed for market, that we have any knowledge of; it will clean from ten to twenty-five bushels per day, and costs £15. We saw one in operation in the village of Waterloo, which was propelled by water-power, the owner of which cleaned the whole of the clover seed in the vicinity of that thriving village. Mr. E. Halbert, Waterloo, N. Y., is the manufacturer of the clover mills, who assured us that his machines had dressed twenty-five bushels of clover seed in a day of ten hours.

Revolving Horse Rakes.—There were five different patterns of Horse Rakes exhibited, and without an exception they appeared well calculated to execute the important office for which they are designed But especially the one manufactured by Mr Lewis Swift, near the village of Clarkson, N Y, deserves to be patronised Some of the other rakes on the ground displayed greater neatness in their execution, but none in our opinion, are as well adapted to perform the work with neatness and despatch. Probably the highest encomium that we could give Mr. Swift for his improvement, would be to include in this report a paragraph from the able pen of L. B. Langworthy, Esq., Rochester: "I have had one in use since the summer of 1843, and my convictions are, that on any meadow ground, not absolutely in a state of nature, it is one of the greatest labor-saving machines recently introduced. This one has advantages that no other that comes under my observation possesses, that is, the complete controul that the holder exercises over the rake, in turning over, when it should again carry forward the hay. The common horse rake, in heavy hay, is very apt to turn over so quick as to carry off a part of the winrow, which in Mr. Swifts can be readily held up and allowed to catch again, at the option of the holder."

Franklin Jackes, Esq., near Toronto, employed one of Mr. Swift's revolving hay rakes, with which he made his whole crop of hay the past season; and he was so delighted with its performance, that he immediately imported *fifty*, which he offered on sale to his neighbors at the price which they cost him, being only £2 each. This heavy order came so late in the season, that a number we believe remain yet on his hands.

There were a number of other implements of husbandry on the show-ground, which were highly meritorious, but as the report has already become protracted, we would consider it imposing too much upon your patience, to add any thing further in relation to the late exhibition held at Utica N. Y.

The further particulars promised in the November number of the *Cultivator*, together, with a history of a visit to the farm of Gen. R. Harman, as well as some other important information collected when on his journey to Utica, will appear in the January number, from the pen of the editor.

DR. LEE'S LECTURE.

Dr. Lee's Lecture on the Science of Agriculture, delivered at the Congregational Church, on the 22d inst., was one of great interest and importance. His views upon that subject were presented in a clear and lucid manner, and should have been heard by every practical farmer in the county.

He stated that mere physical labor is not sufficient, but that a knowledge of the organization of plants and their analysis and that of the soil, is required to enable the farmer to draw the greatest product from the soil for a given amount of labor; that the art of plowing, sowing and reaping may serve the purpose of wearing out a productive farm, but more knowledge is required to enable the owner to return annually to its fields the substances removed at harvest, at the least possible expense.

Plants are living beings, and the number which may be produced and brought to maturity on a given amount of land, depends upon the quantity and quality of food given them; and the quantity of food to be supplied to yield the greatest profit, depends upon the cost of the material and the value of the product.

The laws of nature are fixed and invariable. One element is not changed to another, neither can it be. Lime cannot be changed to soda, nor potash to iron. Organized bodies are constituted of certain elements, all of which are necessary to their organization.—By analysis we may ascertain what those elements are, and the relative amount of each required in such organization, and by a similar analysis of soils we may ascertain whether these elements are found there. It is important in this case to know how much of the substance of plants is drawn from the soil, and how much derived from the atmosphere, as those found in the atmosphere, need not, necessarily exist in the soil.

By experiment and analysis it has been ascertained that about 97 per cent. of the constituents of all plants is found in the atmosphere, in the elements carbon, oxygen, nitrogen, and hydrogen; these are constantly furnished by the burning of wood and coal, the respiration of animals, the fermentation, decomposition and decay of animal and vegetable bodies. In wheat the remaining 3 per cent is earthy matter, drawn from the soil; and is found to consist of 10 different substances, viz: silica, lime, potash, soda, magnesia, alumina, chlorine, sulphur phosphorus, and iron. If there be a deficiency in any one of these elements there must be a corresponding deficiency in the product, and if either be wholly wanting, no perfect plant can be obtained. Nature is as willing to yield 40 bushels of wheat per acre as 10, provided there is no lack of material. [Here the reporter should have added, that a large excess of any one necessary ingredient, may be as fatal to the crop as the perfect absence of such ingredient. This was illustrated by saying, that to prepare human food in the form of a good hasty pudding, we must use a few *drachms* of *salt* to a few *pounds* of corn *meal*. If we reverse this ratio, and make a pudding by combining a few pounds of salt with a few drachms of meal, no child can grow well on such *daily food*. Young wheat plants are sadly injured by feeding them with the proper things, in the most improper proportions.]

If wheat be burned, one hundred pounds of the plant will produce about 3 of ashes, 75 per cent. of which is silica, (common flint or sand) and this before it can be taken up by the plant must exist in a fluid state; but every one knows that flint is insoluble in water, therefore in its uncombined or simple state it is unfit for food for plants. some menstrum must be at hand through whose agency it may be rendered soluble. Silica is an acid, and when combined with potash or soda, the potash or soda being in excess, becomes soluble, and is then taken up, after which the vital energy of the plant disengages a portion of the potash, and the siliceous matter becomes again insoluble, forming the substance which gives to the straw a gritty feel. The liberated potash returns to the root and assists in the solution of another portion of silica, and thus a small amount of potash becomes of great service to the plant, and that small amount is as necessary to its developement as the air we breathe to the continuation of life.

Farmers have been looking for some great desideratum which should render all soils equally productive, but no such thing has yet been found; one soil may show a deficiency of lime, another of potash, a third of phosphorus, and the true object of the science of agriculture is to ascertain how many, and which of the necessary elements are deficient and the cheapest means of supplying such deficiency.

