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

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NEW SERIES.]

TORONTO, OCTOBER, 1845.

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#### WORK FOR THE MONTH.

AUTUMN ploughing may now be commenced with spirit, and continued until the ground becomes severely frozen with the winter's frost. Clay soils are benefited to a much greater degree by exposure to the action of the frosts than those of a sandy quality. This is the proper period for experimenting in deep ploughing, and none should be satisfied with the long established habit of merely skimming the surface some three or four inches deep, when there is a probability that by ploughing three or four inches deeper, their crops might be greatly increased. A few trials by each farmer even upon a small scale, would more effectually change public opinion on this point than any thing either of an argumental or experimental nature that we may have to advance; therefore we hope that the friends of Canadian agricultural improvement will lose no time in making a gradation of experiments in deep-ploughing upon a scale that will upon the next sown crop finally settle this long discussed topic. When land is intended to be

brought into a fine and very superior state of cultivation, it may be ploughed very early in the autumn, and subsequently harrowed two or three times, and just before the closing in of winter, it may be cross-ploughed, by raftering or ribbing, as it is usually termed; the rafters or ribs should be about two feet from centre to centre. This mode of winter-ploughing exposes a large surface to the action of the winter's frost, whereby the most stubborn soils may be converted into a light friable mould. The system of raftering may with advantage be practiced, if the land be pretty free from couch-grass, with only one furrow.

This is a favorable month for draining low lands, and in all cases where the cultivator's means will admit of the outlay, this branch of labor should be attended to, even at the sacrifice of many little jobs that are desirable should be performed this month. When under-drains are made, they should be constructed at least thirty inches in depth; and if the timber or material employed

be of a durable nature, such drains' will prove effective in keeping the land dry for fifty years.

Firewood for winter's use may now be chopped and piled ready for drawing, by the commencement of winter.

The other work for this month which should be executed upon a well regulated farm, would have been treated upon in their places, if time had permitted. But owing to the fact that the Fourth Riding of York Agricultural Society have delegated us in conjunction with their talented and zealous Secretary, Mr. Hartman, to attend the New York State Agricultural Exhibition, to collect information and publish the same for the benefit of the Canadian farmers, we are unable to devote as much attention to this department of our paper, as we otherwise would have done.

A Subscriber, residing in the Township of Orillia, accuses us of partiality in writing so little for "*the bush*," where most of the Canadian farmers begin their operations. To obviate similar objections in future, we would beg our *bush* farmers to write more for the *Cultivator*, and embody in their correspondence every particular that would be calculated to benefit the general reader; and if this suggestion be acted upon, there will be no deficiency of matter for the printer, of a character adapted to make our Magazine deservedly popular among the backwoodsmen. For our part, we shall devote more attention to the interests of this too much neglected class; and shall not only advance our own views freely upon such topics that would be likely to benefit that portion of our readers, but shall also feel a pleasure in answering any inquiry that may be submitted to us that would promote the same end.

Our friend states, "I have noted a few subjects on which you might occasionally touch. Their solution, I know,

would be useful to me, and I think to many others:—

The "Hollow-horn" and "Wolf" in Cattle,—nature, cause, and cure.

Does *asafœtida* attract Wolves?

*Electricity*.—Has any one in this country applied it to crops, and with what result?

*Indian Corn*.—Is there any advantage in cutting off the flower stalks?

Has any experiment been made in sowing broad-cast?—particulars and result.

*Broom Corn*.—Will it succeed here?

*Buck-wheat*.—Quantity per acre, &c.?

*Vetches*.—Culture, management, &c.?

If we fail in answering those enquiries to the satisfaction of any of our readers, we shall consider it a favor to have any additional remarks submitted to us that would better illustrate those subjects.

*Hollow Horn*.—This disease is caused by not providing suitable shelter for horned cattle in winter, and as it is of an inflammatory nature, the application of spirits of turpentine, and similar treatment which produce inflammation, should be avoided.

When the animal is observed to be suffering from the disorder, one or two quarts of blood, according to the size, are to be drawn immediately from a neck vein. Then two table spoonsful of the following mixture are to be given three times every day, the powders being previously dissolved in a pint of lukewarm water; this to be continued until the animal recovers. Glauber salts, six ounces; cream of tartar, two ounces; saltpetre, two ounces; powdered rock of athena, two ounces. If the animal should be costive, the following clyster may be given. Take a handful of chamomile flowers, and two handfuls of flax-seed, boil them in two quarts of water, strain them, and add eight ounces of linseed oil, and three table spoonsful of common salt, which should be applied by means of a syringe. Hollow horn and wolf in the tail are promoted by the same influence; that influence in our opinion is nothing more or less than improper treatment, or in other words, exposure to the cold blasts of winter, and a short allowance of

nutritious food. Almost every one is acquainted with the fact, that the spiral marrow is one general reservoir from the end of the tail to the end of the pith in the horn. The extreme ends of this marrow become chilled by the above injudicious treatment, and the result, in our opinion, are the two diseases mentioned. Some adopt the plan of cutting off about a half an inch of the tail while the calves are young; and by repeating it every autumn until the animal becomes fully grown, they argue that they thereby entirely do away with the possibility of it getting this troublesome complaint.—

When the tail is actually diseased, the usual course is to cut off about one inch of the end, and to make an incision through the skin with a sharp knife along the entire length of the diseased parts, after which a healing salve should be administered.

*Asafetida* will unquestionably attract wolves. The early settlers in this country were in the habit of using it in the following manner, and we believe the Indians, and experienced hunters still employ it in a similar way. Those animals generally inhabit low marshy grounds during the day, and when their whereabouts is once ascertained, the huntsman should spread a thin coating of *asafetida* over the soles of his shoes, and make a circuit around that portion of the ground where they are supposed to be, then about in the centre of that circle, a piece of the same, about the size of a full grown walnut, should be suspended upon a tree, at such a distance from the ground that the wolves could not reach; from eight to ten feet would be the distance from the ground, that would be the most likely to attract their notice.

*Electricity*.—We believe the experiment has not been tried in this country; a number of experiments have, however, been made the present summer in the United States, but with little or no success. It is highly improbable, that any great advantage can be gained by employing artificial electricity to agriculture.