He spoke of the difference in value of the same species of grass, grown upon soils constituted of materials in proper proportion, and upon those where there was some deficiency; and to illustrate the effects of feeding plants on proper food, showed some heads of timothy, 8 or 9 inches long, which he had been able to produce by furnishing a sufficient supply of such food.

He said that a state agricultural school and experimental farm are wanted, where this science may be studied, and the laws which regulate the transformation of the substances of the earth into useful plants, may be fully educed; that for the last 26 years efforts have been put forth to accomplish this end, but to no effect; that the state has amply endowed institutions for the benefit of other professions, but left the great science of agriculture alone to the care of individual enterprise.

With regard to the present effort there can be but one opinion. The physical wealth and strength of a nation must depend upon the value of its productions, and certainly none can be more valuable than those of agriculture; and since it is an object of wise legislation to develope the resources of the country, is it not the duty of the Legislature to encourage the efforts of that class constituting the strength of the nation, in their

efforts to understand the hidden laws of nature? The state of New York possesses all the elements of agricultural greatness, yet no one will assert that its productions have yet attained the maximum of its power to produce.

Individual effort has accomplished much, but there is required a concentration of effort which can be obtained in no way so easily or justly as by the patronage of the State Legislature.

F. COOPER.

Union School, Camillus, July 25, 1845.

Drive your business, and let not that drive you.—Energy, and force of character, are amongst the first requisites essential to success in business. Any man may possess a high degree of refinement, large stores of knowledge, and even a well disciplined mind, but if he is destitute of this one principle, which may be termed resolution of soul, he is like a watch without a main-spring, beautiful, but inefficient and unfit for service. Man was never made to act the part of an automaton, or mere machine. His powers are not designed to move quite so mechanically. He is to act, as well as to be acted upon. He must give life and stimulus to his calling. Is he not endowed with a life-giving power, whose emanation is referred to that original source, whence alone can be derived all inspiration! Man's efficiency must give character to his business. That employment on which is stamped the impress of a living and energetic soul, will do honor to any man, in any place, or at any age. It is poor policy indeed to loiter till driven by force. We thereby lose all the pleasures of satisfaction. Voluntary service, urged forward by a determined purpose, will give hopeful assurance, if not a full warrant of success, and all the happiness of a just conquest. Behold the sluggish man. His occupation is a worthy one, but it finds him unworthy of the trust. It presses upon him with all the demand of imperative necessity. It finds him but a drone. He is confused by a multiplicity of cares. He is pressed down by a crowd of responsibilities, but makes no generous effort to discharge one of them. Thus his occupation suffers, his family are in want, and that good name, which is better than riches, is lost. True, man is said to be a creature of circumstance, and he ought to be, in a sense, subject to the superintendence of a leading Providence; but this does not justify inertness of character. Man by his own decision of character, and determined spirit, can do much to remove and surmount the inconveniencies and barriers incident to human life. Then be resolute, and both you and your business will go on and prosper."

STILL PRESS ON.

What tho' thy path be lone and drear—
What tho' thy life's o'erhung with fear—
What tho' keen trials, fresh are near,
Still press on.

Conflicts and dangers must assail
All men. Let not thy courage fail—
'Neath adverse fortunes never quail—
Still press on

'Tis only in the darkest hour,
When clouds and tempests fiercely low'r,
That man can know his own true pow'r—
Still press on.

In ACTION all thy powers employ,
To banish doubt, and wrongs destroy—
Then life will be to thee a joy—
Still press on.

—*Bost. Cult.* LOUIS.

A good conscience is more to be desired than all the riches of the East. How sweet are the slumbers of him who can lie down on his pillow and review the transactions of every day without condemning himself! A good conscience is the finest opiate.

Confidence is the first duty of noble minds. It is only the weak and narrow minded, who, from the somewhat hard lessons of the world, acquire the false wisdom of doubting those who have never deceived them. JAMES.

Gooseberry Vinegar.—Bruise the gooseberries, when ripe, and to every quart put three quarts of water; stir them well together, and let the whole stand for twenty-four hours, then strain it through a canvass bag. To every gallon of liquor add one pound of brown sugar, and stir them well together before they are put into the cask. Proceed in all other respects as before. This vinegar possesses a pleasant taste and smell; but raspberry vinegar, which may be made on the same plan, is far superior in these respects. The raspberries are not required to be of the best sort, still they should be ripe and well-flavored.

Pills for Gravel.—Castile soap, 8 parts; caustic soda, 4 parts; oil of tartar, to mix. Divide into three grain pills, one to be taken every two hours.

ROTATION OF CROPS.

The practice of rotation of crops, has arisen out of pure experience. The practical farmer observed that, in most cases, when the same plant was grown for two, three, or more years consecutively upon the same soil, it did not yield the same abundant harvest; whilst, when another crop was tried upon that soil, the production was satisfactory. Observation and experience subsequently and gradually established for different parts a different alternation of crops, but the practical agriculturist has never been able to devise a fixed rule for every kind of soil; although many efforts have been made to attain this desirable end, the subject has not been able to pass the limit of mere empiricism.

While the practical farmer was content to rest simply upon the facts supplied by his experience, and remained satisfied with believing that some plants exhaust the soil, while others do not, the theorist endeavoured to discover a key to this remarkable phenomenon. Of all the hypotheses devised to explain it, that of secretion and excretion by the roots of plants, seems to have had the greatest number of adherents, because it appears to explain satisfactorily the necessity for the rotation of crops.

According to this hypotheses, all plants secrete or form certain matters during vegetation, which they cast out by their roots, and the accumulation of these in the soil exercises an injurious influence upon future crops of the same plants, but does not interfere with the growth of a different crop; nay, it was further supposed that the excrements of one species of plants might furnish an appropriate nourishment for another species. The framers of this hypotheses, no doubt, imagined that plants in this respect exhibited an analogy with animals, because we see animals turn with aversion from the excrements of their own species, whilst the same excrements are sought and eagerly devoured by animals of a different species. But this supposed analogy is utterly fallacious; and if we examine the adaptation of the hypotheses to the facts of the rotation of crops, we shall find it to be altogether unsatisfactory.