*Indian Corn*.—If the grower of Indian-corn intends to convert his crop into

sugar, or molasses, it would be of service to cut or pull off the flower stalks as soon as they make their appearance, by which means the farina would be destroyed and the crop would not be so productive in corn, and the saccharine matter in the stalks would be greatly increased. We sowed the present season one rood of ground with Indian-corn; the seed was ribbed in rows two feet asunder, at the rate of two bushels per acre, and the crop was horse-hoed twice and hand-hoed once, but the drought was so severe, that we have not harvested more than half a crop.

*Broom Corn*.—We also planted one rood of land with Broom-corn, which promised an abundant yield up to the first of August, but on the night of the second of that month, it was considerably injured with frost; and on the 10th of September it was so much injured that only those plants that escaped the August frost were worth harvesting. This was the only crop, with the exception of the tobacco, that was at all affected with the first mentioned frost in this section of the country. We believe that in an average of seasons, Broom-corn may be successfully grown in the south west portion of the Western District; and from the little experience we have had in the cultivation of this plant, we would on the whole consider it the most judicious course to confine its cultivation to that section of the province. We see no good reason why the Western District could not supply the whole of British America with brooms, at a rate that would handsomely remunerate both the cultivator and manufacturer.

*Buck Wheat* at the best is not a profitable crop, when cultivated to any considerable extent. Both the crop and the demand is precarious. The yield sometimes equals fifty bushels per acre, but the average may be rated at thirty.

*Vetches*, for a soiling crop, can scarcely be surpassed; the ground for vetches should be well prepared, and the seed should be sown by the first of May, and earlier if possible. Two bushels of oats and one bushel of vetches per acre, will make a crop for soiling, surpassing any other with which we have any knowledge,

### WHEAT FARMING IN WESTERN NEW YORK.

We are indebted to a late number of the *Ohio Cultivator* for the following very able Report of the Committee on Farms of the Monroe County Agricultural Society. The system of farming recommended is not exactly the one we would advise for the adoption of the Canadian wheat-growers; but nevertheless it is preferable to the modes that are generally practiced in this country, and we therefore give the report insertion, in the hope that those who do not pursue a better order of rotation, and who are not prepared to go the length in carrying out the improved system of farming that we have published for their consideration on former occasions, may at least adopt the method of cultivation here submitted. There are many in this province who believe that no other crop will remunerate the grower, to the same extent, as wheat; to such the suggestions of the viewing committee must prove particularly interesting and valuable, and we doubt not, but that a portion of our readers will readily perceive that the leading features of cultivation embodied in the report, might be very profitably grafted upon the *no system* of rotation which is too generally practiced in some sections of this province.

The style in which this report is drawn up is wisely calculated to be a means of disseminating a fund of valuable information to the agricultural classes, and we trust that the Canadian agricultural societies will adopt this efficient method of bringing about an agricultural reform:—

This Committee may be expected to lay down some general rules, as a criterion of what they conceive to be a true system of farming for a majority of the land in this county, and that manner of fencing, draining, manuring and rotation of crops, and general management, upon which they predicated their premiums; and although

some of those points are still unsettled, and some important questions still remain debateable by our best and most experienced farmers, yet to exhibit the grounds upon which they arrived at their conclusions, they "will also give their opinions."

This Committee are decidedly of opinion, that the wheat crop (combined with wool growing,) is the only crop, in this county, that farmers can depend upon for producing at all times ready money, at a fair remuneration for their labour—especially if they are located at any great distance from market. Corn, hay, oats, potatoes, pork, &c., cannot be depended upon as ready cash articles, to any great amount; with the exception therefore of those farmers whose lands are not adapted to the grain crops, and are more natural to grass, grazing and fattening cattle may succeed well, and in some hands we know it does; but yet, they can hardly compete with the more hilly, cheap, and broken lands of the southern and eastern parts of this State, the outlay for which is not over one quarter of the amount that our lands were purchased at. Therefore it recurs with great force to the minds of this committee, that the wheat crop is the only one adapted to a profitable and successful course for the farmers of this western country to pursue, as a main dependence to make money, pay for their farms, and get out of debt.

The committee will therefore proceed briefly to state, what they consider a good, judicious, and successful system for conducting a farm, and what state of preparation and rotation of crops it is necessary to pursue, to come up to that point of excellence which should be the perfection of the art; and those whose exertions come nearest to that course will, consequently, be the successful competitors for their favors.

Let a farm consisting of any number of acres, not too large—say, for example, one hundred acres of arable land, independent of wood lands, orchard, and garden—be in the first place well fenced, if with rails, well staked and ridged, or what is better, with corner stakes and yokes, the yokes placed at two or three rails from the tops, in which case the stakes need not be set in the earth; or what is better still, where there is a sufficiency of stone, let the fences be made with them, and it can hardly be conceived, by those unacquainted with the process, how small and inferior an article will make a good and lasting fence, merely by the plentiful use of cedar, pine, or chestnut sticks laid in crossways with the stone, always reserving a sufficient quantity of stone to cope the wall, and form a cap to cover and retain the whole line. Divide the whole into such sized fields as shall comport with the size of the farm, and in such a manner as will allow it always to be nearly equally divided into a three course rotation. The fences to be clear from weeds, brambles, and shrubs, and of a sufficient height to protect against all depredation: for there is no better opiate to induce good nature, and calm and uninterrupted sleep at night, than good strong and high fences. If there are any

low or springy lands, let them be thoroughly open, or under-drained—under-draining is by far the most convenient, safe and economical.

The barns should be large, with an underground basement, if possible; sheds and stables, large and roomy enough to house every hoof on the farm; barn-yards not too large, with water handy; a piggery with boiling apparatus; and proper protection and fixtures for the sheep; with a well-built, snug and convenient house, an industrious wife, not too handsome, a kitchen and flower garden, a well chosen fruitery and orchard—and that is what this committee would consider a *pretty smart chance* of a beginning. Now we would propose that there should be a flock of sheep, of a *hardy, fine-woolled* variety, if for the fleece, or of a large-framed long woolled variety if for the carcass—as an indispensable requisite to commence with, not only as to profit from themselves, but as an important element in wheat husbandry. A greater profit will be realized from the sale of the wool and carcass than is lost to the farm by the food they consume, as their manure is the perfection of food for the wheat plant, and, from its intimate division and distribution, it is in a better state to feed the young plant than any other, except perhaps, the artificial compounds.