The experiments made to prove that certain matters are secreted by the roots of plants, are by no means conclusive; but, since it is well established that plants possess the power of absorbing and adapting matter for their growth, we may also suppose, in the absence of direct proofs, that they likewise secrete matter by their roots. For brevity's sake, we will admit that such secretion takes place, and enquire into the proofs adduced to render the opinion probable, that these secretions exercise an injurious influence upon the growth of plants of the same species, whilst the same matter favors, or, at least, does not exert any injurious effect upon the growth and developement of plants belonging to other species.

The facts brought forward to establish this theory are such as these—1st. That fruit trees, planted on the same spot where previously others of the same species had long grown, have not produced so well as usual. 2nd. The camomile—*matricaria chamomilla*—when, to a certain extent, present in a field, interferes with the growth of the cereals, owing, as it is supposed, to its secretions in the soil being offensive to the latter. 3rd. After the culture of peas, vetches, clover, buckwheat, &c., far finer crops of cereals will be produced than if consecutive crops of grain were attempted.

But, in objection to the theory of the excretions of one plant being injurious to another, we might allege, that it often happens that trees of the same kind will flourish upon spots where they have previously grown; and that in many countries, especially in Hungary, successive crops of grain plants may be grown year after year continually, on the same soil, without disadvantage. In meadows and forests, also, we see the same species of plants succeed each other for ages, and suffer no injury from the accumulation of the secretions of preceding generations. To explain such cases as these would require a new theory to be added to the first, and without the aid of chemistry, this would be as weak and unsatisfactory as we have shown the former theory to be. We must, therefore, reject the hypotheses of the secretions of plants being the cause of the advantage or necessity of the rotation of crops, and endeavour to discover another, capable of affording a satisfactory explanation of the known facts, perfectly consistent with true science, and especially with chemistry; and if such a theory be thus established, it cannot fail to be of great use in practice.

If we assume that the cause of the utility of the rotation of crops depends exclusively upon the circumstance that cultivated plants withdraw from the soil unequal amounts of certain ingredients for their nutrition, all the observed facts are at once and satisfactorily explained, and the possibility of determining the rotation of crops, or of avoiding it altogether, if desirable, rendered evident.

I need not here repeat what I have already told you, respecting those constituents of plants which they derive from the soil, but I must remind you that plants of various species differ very much with respect to the nature as well as to the quantity of mineral or saline constituents which they require for their growth and developement.

Bearing this in mind, it is obvious that the growth of a plant may be impeded, simply because the mineral constituents principally needed, indeed essential to their proper developement, have already been drawn from the soil by the previous cultivation of another plant, requiring nearly or altogether the same constituents. If, for example, we take a field the soil of which contains the mineral and saline materials required to produce wheat, and yet only in a quantity exactly sufficient to produce a single crop, it follows, of course, that a second crop of wheat cannot be reared upon the same field. The soil is completely exhausted for the moment, and will remain so for ever, if it does not contain substances which may by disintegration and decomposition furnish a new supply of the ingredients necessary to the growth of plants, or if these essential matters are not artificially supplied.

Such a complete exhaustion of the soil as we have supposed, for the sake of illustration, to be effected by a single crop, is not very likely ever to happen in fact. But what really happens, and that commonly enough, is, that although all the salts are not exhausted, yet being present in the soil in relative proportions very different to the amounts required by various plants, a single crop of wheat may deprive the soil so completely of one of its mineral constituents, that another crop of wheat would not grow upon it, and this soil may still contain abundant mineral constituents for the production of a good crop of clover or turnips.

It will now be obvious that it is possible to grow three, four, or more successive crops of the same grain upon the same fields, whenever the soil contains a sufficient amount of the necessary mineral constituents, and that if a soil possessed an illimitable amount of these substances, or received a constant and sufficient supply of them, it would be able to produce successive crops of the same cereals continually and for ever, and moreover that a rotation of crops would be in such cases wholly unnecessary.

What we have stated with respect to the cereals, applies equally to all other cultivated plants; so that any plant may be grown upon the same field continually, and good crops obtained, if the ingredients of the soil which the plant requires either are present originally to an unlimited amount, or the farmer furnishes the field with a constant and sufficient supply of these substances.

Viewed in this light, the subject will be clearer to you than perhaps has hitherto been the case. You will now understand that an exhausting plant must be one which in comparison with other cultivated plants requires many inorganic constituents, and consequently requires for its successful cultivation a soil rich in those constituents. We need by no means wait for the perfect development of a plant, and subsequent trials upon the same soil where it is grown, in order to know whether it is an exhausting plant or not; we can arrive at a positive conclusion upon this point immediately, by burning the plant and examining the ashes. The case for example may occur that some hitherto unknown plant is recommended for cultivation, and tried in a soil equally unknown, as to its amount of the constituents which that particular plant requires.

Practical experience, arising from the growth of this plant in one field or soil, may pronounce it to belong to the class of exhausting plants, whilst in another soil it may be found to be a non-exhausting crop. Thus, the most contradictory conclusions may be drawn from practical experience, and many a farmer has paid the penalty of this uncertainty. It is frequently only after the lapse of a long time, and after a series of successful and unsuccessful trials, that it is at last found out which soil will suit this particular plant and which will not. All this may be obviated, and the question determined at once, by burning the plant, examining its ashes, and carefully analyzing the soil; this will enable us to determine whether a given field will repay the cultivation of the plant or not.

Thus you perceive that the terms, "exhausting" or "non-exhausting plants," are merely relative; a chemical analysis of the ashes of plants, as well as of the soil, can alone enable us to decide upon this point. Strictly speaking, only those plants can be called exhausting which find an insufficient amount of ingredients necessary to their growth present in the soil. So that plants requiring a considerable amount of mineral constituents, such as wheat, for instance, when grown in a soil rich in those constituents, cannot be designated an exhausting crop relatively to the soil: whilst on the other hand, plants requiring but an inconsiderable amount of mineral ingredients, when sown in a soil not adequate to supply even a small amount of these ingredients, must relatively be considered exhausting plants. From the preceding remarks it will be evident how ill-founded the assertion is that certain plants improve the soil by enriching it. It is a fact, proved beyond the power of controversy, that all plants whatever, withdraw certain mineral constituents from the soil, and thus so far impoverish it. All such notions of improvement, founded upon practical experience, are mere illustrations.

It is frequently asserted that fallow crops, such as clover, peas, vetches, lucerne, buckwheat, &c., and even tobacco, potatoes, beet-root, carrots, &c., do not exhaust the soil, but on the contrary are, in a certain measure, capable of improving it. This is especially said to be the case with buckwheat, which is frequently sown during fallow, and subsequently, when nearly in flower, ploughed into the soil in order to improve and enrich it. The power of the soil to produce cereals, after having grown crops of these plants, is thought to prove their non-exhausting nature. The term *fallow crops*, indeed, indicates that fields left fallow in order to restore their fertility for the cereals, have been found by experience to be capable of yielding crops of these plants without their subsequent ability to grow the cereals being affected.—*Far. Library.*

FROM THE PRACTICAL RECEIPT BOOK

To prepare a Round of Fresh Beef for Boiling.—Put the beef in a dish of sufficient size, and add water enough to cover the lower part of the meat. Then put a quantity of salt on the top. In a few hours it becomes well seasoned, and when thoroughly boiled, makes a most palatable dish.

Brown Hard Spirit Varnish.—Gum sandarach, 1¼ pounds; shell lac, 1¼ pounds; alcohol (65 op), 1 gallon. Dissolve in a close vessel, then add turpentine varnish, 20 ounces. Mix well.

Brown Paint.—Venetian red, or Spanish brown, 1 cwt.; road dust, 3 cwt; common soot, 28 pounds; lime-water, 15 gallons. Factitious linseed oil to grind.

Brunswick Black for Paint.—1. Asphaltum, 5 pounds; melt, and add boiled oil, 2 pounds; spirits of turpentine, 1 gallon. Mix.

2. Litharge, 7 pounds; asphaltum, 45 pounds; melt, then add boiled oil, 7 gallons. Boil until the mixture strings well, and on cooling a little becomes quite hard, then take it from the fire and add spirits of turpentine, 25 gallons, or enough to thin it sufficiently.

Cheap Brunswick Black.—Black pitch, 28 pounds; black resin, 28 pounds; melt, and add black tar, 28 pounds; mix well, and further add boiled oil, 12 gallons; ground litharge, 12 pounds. Boil until stringy, and lastly thin it down with spirits of turpentine.

To remove Bugs, &c.—1. Corrosive sublimate, 1 ounce; muriatic acid, 2 ounces; water, 4 ounces; dissolve, then add turpentine, 1 pint; decoction of tobacco, 1 pint. Mix. For the decoction of tobacco boil two ounces of tobacco in a pint of water. The mixture must be applied with a paint-brush. This wash is a *deadly poison!*

2. The most certain way to destroy bugs, is to put the bedstead into a close room and set fire to the following composition, place in an iron pot upon the hearth, having previously closed up the chimney, then shut the door; let them remain a day. Sulphur, 10 parts; saltpetre, powdered, 1 part. Mix. Be sure to open the door of the room five or six hours before you venture to go into it a second time.

To hasten the Blowing of Bulbous-Rooted Flowers.—Nitrate of potash, 12 ounces; common salt, 4 ounces; pearlash, 3 ounces; sugar, 5 ounces; rain-water, 1 quart. Dissolve, and put a spoonful of this liquid into the flower-glass, then fill it with soft water. Change the water every nine days.

To Cure Butter.—1. Lump-sugar, 5 parts; saltpetre, 8 parts; common salt, 32 parts. Powder fine and sift, then use one ounce of this mixture to every pound of butter; pack in wood or vitrified jars, not glazed pans. This will keep butter for two or three years.

Green Copal Varnish.—Verdigris, crystallized verdigris, compound green, (a mixture of yellow and blue). The first two require a mixture of white in proper proportions, from a fourth to two-thirds, according to the tint intended to be given. The white used for this purpose is ceruse, or the white oxide of lead, or Spanish white. Proceed as before.

2. Common salt, 2 parts; sugar, 1 part; saltpetre, 1 part. Mix in fine powder and use one ounce of this composition to every pound of butter. Butter prepared with this mixture will keep three years.

To remove the Turnip Flavour from Butter.—Nitre, 1 part; water, 20 parts. Dissolve, and put a little into the milk, warm from the cow.

Cabinetmaker's Varnish.—Pale shell lac, 700 parts; mastic, 65 parts; strongest alcohol, 1000 parts. Dissolve. Dilute with alcohol.

Calves' Feet Jelly.—Take eight calves' feet and boil them until the water becomes a good jelly, then add sugar, 1 pound; Port wine 2 pints; white of two eggs and shells. Boil for five minutes, and clarify.

Yellow Copal Varnish.—Yellow oxide of lead, or Naples and Montpellier, both reduced to impalpable powder. These yellows are hurt by the contact of iron and steel; in mixing them up, therefore, a horn spatula with a glass mortar and pestle must be employed. Or, gum gattæ, yellow ochre, or Dutch pink, according to the nature and tone of the color to be imitated, and proceed as before.

Copying Paper.—Lay open your quire of paper (clean white, of large size), take the brush and cover it with the following varnish, then hang it up on the line; take another sheet and repeat the operation, until you have finished your quantity. If not clear enough, give each sheet another coat when dry—Canada balsam, turpentine, equal parts. Mix.