The true wheat farmer should have no more cows, oxen, or horses, than are necessary to carry on the farm and subsist the family—and those of the very best breeds. It must be very bad economy to be obliged always to keep half the farm in pasture and meadow, merely for the sake of keeping a great herd of cows, coupled with the privilege of foddering 20 or more tons of hay, and making a few pounds of butter, to sell at 8 cents per pound; the marketing of which costs more than its produce.

We would premise, that a farm, when it is right, should not have one square foot but what is arable, and capable of producing any crop put upon it; and as nearly as convenient, always to have one third in wheat, one third or more in clover and grass, and one third or less in summer crops.—Now let us explain the *modus operandi*: it is now spring—one third in wheat, properly seeded; one third or more in meadow and pasture; and such portion of the other third as shall be convenient, fall-plowed for summer crops, which is to be devoted to oats, corn, potatoes, ruta baga, wortzel, carrots, &c.—on which is to be expanded the fresh barn-yard manure made the winter previous, or so much as is needed, and the balance composted, for dressing the summer fallow. All of the oat, corn and potatoe ground, or so much as the season will admit, should be sown with wheat, after the crops come off; if any lays over, it may be sown the next spring with peas or barley and followed with wheat.

The manure which was applied to the summer crops, is now in the best possible state for producing wheat, having lost its fermentative quality, and, by rotting, plowing, and working, has become thoroughly divided and mixed with the soil and is in a better state to promote the production of

the wheat berry than in any other shape that it can be applied. So much of the summer crop and enough of the grass in pasture to make about one third of the arable land, comes into wheat each year. This course of cropping gives but a small portion of mowing land, after providing pasturage for the sheep and neat stock; yet with the judicious use of the root crops and the straw from the wheat and oats, a very small quantity of hay need be used before the first of April, and yet the whole farm stock be kept in as good order as those to which are fed a ton and half per head; by which course a great amount of land is relieved, for the grand desideratum of the wheat crop.

The meadows and part of the pasture of this year, become the summer fallow of the next; and this year's stubble, properly sceded, becomes the meadow and pasture of the succeeding season.

This course your committee consider the best, safest, and most profitable, taking into consideration the importance of keeping the soil in good heart and productiveness, and in a state of improvement, rather than impoverishing it. Yet there are some good and judicious farmers who, occasionally, where a field throws heavy to straw, follow with two or more crops of wheat alternately; when clover succeeds well, and the ground is free from weeds and foul grasses, we have known this course to succeed well, even with once plowing, but it is a course, generally speaking, more to be deprecated than praised.

Another course is pursued, by some of our best farmers, who prefer to let all the manured summer crop land lie over to the next season, and take off a crop of barley or peas, and follow with wheat. The committee incline to the opinion, that this course must nearly or quite exhaust and neutralize all the virtue of the previous year's manuring, and have a tendency to keep the land in a situation not improved for the wheat crop, if not losing in its qualifications to produce, for any length of time, a certain and profitable return.

Another course pursued, by equally judicious farmers, is to take a four year course rotation, by allowing all the seeded ground to lie two full years in clover. The first year it is mowed and pastured, and the second year it is mowed or pastured till about the first of June, then plastered, and at the proper time cut for clover seed; the year after, mowed or pastured till the first week in June, when it is turned under for the summer fallow, for wheat. This course, on large farms, with a heavy stock of cattle and sheep, (as it allows more hay and pasture than the three year course,) is a very successful method; and even for those of a medium size, may suit well for some particular soils; and perhaps in those cases where the management for saving and increasing the manure is not skilfully and judiciously performed, this is a safe course, if one quarter of the arable land gives a sufficient quantity of acres in wheat.

The three year course in three divisions—Field A.

1841 - - - - in wheat seeded.

1843 - in meadow, pasture and summer crops.  
1843-4 - - - - in wheat.

*The four year course in four divisions—Field A.*

1840 - - - - in wheat, seeded.  
1841 - - - - in meadow and pasture.  
1842 in meadow, clover-seed, and summer crops.  
1843-4 - - - - again in wheat.

But whatever course an enterprising and thinking farmer may pursue, if he has a system and plan of proceeding, and pursues it constantly, he will soon come to a result as to what process is best adapted to his soil. Without regularity, system, and a code of rules and reasons, no course will succeed, nor any valuable result be reached. It is said that bad habits regularly followed, are not so pernicious to the human system as an irregular and mixed course of life; and the remark is peculiarly applicable to the arts of husbandry. We say—*system! system! system!* and follow it, good or bad, and conviction must follow, by comparison with others pursuing a different course.

The Committee can conceive of no better system of farming than that of 100 acres of arable land, (or double or treble that amount, if you please,) of which one-third, say 33 acres, is put into wheat producing from 800 to 1000 bushels; with one 100 to 150 fine woolled sheep producing from 300 to 500 pounds of wool, worth from 40 to 50 cents per pound; and the balance of land in grass and summer crops, every item of which should be consumed on the farm, to subsist the family, hired help, and farm stocks, and, perhaps, to help to pay mechanics; all the offal, hay, straw and roots, going to increase the manure heap, which, with a plentiful use of plaster and clover, will more than compensate for the wheat and wool subtracted from the soil, and sold.

The Committee in awarding their premiums, have selected those who, in the words of their instructions, came the nearest to their standard of excellence—“*reference being made to the general system of management, and the profit obtained: rather than to natural advantages, or expensive improvements.*”

Elisha Harmon, of Wheatland, to whom was awarded the first premium, cultivated a farm of 400 acres, 300 of which are improved; has been settled 40 years; the soil a sandy loam, inclining to gravel, abundantly filled with a limestone shale; on a part of which are beds of plaster, which are opened, and manufactured for use and sale, averaging 1000 tons per year. This tract was originally an oak opening with gentle undulations, and, is, altogether, a splendid wheat farm. The dwelling house, barns, and out houses, are of a superior construction and finish. He has this year over 92 acres of wheat yielding over 2000 bushels—has raised an average of 50 bushels of clover-seed for the last 15 years—usually alternates his crop, by wheat one year, and clover two years, but has one field that has produced wheat every other year for 15 years past, without any deterioration of the land. Plowing commences, for the sum-

mer following, on the first week in June and second week in September, using his sheep and the wheat cultivator intermediately between the plowing sows from the 12th to the 20th of September, 5 pecks to the acre of pure White Flint. His stock consists of 400 sheep and 106 lambs, Saxon and Merino. His clip of wool this year was 1,600 lbs., which sold in market for 40 cents; 7 cows, 12 horses and colts, and 30 hogs, a part of them fine Leicesters; and what particularly commended itself to this committee was, over 4 miles of stone fence. His summer crops were 8 or 10 acres of corn and oats each, root crops, potatoes, &c.

William Garbutt, of Wheatland, to whom the Committee award the credit of being the only farmer accountant, that they visited, who kept this accounts of profit and loss on every crop on his farm, and the produce and cost per acre, and the general result for some 20 years past. For a description of his farm, and his system of farming, they propose to let him tell his own story:

*To the viewing Committee of the Monroe Agricultural Society.*

My farm consists of 200 acres of cleared ground, but the mill-pond overflows 10 acres, which is of little value except for pasture in autumn and dry seasons, and six acres are occupied with roads and yards; which leaves 184 acres for cultivation. I generally calculate, when circumstances will admit, to have 45 acres in wheat, 15 in barley and oats, 15 in hoed crops, 40 in pasture, 40 for hay and clover-seed and 30 in fallow. The ground intended for the hoed crop is always in clover, if practicable, highly manured with rotted manure, and plowed under in the fall. The barley stubble is twice ploughed, receives a light dressing of manure, and is sowed with wheat; so that about two-fifths of my wheat crop are raised after summer crops, the remainder after fallow (viz: clover pasture:) the whole of the wheat always seeded with clover and timothy. I annually sow from 10 to 12 tons of plaster, and the two seasons past have put 4 tons, each year, or my manure in the yards. My general average stock has been 300 sheep, 30 hogs, 15 head of cattle, and 8 horses; keep three good teams, and a span of mares for breeding, and odds-and-ends.

I stable or yard all my stock in winter, and make all my forage into manure. I keep the stock in the yards in the spring as long as I conveniently can, seldom turning sheep out before the first of May, cattle the 10th, and team not until spring work is done. My first pasture is my fallow; second, clover, which is intended for hay and seed.

The cattle are wintered on corn-stalks, straw and roots; sheep on chaff, straw and shorts, of which I feed annually from 1000 to 2000 bushels. I always endeavor to feed as well as I can with the fodder I have—not to pamper nor waste.

The amount sold from the products of the farm, from 1830 to 40, was great, averaging from \$2,200 to \$3,200 per annum, independent of our farm living—it being only the amount sold.

The expenses during the same period, including every expense belonging to the farm, excepting those of my own and Mrs. G's labor, of which we make no account, was from \$1,200 to \$1,600 per annum. The crop of 1840 amounted to \$1,818 76; expenses, \$1,296 15; 1841, \$1,802 44; expenses, \$1,244 28; 1842, \$1,578 02; expenses \$1,204; 1843, \$1,639 63, expenses \$1,219 10. I can give all particulars relative to these amounts, but this communication is already too long. The plaster and mill-feed increases the amount both in the expenses and income.

Owing to the failure of my clover, I have the present season more acres in wheat, more in fallow, less in hoed crops, less in grass, and fewer sheep than usual—viz., 57 acres in wheat, 43 in fallow, 10 in barley, 10 in hoed crops, of which 2 are in potatoes, 3 roots, and 5 corn, and 8 in oats.

Stock; 10 horses, 26 cattle, 24 hogs, 190 old sheep, and 60 lambs. Present season, 4 men by the year from the middle of July; one more for the season; 3 one month in hay and harvest, and one by the day through wheat-cutting.

And I would further state, that the great difference in my wheat crop per acre, in the various years, was more owing to the seasons than to the cultivation, or the condition of the land to produce a crop. The crops of 1833-4-5 were very heavy, yet the ground was not in any better condition than it was in 1836 and 1837, when the crops were light, and the same may be said of 1841 and 1842. The crop of 1842 was the lightest I ever had, being only 19 bushels per acre, owing to the rust; for if it had not rusted, it would have been 30 bushels per acre

Yours most respectfully,

WILLIAM GARbutt.

PROFESSOR OF AGRICULTURE.  
MODEL FARMS.

We are happy to notice that the propriety of establishing a Chair for a Professor of Agricultural Chemistry, in the University in this city, and also the establishing of a Model Farm in each respective District, have been prominently bro't before the Canadian public through the Niagara District Agricultural Society; and that an appeal has been made to the respective Agricultural Societies in the Province, soliciting their co-operation in endeavouring to bring about these highly important measures.

We give insertion to the proceedings alluded to, and shall use our utmost exertions in furthering the views as set forth in the accompanied resolutions:—

“At a meeting of the Officers of the Niagara District Agricultural Society, held at Mr. Wm. May's Hotel, in St. Catharines, on Saturday the

6th Sept. 1845, the following resolutions were adopted:—

“1. Moved by Mr. Jones, and seconded by J. Gibson, Esquire, That it is the opinion of the Agricultural Society of the Niagara District, that a Petition should be drawn up and presented to the Legislature, at its next session, praying that a clause may be introduced into the new University bill, establishing a Chair for a Professor of Chemistry as connected with Agriculture; and also, that a fund be created for the purpose of establishing a Model Farm in each respective District of the Province, or for other purposes designed to promote agriculture, out of a portion of the lands, territorial revenue, or such other source as the legislature may deem expedient.

“2. Moved by Mr. Wynn, and seconded by Mr. Frederick Hutt, That a Petition, based upon the foregoing resolution, be prepared by the Secretary, and submitted to the Society for signature, upon the day on which the next Fair is to be held.