Corn Plaster.—1. Bees' wax, 1 pound; resin, 4 ounces; Venice turpentine, 8 ounces; sulphate of copper, 8 ounces; arsenic, 1 ounce. Mix with heat.

2. Yellow wax, 1 pound; Burgundy pitch, 6 ounces; turpentine, 4 ounces; powdered verdigris 2 ounces. Mix, with heat, then spread the compound.

To Pickle Cucumbers.—Trim and wash them in salt and water, drain and put them into the bottles, add a little mace, cloves, capsicum and mustard-seed, then cover them with white vinegar nearly boiling hot; cork immediately.

British Cyprus Wine.—Soft water, 50 gallons; elder juice, 50 gallons; raw sugar, 120 pounds; cloves (bruised), ½ ounce; ginger 1 ounce. Boil and ferment, then rack it into a cask with three gallons of spirit, three pounds of raisins (bruised), and one quart of finings. Observe not to crack the stones in the berries in squeezing out the juice.

Digestive Ointment, for Cattle.—1. Tallow, 9 pounds; red precipitate, 1 pound; lard, 2 pounds. Mix.

2. Tallow, 3 pounds; resin, 3 pounds; spirits of turpentine, 3 pounds; powdered verdigris, 1 pound.

Cambrian and Westphalian Essence.—Barbadoes tar, 1 part; liquid burnt sugar, 2 parts; common salt, 4 parts; water, 100 parts; spirit of wine, 1 part. Mix, and let it stand for a week. Two or three table-spoonsful mixed with the salt will be found quite sufficient for a common sized ham.

To render permanent Chalk or Pencil Drawings.—Lay the drawing on its face and give the back two or three thin coats of the following (No 1.) mixture; let it dry, and turn it with the chalk upwards, and give that side one or two coats also; lastly, if you choose, give it one or two coats of No. 2.

1. Isinglass or gum arabic, 5 parts; water, 12 parts. Mix.

2. Canada balsam, 4 parts; turpentine, 5 parts. Mix.

Pale Carriage Varnish.—Take copal, 32 parts; pale oil, 80 parts; fuse boil until stringy, then add dried white copperas, 1 part; litharge, 1 part. Boil again, then cool a little, and mix in spirits of turpentine, 150 parts. Strain.

While making the above—Take gum anime, 32 parts; pale oil, 80 parts; dried sugar of lead, 1 part; litharge, 1 part; spirits of turpentine, 170 parts. Pursue the same treatment as before, and mix the two varnishes while hot.

Second Quality Carriage Varnish.—Take gum anime, 32 parts; oil, 100 parts; spirits of turpentine 150 parts; litharge, 1 part; dried sugar of lead, 1 part; dried copperas, 1 part. Proceed as before.

To sweeten Musty or Stinking Casks.—1. First wash them with sulphuric acid, and then with clear water; afterwards wash them well out with water.

2. For large casks, unhead them and whitewash them with quicklime.

3. Or match them with sulphur mixed with a little nitrate of potash, and afterwards wash them well with water.

4. Char the inside of the staves.

Observe in every case to *scald* or *well wash* the casks out before use.

To fix Crayon Colors.—Paste your paper on canvass, in a frame, in the usual way, then brush over the back two or three times with the following mixture, and when the last coat is dry give the face of the picture one or two coats in the same way. This will make it resemble an oil painting. Spirits of turpentine, 10 parts; boiled oil, 6 parts. Mix.

Sir H. Davy's Corn Solvent.—Potash, 2 parts; salt sorrel, 1 part. Mix in fine powder. Lay a small quantity on the corn for four or five successive nights, binding it on with rags.

Black Copal Varnish.—Take lamp-black or ivory black in fine powder, and mix it with the varnish.

To clean Colored Silks.—Put some white soap into boiling water, and heat it until dissolved in a strong lather. At a hand heat put it in the article. If strong, it may be rubbed as in washing; rinse it quickly in warm water, and add oil of vitriol, sufficient to give another water a sourish taste, if for bright yellows, crimsons, maroons, and scarlets; but for oranges, fawns, browns, or other shades, use no acid. For bright scarlet, use a solution of tin. Gently squeeze and then roll it in a coarse sheet, and wring it. Hang it in a warm room to dry, and finish it by calendering or mangling.

For pinks, rose colours, and thin shades, &c., instead of oil vitriol, or solution of tin, prefer lemon-juice, or white tartar, or vinegar.

For blues, purples, and their shades, add a small quantity of American pearlash; it will restore the colours. Wash the articles like a linen garment, but, instead of wringing, gently squeeze and sheet them, and when dry, finish them with fine gum-water, or dissolved isinglass, to which add some pearlash, rubbed on the wrong side; then pin them out.

Blues of all shades are dyed with archil, and afterwards dipped in a vat; twice cleaning with pearlash, restores the colour. For olive-greens, a small quantity of verdigris dissolved in water, or a solution of copper, mixed with the water, will revive the colour again.

Cast Engravings.—Take the engraved plate you intend to copy, and arrange a support of suitable materials round it, then pour on it the following alloy in a state of perfect fusion: tin, 1 part; lead, 64 parts; antimony, 12 parts. These "cast plates," may be worked off on a common printing-press, and offer a ready mode of procuring cheap copies of the works of our celebrated artists.

Copal Varnish.—Copal, 30 parts; drying oil, 25 parts; spirits of turpentine, 50 parts. Put the copal into a vessel capable of holding 200 parts, and fuse it as quickly as possible, then add the oil previously heated to nearly the boiling point; well mix, next cool a little, add the spirits of turpentine; again well mix and cover up until the temperature has fallen to 140° Fahr., then strain.

Draught for Diarrhœa.—Take tincture of opium, 30 drops; prepared chalk, 2 drachms; powdered gum, 4 drachms; tincture of catechu, 2 drachms; rose-water, 2 ounces. Mix, and take a table spoonful three or four times a day.

Fine Pale Copal Varnish.—Pale African copal, 1 part. Fuse, then add hot pale oil, 2 parts. Boil until the mixture is stringy, then cool a tittle and add pale turpentine (spt), 3 parts. Mix well.

Flaxen Grey Copal Varnish.—Ceruse, which forms the ground of the paste, mixed with a small quantity of Cologne earth, as much English red, or carminated lake, and a particle of Prussian blue, and color the varnish therewith.

Fistula and Poll Evil.—The simplest, as well as readiest cure for these two diseases, that ever came to my knowledge, is common table salt. My neighbor, Mr. Ramsburg, took a horse a few years ago, that had a fistula, and after every other effort had been made to cure him, without the least effect, he threw into the ulcer a handful of salt, and the good effect was soon perceptible. The salt was repeated every day or two, and in a short time a cure was perfected.

Last summer, I had a mare that had the poll evil, and I cured her also with salt applied in the same way. I put however, a small bit of red precipitate in the wound, twice. Both animals are at this time well and serviceable.

GEORGE BLESSING.

Frederick Co. Md., July, 1845.—*Alb. Cult.*

Muffins.—Take three pints of flour, one pint of lukewarm water, one teacupful of baker's yeast, one great spoonful of sugar, one tea-spoonful of salt. Make up in the morning for tea or at night for breakfast.

Substitute for White Lead.—Take one bushel of unslacked lime, and slack it with cold water; when slacked add to it 20 lbs. of Spanish whiting, 17 lbs. of salt, and 12 lbs. of sugar. Strain this mixture through a wire sieve, and it will be fit for use, after reducing with cold water. This is intended for the outside of buildings, or where it is exposed to the weather. Two coats should be laid on wood, and three on brick. A whitewash brush may be used for laying it on, and each coat must be dried before the next is applied. This may be made any color you please. For straw color, instead of the whiting use yellow ohcre; for lemon color, ochre and chrome yellow; for lead or slate color, lampblack; for blue, indigo; or green, chrome green.

To Cure the Scours in Horses.—Dissolve a piece of opium as large as a common sized chestnut in one pint of brandy, and pour it down from a bottle at one dose. I have given it, and ordered it in a number of cases and never knew it to fail to effect a final cure. Laudanum will answer the same purpose, if you can ascertain its strength so as to know how much to give.

R. BURRIT.

Prevention of Smut.—I have been soaking my *seed wheat* in bluestone (sulphate of copper,) —1 lb. to 2 bushels, water enough to cover, leaving it in soak for about 24 hours and then rolling it in ashes, and have found this method a full preventive against *smut*. With the same effect I have tried for 5 bushels seed wheat, 1 lb. saltpetre, (nitrate potass,) 2 lbs. sulphate soda in crystals, (glauber salts,) 2 lbs. of copperas, (sulphate of iron,) and I never had smut in wheat when I used either of these preparations. W. B.

Remedy for Ringbone.—Take half a pint of the best whale oil, and half a pound of best box raisins. Cut the raisins open and put them in the oil. Simmer both together (do not boil) till the raisins are hard and crispy. Apply the preparation to the ringbone once a day, rubbing it in well. It will last about two weeks, and one preparation will generally effect a cure. I tried this on a horse three years ago, that was quite lame; the bunch is still on his foot, but he has not been lame in the least degree since.

EATON,

East Weare, Hillsboro Co. N. H.—Alb Cult.

To Destroy Ants.—"It so happened that a piece of camphor was laid in a drawer containing sugar, and which was sadly infested by ants. On opening it a few days afterwards, the bottom of the drawer was literally strewn with dead ants. The experiment was repeated with success—a small piece of camphor placed in a corner of the drawer being quite sufficient. Camphor dissolved in alcohol and diluted with water, might destroy them if sprinkled on trees or walls, or if poured into their nests."—[John J. Godfrey, Albany, N. Y. March 3, 1842.

"Proteus" forgets where he met with the foregoing extract, neither has he tried it; but concluded from late numbers of the *Chronicle* that the destruction of ants is an object of interest to some of his fellow subscribers, he contributes his mite to their service.—*Gard. Chron.*

To Prevent the Creaking of Doors.—1. Apply a little soap to the hinges.

Take lard, soap, black lead, equal parts.

Black Copal Varnish.—Indigo, Prussian blue, blue verditer, or ultra marine. all these substances must be powdered fine.

To remove Crickets.—Put a little chloride of lime and powdered tobacco in their holes.

Jackson's Itch Ointment.—Lard, sulphur vivum, palm oil, white hellebore, equal parts. Mix.

FARM OF JAMES GOWAN.

In the *Farmer's Cabinet* for June, is a copy of the report given by Mr. Gowen of his farm, to the Philadelphia Society for Promoting Agriculture. We should be pleased to copy the whole of the report, but want of room allows us to make only the following summary and extracts.

The farm is located near Philadelphia, and now contains about 100 acres, exclusive of woodland. Mr. G. took possession of it in 1834, at which time it is represented to have been in a very worn down and poor condition, from the neglect and bad management of previous owners. Mr. Gowen took away the old fences, made a new division of the farm, and fenced with stone-wall and hedges of the osage orange, drained and filled up ravines and gullies.

The land is now brought into a high state of cultivation, producing 100 bushels of corn, 400 bushels potatoes, 30 bushels wheat, &c., to the acre. He at first bought manure from the city, but after three or four years' experience, he gave up the plan, and has since made enough on his own premises, excepting light dressing. To do this he has been obliged to increase his stock of animals. "To maintain his stock," he says, "and bring my land to a high state of cultivation, by the most efficient and economical practice, has been a leading object; and to accomplish this, required no ordinary management on such a farm. The stock in cattle has ranged for years, from forty to fifty head, in addition to the necessary horses, with a large stock of swine for breeding and fattening; and these I have fed from the produce of the farm, except the purchasing occasionally of some straw, and supplies of mill feed for the horses and swine, and some meadow hay for the cattle, selling frequently its equivalent in timothy. During the same period I have sold hundreds of bushels of rye, some wheat, and on an average, four hundred bushels of potatoes annually, with some three or four hundred bushels of carrots, besides providing for the family. But the chief income was derived from the cattle.