“3. Moved by Mr. Garner, and seconded by Mr. Spencer, That the Secretary be requested to forward a copy of the Petition, when signed, to the respective Agricultural Societies in the Province, soliciting their co-operation.

“A. K. BOOMER, Secretary.”

Drying Potatoes may be a good method to save them from rot, and it may be well to save them in this way; yet by exposure to the air they will lose much of their good quality. If potatoes lay in a box or barrel, open to the air, in a room, shed, or other place out of the cellar, they will lose much of their good qualities in five or six weeks. To preserve potatoes in good condition, they should be dug with as little exposure to the air as possible, and put in a cellar in a close bin, cask, or box, and the cellar should be closed so as to exclude light and air. Yet it may be better to save them with a loss of a part of their good properties, than to let them decay; but we would caution the lovers of good potatoes, against too much exposure, as it will cause a great depreciation in their value.

*Bran Beer.*—Good bran. 1 bushel; water (to produce) 18 galls.; hops  $\frac{1}{2}$  lb. Mash with hot water, and ferment in the usual way. This beer will cost about three-pence per gallon; two or three pounds o. sugar, or four or five of treacle, improve it.



**CISTERNS.**—I have had occasion to visit Mr. Sisson's Planing Machine, recently erected on the corner of Alice and Terauly Streets of this city, for the planing of plank, boards, &c., which requires a considerable quantity of water, and to supply which, it was found necessary to erect a cistern. Application was made to a person to construct one to be coated with water lime, which would have cost about ten pounds—a sum altogether too large. At length a more simple plan was hit upon, which bids fair to excel all cisterns in use. The pit being excavated twenty feet long, ten feet wide, and four feet deep, a quantity of blue clay was prepared in a similar manner to the preparation of clay for brick, and a coating of this substance was plastered on the sides and bottom with the hands, to the thickness of four inches, and the surface smoothed with a trowel, which completed the cistern with the exception of covering it with boards. It is now filled with water, and to all appearance does not leak a drop. If the sides of this cistern can be securely protected from the action of the frost, it must prove a great benefit to the country.—*Com.*

Toronto, September 1st, 1845.

#### TREES FOR SHADE AND ORNAMENT.

The spirit of utilitarianism is carried to such an extent in this country, that the ornamental is almost always sacrificed to the useful. "What will be the gain thereof?" is the question propounded, when any project is proposed, instead of saying, in accomplishing this or that object, cannot the useful and the agreeable be united, thus gratifying the eye, and at the same time satisfy the pocket, which is the *primum mobile* of the age.

There is nothing that harmonizes the passions of man, quells the evil influences of trade, or adds to the happiness of the soul more, than to throw around him those various charms which are found in the natural world; the green fields, the flowers, the fruits, majestic trees, with flocks and herds reposing beneath their branches, the waterfall, in fact, the panorama of creation as it meets the eye of the agriculturist in his daily pursuits. It enlarges the soul, expands the intellect, and exalts man. If this be the effect of *viewing* nature in her loveliness, with how much more zest can these things be enjoyed, when our own hands have dug the soil, sown the seed, planted the tree, or trained the vine. We view them as the fruit of our toil; and all know there is more real enjoyment in witnessing the results of our own labor, than in partaking of that which is bought with silver and gold.

These are some of the thoughts which have been suggested to my mind in reading in your

May number the description of the beautiful grounds of Mr. Colt, at Paterson. I can say as did the Queen of Sheba to Solomon, when she saw the splendor of his dominions, "the half has not been told of them." Mr. Colt can truly say that, under his cultivation, the barren hills have been made "to bud and blossom like the rose." It has also induced me to make a few observations on the value and importance of shade trees as an ornament to towns and villages, and to propose a plan by which the object may be accomplished with pleasure to all.

It should require no argument to prove the value and utility of shade trees in public streets and roadsides. Yet when I look at many places in the country, more especially westward, I am pained with the thought that so little attention is given to beautifying them with noble shade trees. In too many cases, the streets are as barren of shade as the ocean. The people of New England have paid considerable attention to this subject, and, as a consequence, most of the villages are well cared for in this particular. If any of your readers have passed through the village of Upper Middletown, Ct., they have probably noticed two splendid rows of maple trees running the length of the main street, which improve the appearance of the place more than would the most costly mansions. And as the inhabitants walk beneath the shade of these trees on a summer's day, and feel the cool breeze as it plays among the branches, have they not a just pride in pointing to them, and are they not a strong tie to bind the people to their native place? I mention this place as an instance, because it is my natal home; many more might be noticed, if it were necessary. Take away the elms from New Haven, and it would be shorn of its beauty.

A description of the avenue leading to the residence of Mr. Clay, as given by a correspondent of the New York Tribune, is so *apropos* to our subject, that I am induced to insert it. "Mr. Clay has paid great attention to ornamenting his land with beautiful shade trees, shrubs, flowers, and fruit orchards. From the road which passes his place on the north-west side, a carriage course leads up to the house, lined with locust, cypress, cedar, and other rare trees, and the rose, yasmine and ivy were clustering about them, and peeping through the grass and boughs like so many laughing furies as we drove up. His mansion is nearly hidden from the road by the trees surrounding it, and is quiet and secluded, save to the throng of pilgrims continually pouring up there to greet its possessor, as though it were in the wilderness."

Facts like these might be enumerated to show their utility. But shade trees have their value in a pecuniary point of view, for they increase the value of land in places thus improved. If an individual is choosing a location, he does not look to the worth of the land by itself, but weighs all the advantages and disadvantages the place possesses; and to a man of taste, shade trees would often be the turning of the scales.

The objection is sometimes urged, when public improvements of this kind are proposed, we may not live to reap the benefit, and what use is it to trouble ourselves about the matter. They forget that their posterity will receive it if they do not, and it is a narrow selfish soul that is not willing to do anything for the future, a spirit which, if carried out by others, would stop many of the public improvements in which mankind are now engaged. What would our country be at this time if our forefathers had acted on this principal? Trees might be planted that would serve the ends of ornament, and be a gain also to the owner. For instance, the maple might furnish sap sufficient to supply the family with sugar; the locust when grown is a valuable timber; the oak and the ash have their various uses, not to specify others that might subserve both ends proposed to be gained by them. Thus, in a selfish view of the case, they can be made profitable, as they would generally be set out in land that is otherwise a waste or a common. I would recommend that each man adopt the plan of planting shade trees in front of his dwelling; if this were done by a few persons, others would soon see the advantages of it, and follow their example.

There is no reason why the United States should not stand pre-eminent among the nations of the earth in this respect. Considerable attention is paid to it in England, with manifest advantage to the people. Nature has done everything she can for us; our soil, our climate, our trees, are all favorable to the end proposed,—it only remains for man to do his duty.

These are some of the reasons I would give in favor of a more general system of ornamenting the towns and villages of our country; many more might be urged did space permit. The following is an instance of what has been done by a systematic effort in a town in Orleans county, New York.

A friend (one of those public-spirited men that the world needs more of) on temporarily settling in the western part of this state, was impressed with the negligence of the people in ornamenting the place with shade trees; and determining that something should be done to remove the reproach, went to work in the following manner. He invited all the young men in the town to meet him on a certain evening, as he had a proposition to communicate to them that was for their advantage. This excited their curiosity, and they therefore met him. He then stated to them the condition of their town, that no shade trees were to be seen in all their streets, the great improvement they would be to the place, and then, after their feelings were enlisted in the subject, showed them how the difficulty might be overcome. He proposed to them to form a *Tree Association*, each member of which was to set out one tree and take care of it, and if it died to set out another and another, until he had a thriving tree. In this way each one felt his individual responsibility, and had an incentive to do his work well, lest

others should excel him. The consequence was, that more than a hundred trees were at once set out, and now they have the pleasure of knowing that their town will soon be one of the handsomest in the state.

To those villages which are in like situation, I would commend this plan. Form tree associations, invite the young and the old, and the ladies also, to assist you, and let not your places suffer any longer for the want of ornamental shade trees. Go thou and do likewise.

In this article, I have enumerated some of the leading points in favor of shade trees, believing that it was only necessary to bring it before your readers for them to see its value.

C. C. SAVAGE.

New York, June, 1845.

—*Am. Ag.*

*Blasting Rocks.*—Having used a very safe, and successful method of blasting rocks, which I think the best in use, and, as so many lives and limbs are lost by other methods, I think the world should know it. Fill the hole one-third full of powder, then put a straw filled with powder in the side of the hole, reaching two or more inches above the top; if the hole is deep, two straws can be slipped into the other and tied to prevent splitting; then put half an inch of sand on the charge; next a bar of round iron the size of the hole and resting on the charge; fill the hole around the iron with dry sand to the top of the hole; then place moist sand around the bar as high as the top of the straw; then lay a piece of timber weighing 200 lbs. or more carefully on the top of the bar of iron, nearly balanced, one end resting on the ground. A safe and cheap match is made of paper, dipped in a solution of saltpetre and dried. A piece six inches long will give time to get thirty rods away. The rock will be torn in pieces by this method, when the common method of charging with brick or sand will fail. The bar of iron will not be lost, as would be supposed, *but is, where the hole was, not having moved out of its place.* A caution is necessary, to prevent the powder being rammed down more than can be avoided, *the looser it is the better.*

ADISON EVERETT.

Middlefield, July 11.  
—*Mass. Ploughman.*

**WHY DOES NOT HAY CAUSE THE PRODUCTION OF MORE MILK?**

The above is a highly important query for the farmer, and a true solution of it would be of immense value to him. The great advantages of soiling cattle is in the mouth of every one who have tried it; yet one of its greatest claimed merits is the additional quantity of fodder a given quantity of land will yield in food, which is cut and carried from the land to consumption, instead of being fed off where it grows. The cropping of the grass before it is properly matured; the injury done to the stalks and leaves by the hoofs of the cattle; and the offensive state in which much of it frequently is from their droppings, and its trampled and soiled condition, are important items which go to make up the estimate in favor of the soiling system. The important query then arises, why should not the hay which has been cut at the most proper time, well secured and properly fed, produce as great a quantity of milk as the grass would have done from which the hay is made? Or is there a fallacy on this subject, and cannot cows be made to take or digest as much nourishment in the form of hay, as in a fresh or green state? That grass should lose any of its nutritive qualities in drying, is contrary to philosophy and experience, so far as has been accurately noted; for Daubenton, a half century since, ascertained from actual experience, that a sheep would eat 8lbs. of fresh cut grass in 24 hours, and 2 lbs. of hay in the same time; and that grass lost just  $\frac{2}{3}$  of its quantity in drying, so that the quantity of nourishment was equal in both conditions of the fodder. It is the result of our own observation, that on similar clay land, well put down to grass, and in moderate condition, two acres of pasture will sustain a cow seven months in the year, and one acre of meadow will sustain her through the winter or five months the average time of fod-

dering in latitude about 42 degrees 45 in Western New York. But in summer the cow is yielding milk in great quantities; in the winter scarcely any. On every physiological principle, other things being equal, the cow ought to consume, and probably does, a larger quantity of food to produce the same results, in consequence of the increased demands for the carbon and hydrogen of the food in respiration, which is necessary to sustain the vital heat. Yet in summer, the cow takes much more exercise when driven to and from pasture, and in her rambles over it, than when confined in the yard or stall in winter, and this may be a full equivalent for the former.

May not the solution of this matter rest, in part, in the probable fact, that the stomach digests the grass much more readily, and in larger quantities, and at much less expense of the vital powers, than it does hay; and that it can thus assimilate a larger amount of nutritive matter from grass in its green, than its dry state? Daubenton's experiments halted at this point. He found his sheep ate the same quantity in each condition of the grass; and he did not ascertain whether the sheep were making as much wool and flesh, or the ewes giving as much milk in their food in its cured as in its fresh state; nor are we aware of any satisfactory experiment which does. It has been recently ascertained, that as grasses mature and dry, a certain proportion of the leaves and stalks, which in their green state are highly nutritious, are converted into woody fibre, which in the stomachs of the most ruminating animals is generally indigestible, and passes off unappropriated by the system, with the fœces. May not this circumstance have something to do with explaining this question?