My expenditures during the whole period, could not be otherwise than large; as I could not put up so much stone fence, and picket fence, as encloses my farm without incurring a heavy outlay; but I view these improvements as cheap in the end. It may be safely inferred, that there is not at this day, any farm of the same extent in this part of the country, that can so easily be worked, or will require so little expense for a series of years in keeping the fences in order, especially when the hedges are taken into account. I am also of opinion, that taking in view the condition of the soil, as to depth and richnes, as well as its being entirely free of stones and other impediments, that I can make it produce as much as any farm of its size in any part of the country, for a series of years, and at as small an expense.

The secret of keeping so large a stock on so little land, consists in my practice of partial soiling, and green crops, whereby I make some four or five acres do the work of thirty acres, in the "slow and easy go way." From May to August, my cattle are confined to one or two fields, most commonly one, to which they are driven, more for exercise in the cooler parts of the day, than for pasture; they being fed in the stables early in the morning, at noon, and at night, with food cut for them from a lot adjoining the barn-yard. The food is generally of lucerne, orchard grass and clover, oats and corn. The patches from which the corn and oats are cut, are always sowed with turnips in August. No one can credit, unless he has had proper experience in the matter, the quantity of food that one acre of lucerne, one of rich orchard grass and clover, and one of oats and corn, afford from May till August, nor can he estimate the great saving in manure, much less the comparatively good health of the cattle, from not being exposed on the naked fields, under a fervid sun, toiling all day in search of food. This practice allows me to crop almost the whole of the land, and to make some 120 to 150 tons of hay annually. In the fall, from August till November, the cattle have the whole range of the mowed lands, as I do not cut second crop grass for hay. Then for winter feed, I have always an acre of sugar beet, half an acre of sugar parsnips; half an acre or more of carrots, for my horses; and generally from three to four acres of turnips. I report to the committee on crops this season, over 100 tons of these roots. In 1843, I gathered from one acre, 1078 bushels sugar beets, 60 lbs. to the bushel; carrots at the rate of 687 bushels; sugar parsnips, 868 bushels. This year 972 bushels sugar beets; 970 bushels carrots; 700 bushels sugar parsnip; and from three and a half acres, 2500 bushels of turnips, sowed with timothy seed.

The farm buildings consist of three substantial stone barns, one 70 feet by 33, another 50 by 26, and another hipt roof with cupola, 57 by 25, besides a large over-shoot stable and hay house, stable high of stone, 60 feet by 30—the lower floors of all these are made of broken stone and lime, planked, being vermin proof. There are also, a corn crib capable of holding 1200 bushels of corn, one barrack, ample hog-pens, and sheds for carts and wagons. The barn buildings have been filled this fall to their utmost limit, except the corn crib.

A substantial stone wall encloses the principle manure heap; the drainings from this heap are led into a place of deposit, in which are received also a drain that runs under ground from the kitchen, as well as drainings from the pig-pens, and the washings from all the yards. These drainings form an important item in the supply of manure to my land; it is a saving which I cannot estimate at less than $200 a year. This liquid by a simple process is applied to the patches of roots, &c., and to this may be ascribed my great success in raising such crops.

Of Improved Cattle, my first effort was with the celorated "Dairy Maid," still owned by me. Her first calf, Leander, by Whitaker's Prince of

Northumberland, was reared and kept by me, for breeding. Dairy Maid's calves alone, exclusive of Leander, have already sold for more than $500. It would be curious to trace her profit at this day, by stating an account of her first cost, her keep, and that of her son Leander; crediting her by sales of her own calves and grand calves; deducting for the portion of the capital which was invested in the dams that produced the grand calves. To do this, would extend this paper to an unusual length—suffice it to say, that Dairy Maid has long since paid for herself, and that those who laughed at me for giving $540 for one cow, may return this statement over in their minds, and think, whether since 1838 any investment of theirs, to the same amount, in any other branch of husbandry, has paid so well.

But there is a satisfaction beyond that of the pocket, and that is, that Dairy Maid's breed will be of infinite service to the country. Her calves and grand calves, are pretty well scattered already —and I make no doubt, but wherever found they will demonstrate the high character of the parent stock.

My sales for the last two years, exclusive of Dairy Maid's calves, amount to over $2000. The stock now on hand is about 40 head, principally Durhams. The butter sold for the last two years exceeds $750; this is a respectable item, when the calves that were reared, and the supply for my family are taken into view. From early fall to spring, the butter averaged 70 lbs. per week—the quality highly appreciated abroad, as well as at home.

In the hog line, I have been quite successful, at least in bringing the animal by judicious crossing, to great perfection. I fatted off my old Lincoln, and Berkshire Boars, and my Hampshire and Chester county sows, last month; they weighed from 400 to 450 lbs., sold for $86. 24. Have sold the last two years of pigs, designed for breeding, $150. Bacon, lard, &c., over $120, besides, having on hand 14 fine young barrows, last fall's pigs, now ready for slaughter, which will weigh from 250 to 300 lbs. each, value $150. The stock on hand consists of one fine boar of Lincoln, Hampshire, and Berkshire breed; one brood sow of Berkshire breed, 12 shoats and seven pigs. —*Alb. Cult.*

Improved Copal Varnish.—Caoutchouchine (white and scentless), strongest alcohol, equal parts; copal in the proportion of two pounds to a gallon. Digest in close vessel, without heat, for one week.