Would not the cutting and steaming of hay do much to reduce the hay as nearly to its original state as grass as possible, though it would still leave it with the probable immediate objection, of a conversion of a portion of its formerly nutritious qualities into woody fibre? In the absence of an agricultural establishment, under strictly scientific management, with

an experimental farm attached, where this with other numerous problems could be solved with great advantage to practical husbandry, some of our leading agriculturists, who are in possession of ample means, and zeal, and accuracy of observation, fully adequate to the object, might solve some of our doubts on this subject. A capacious bin or vat, steam tight, capable of holding a ton of hay, easy of access and delivering of its contents, with an economical system of heating it, is all that would be necessary to prepare the hay. Bran or meal scattered through the hay and subject to the same treatment, would add much to its value.

To give this experiment its full value, a comparison accurately noted, should be made, of hay fed on its dry, uncut state; fed dry and cut; steamed uncut; cut and steamed; steamed with bran or meal; each trial to be made of a distinct class, or classes of cows, for several weeks in succession, and each class to go through all the various forms of feeding; and the results in quality and quantity of milk to be given, under each system of feeding; and the prices of food and its quality, and cost of preparing. Whoever of our enterprising and wealthy agriculturists will give to the public the above results under circumstances to command implicit confidence, will in the somewhat sarcastic phrase of Dean Swift, confer a greater benefit on the human family, than the whole race of politicians put together.—*Am. Ag.*

*To Cure Hams.*—A writer in the Ledger gives the following directions for curing hams, shoulders, rounds of beef, tongues &c. for drying, which he says he has followed successfully for twenty years; and that hams thus cured were sold for eleven cents to sell again, when, as we all know, thousands were bought by the grocers for six cents. The directions are as follows:

To one gallon of water add eight pounds coarse rock salt, one pint of molasses, and two ounces of saltpetre; mix the ingredients well together, and let them remain until dissolved, say twelve

hours; then assort your hams so as to have them of the same size in the same tubs; pack them either end downwards, but not flat or horizontally, until the cask is full; then pour the brine as above prepared, over them, and your work is about done. Hams of about ten pounds weight should remain in this pickle about four weeks, and larger ones in proportion, and no longer; six weeks in common being long enough for the largest hams, or they may become too salt, a great fault for this article.

After the hams have lain long enough in pickle, take them out and let them drain a day or two before hanging them up to smoke, for which purpose hickory wood is much the best. When brought to a proper color, they may be packed in casks of any size, in dry sawdust, dry salt, [as they will take no more salt,] or any compact article; or they may be packed without any thing, if not intended for export, in which case it is better to interlay them with something to keep them solid and compact, and to keep out flies.—*Prairie Far.*

*Ring-bone in Horses.*—Ring-bone commences in the lower pastern, and usually in the joint, but it rapidly spreads, and embraces not only the pastern-bones, but the cartilages of the foot. There is at first a slight enlargement or bony swelling, on each side of the foot, and just above the coronet. It is more frequent in the hind foot than in the fore, because there is more violent exertion in these than before; yet the lameness is not so great, because these bones are not liable to so much injury; in its early stage it is not impossible to remove the disease by active blistering, or by the hot iron. Ring-bone is one of the most serious lamenesses, with which horses can be afflicted. It is unsoundness when existing in the slightest degree—for when the bony deposit begins to spread, the disease is incurable. In slight cases rubbing the swelling night and morning with a drachm of mercurial ointment, rubbing it well in, and after applying a blister, and in 2 or 3 weeks another will be of benefit.

LETTERS  
ON AGRICULTURAL IMPROVEMENT.

BY I. J. MECHE.

LETTER III.

SIR,—With reference to my improvements at Tiptree Hall (the expenditure of £6200 on a farm of 130 acres that only cost £3250 as explained in my two former letters) I am so constantly told in tones varying from doubt and pity to ridicule and censure, that “It never can pay”—“You will never see your money again”—“You are a bold man”—“It is impossible it can answer, the cost is too great,” and so on—that I must endeavour to fill up the outline of my plans with details, and try to convince those whose comprehension of my success is impeded by prejudices, the natural result of long established usages, whose continuity would almost preclude a question as to their propriety.

Most of my operations are approved of separately, but there is a dread of the sum total, as if what were individually right could be collectively wrong. I shall show, then,

1st. How the farm is to pay me, as landlord, an additional rent of £240 per annum, with an increased benefit to the tenant as compared with his former holding.

2d. The intended course of cropping, stocking, and management of the farm.

3d. I will remark on the weak points in the present state of land and system of farming.

4th. I shall submit a few general observations on the non-application of capital to land; and on the importance of agricultural improvements in an economical, social, and other points of view.

It is only justice to remark, that I am fortunate in having for my tenant a man of temper, integrity, and intelligence, who, with doubts at first as to the correctness of my views, and with an unexpired lease of five years, assisted zealously, faithfully, and at no small personal trouble, in carrying out to the letter my various undertakings.

In making the following estimates, I have adhered strictly to matters of fact, which I am prepared to discuss and substantiate. I have expressly undervalued the benefits, because I know how suspiciously and sceptically my statement will be scrutinized by those whose minds are preoccupied by doubts and prejudices, rather than by calculation.

STATEMENT OF GAIN OR SAVING.