Red Copal Varnish.—1. Vermillion, red oxide of lead (minium), red ochre, or Prussian red, &c., and proceed as before.

2. Dragon's blood, brick red, or Venetian red, &c., and proceed as before.

White Copal Varnish.—Copal, 16 parts. Melt, and add linseed oil (hot), 8 parts; spirits of turpentine, 15 parts; finest white lead to color.

Impermeable Varnish.—Boiled oil, 100 parts; finely powdered litharge, 6 parts; genuine bees' wax, 5 parts. Boil until sufficiently stiff and stringy, then pour off the clear.

Pearl Grey Copal Varnish.—White and black; white and blue: for example, ceruse and lamb-black; ceruse and indigo: mix them with the varnish, according to the tint required.

Currant Wine (French Method)—Water, 30 gallons; honey, 2 gallons; red currants (bruised), 10 pounds; sugar, 15 pounds; red tartar, 2 ounces. Mix, and allow it to ferment, then rack it into a clean cask. If it does not appear disposed to ferment, add a little yeast.

Ice Cream.—Any preserved fruit, 5 pounds; cream, 1 gallon; juice of six lemons, sugar to sweeten. Pass the whole through a sieve, then put it into the freezing pot, and work it until frozen.

Low or Fever Diet.—Panada; gruel; milk, thickened with arrow-root; plain bread pudding; arrow root, salep, and tapioca jellies; rice-milk, or chicken tea.

Drink for Invalids.—1. Barley water, acidulated with lemon juice; milk and water; lemon or orange whey; thin gruel; bohea, balm, or mint tea.

2. Fresh small beer; porter; port or claret wine with water: weak brandy and water.

3. Brisk cider and perry; sherry, port or claret wine; rum or brandy diluted with water.

Chelsea Pensioner's Remedy for Gout and Rheumatism—1. Gum guaiacum, 1 ounce; rhubarb (powder), 2 drachms; flowers of sulphur, 2 ounces; cream of tartar, 1 ounce; ginger powder, 1 ounce. Make them into an electuary with treacle Dose—two tea-spoonsful night and morning.

2 Powdered guaiacum, 1 part; powdered rhubarb, 2 parts; cream of tartar, 8 parts; flowers of sulphur 16 parts; nutmeg, 2 parts; honey, 130 parts Dose for rheumatism, &c, two large spoonsful night and morning

Excellent China Ink—Finest lamp-black, 75 parts; thick mucilage, 15 parts; strong ink, pale new, 50 parts; ox gall, 12 parts. Grind them well together, and if too soft evaporate a little of the water by a gentle heat; if too thick add more ink.

THE BRITISH AMERICAN CULTIVATOR, FOR 1846,

Will be Published on the First Day of each Month, at Toronto,

BY EASTWOOD & Co.

Paper Manufacturers, Stationers, and School Book Publishers, Yonge Street,

TO WHOM ALL ORDERS MUST BE ADDRESSED.

EASTWOOD & Co. AND W. G. EDMUNDSON, PROPRIETORS.
W. G. EDMUNDSON, EDITOR.

TERMS--ONE DOLLAR PER ANNUM;

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FOUR YEARS have now elapsed since the issue of the first number of the *British American Cultivator*, and the friends of Agriculture in British America have had by this time a good opportunity to judge of its usefulness. The enterprise, up to a recent period, could be considered only in the light of an experiment, inasmuch as a great number of unsuccessful attempts have been made to establish in these Provinces a Journal devoted to the great interest of Agriculture. By perseverance and heavy sacrifice of capital, the Proprietors of the *British American Cultivator* have now the pleasure to state, that the work is placed upon a sound footing, and that THE SECOND VOLUME, (new series) will be conducted with a greater amount of spirit and ability than were embodied in the entire *four volumes* which are before the public.

There are no less than four hundred thousand practical farmers in British North America, all of whom would be greatly benefitted in a pecuniary point of view, were they individually to subscribe for a talented practical work upon Agriculture, adapted to the climate, soil, and other influenes of the country.

As an inducement for every friend of Agriculture to patronise such a Magazine, the Editor, who is practically engaged in extensive agricultural operations, purposes to devote a large share of his time in the editorial management of the *British American Cultivator*, by which means he intends that it shall be made nearly an original work, composed of valuable information upon every branch of husbandry that would be calculated to interest the inquirer after agricultural knowledge

The *Cultivator* for 1846 will differ materially from the preceding volumes, and the most prominent improvements will consist of Reports of the Methods of Cultivation, as practiced by the best farmers in Canada, which will be collected and prepared for the press by the Editor; of a rich display of COSTLY ENGRAVINGS, illustrating the most approved Agricultural Implements of modern invention: besides a great variety of other improvements that could be better described in this way than with the pen; and of a classification of articles, so that when practicable, each may appear under their appropriate heading.

In addition to these new features of the *Cultivator*, a few pages in each number will be devoted to a department for the Ladies, or Farmers' Wives and Daughters, and an equal space to a department for the Boys; and to make the work generally acceptable to all classes of the rural population, two or three pages in each number will be devoted to Horticultural subjects, and an equal space to matter that will be particularly interesting to the Backwoodsmen.

The friends of Agricultural Improvement will perceive that the foregoing important pledges have been voluntary made by the Editor, in order to convince them that the great reform in Agriculture, which is so needful for the full development of the great resources of the North American Provinces, is a progressive work, and that he is fully determined to devote his whole energies in aiding his brother farmers, to elevate the standing of Agriculture in these highly favored Colonies, so that it may favorably compare with the best cultivated portions of the globe. The Editor further pledges himself that no trouble or effort shall be spared, to cultivate a taste for Agricultural Literature among all classes of the population of British America.

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.*
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W. G. EDMUNDSON, *Editor.*

Each number of the *Cultivator* contains 32 pages, and is subject to one halfpenny postage, when directed to any Post Office in British America.

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

Toronto, Jan, 1845.