200 Trees removed—estimated to damage by their roots and by their shade, 1s ea. £10 0  
 950 Linear Rods (5½ yds each) of removed banks and fences (ditches filled up,) averaging two yards wide—some were four yards wide, but the difference is set off against a few new ditches. It is estimated that each rod of these fences and banks damaged 6d. by their roots, their shade, their encouragement of

weeds and vermin, - - - - -	21	5
1-6th saved in horse-labour and wear.—		
This, in the Prize Essay of the Royal Agricultural Society's Journal, vol. iv., part 2, page 336, is estimated at ¼th),	21	0
¼th do. in manual labour - - - - -	20	0
Seven acres gained in fences, banks, ditches, bog, and waste, which produced nothing but cost the tenant rent, rates,		
Profit in cultivation of the above Seven Acres, at 15s. per acre. - - - - -	5	5
tithes, &c. 36s. per acre, - - - - -	12	12
105 Quarters of Wheat, thrashed by machine, gain in quantity 1-28th, or 2s. per quarter - - - - -	10	10
150 Spring Corn, at 1s. - - - - -	7	10
Saving in thatching, removing stacks and straw, waste by birds, &c. - - - - -	5	0
Liquid manure tank, calculated to contain 120,000 gallons, but we only reckon up 20,000 gallons, at 50s. per thousand, (each 1000 gallons being equal to 4cwt guano) - - - - -	50	0
Improved quality of solid manure - - - - -	10	0
Increased value of stock, by warmth, dryness, and diminished consumption of food - - - - -	15	0
General increase on 90 acres of corn and clover crops, arising from perfect drainage, at £1 per acre, - - - - -	90	0
Twenty acres that used to be long fallowed, at an expense of £5 per acre, now calculated to pay their expenses, if not a profit, by bean or root crops - - - - -	100	0
A first-rate house to live in, with every comfort and convenience—the lower rooms 11 feet high, the bedrooms 10 feet high, and convenient rooms for the bailiff. (The tenant could not reside in the old dilapidated hovel, which was damp, unhealthy, and caused several deaths by fever) - - - - -	30	0

£428 2

To sum all up, whereas the former gross annual return of the farm was under £5 per acre, we shall try to increase it to £10 per acre.

To this might be added several contingent advantages of considerable value, but not so easily reduced to figures.

1st. The being able to fat at least 100 to 150 sheep more than before, of a better quality, and earlier lambs. The tenant could breed, but never thoroughly fatten a lamb or sheep on the farm in its former cold, wet, and exposed state, with its homestead open to the cutting north-east winds, without gutters or drainage.

2d. The facility of cooking and steaming food, and the economy of several acres that were required for horse food, by growing lucerne & tares.

3d. The very important benefit of early sowing and harvesting. We reckon we shall gain at least a fortnight in both, as proved last year, with superiority of sample, and avoidance of a catchy week in September.

4th. A perfect independence (by our efficient drainage) of a very wet season, which has often ruined the crops on this farm; witness 1842, when the oats yielded but three quarters two bushels per acre, and an inferior sample.

Lastly. The agreeable feeling of having a complete farm, with good roads, comfortable homestead, and good crops, instead of the former dilapidated, beggarly, and poverty-struck land and premises.

The saving of horse and manual labor is considerably underrated, when you consider the ready communication with each part of the farm, the abolition of all short lands, the facility of ploughing or carting at almost any time with less power, the land being firm and mellow, instead of putty and paste-like; no idle days in wet or cold weather, there being employment under cover for both men and horses, grinding, chaff-cutting, or thrashing; the facility at harvest of drawing the loaded carts into the bays of our large barn, and at once depositing the sheaves;—the ease with which they are transferred from both barn and stacks to the thrashing machine, the straw being delivered by the machine into a gallery over the very sheds, yards, and stables where it is required;—no time lost or accidents in leading horses or cattle to water, being in every yard tanks, and a yard to every stable—all the tanks filled simultaneously from a single pump.

There is another advantage of which no valuation is taken, I mean the farmer's or bailiff's time; whilst writing up his accounts or arranging his plans, by stepping from one room to the other, he can at once see every man, boy, horse, or sheep, or any part of the farm, except about four acres. Any accident, mistake, neglect, maltreatment, or pilfering, is perceptible at a glance.

#### THE COURSE OF CROPPING

will be regulated by markets and circumstances. It may be stated generally, that on the heavy land wheat will alternate with beans and a little clover and tares; and on the light land barley succeeded by rye for feed, and then roots, so as to have one corn crop, one green crop, and one root crop in two years. Should flax or Indian corn be found profitable, we may grow them. It is intended to adopt Mr. Hewitt Davis' excellent practice (which is Jethro Tull's revived) of a small quantity of seed with wide intervals. For carrying out this, no instrument appears so well suited as Newberry's Dibbling Machine, which will deposit three pecks per acre of wheat (and other corn in proportion) at intervals of six inches in the row, and the rows twelve inches from each other (beans, peas, and roots we mean to place twenty-seven inches between the rows.) By affording a sufficient space for frequent hoeing and cleaning, this will do away with long fallows, secure heavier crops, on drained land, and avoid that competition for support which produces, in luxuriant showery seasons like the last, ruinously laid crops, and lean miserable kernels, which di-

minish the value of the sample by ten pounds in every hundred.

We have found Crosskill's clod-crusher roller of extraordinary benefit in pulverizing our stiff land, disordered by draining and carting, and shall use Hill's pulverizing plough with Mason's knives; in fact, take every opportunity, by means of subsoiling, scarifying, &c. to obtain a fine and deep tilth free from weeds; nor shall we debar ourselves from purchasing guano or artificial manures, should such a course appear occasionally desirable. Our great object will be to grow the very utmost that the land can produce by forcing—bearing in mind, that in doing so, we virtually decrease the expense of rent, labour, seed, tithes, rates, and other charges, thereby increasing our profit, and improving the land for the future.—We are now using one bushel of bone-dust, dissolved in forty pounds of pure sulphuric acid, to all our root crops, in addition to other manure.

#### THE STOCK

will consist of twelve head of cattle fed in stalls or boxes (on the principle so ably stated and practised by Mr. John Warnes, jun.) with steamed or cooked linseed, clover, chaff, pulse, potatoes, &c. These cattle will be considered our manufacturers of manure, as the Lincolnshire farmers call them, and if they occasionally pay for their feed or a profit, so much the better. As we shall grow annually thirty to forty acres of roots, we hope to be able hereafter to produce food enough for 200 to 300 sheep, to be folded on the land or fed in the yard, according to weather and circumstances, having an especial regard to the well-established fact (as proved by Professors Playfair, Liebig, and others) that, with warmth and dryness, a little food fattens quicker than a great deal with cold and wet. Compare the sleek, plump, though naked, African, thriving on light vegetable food, with the fur clothed Esquimaux of the Northern Hemisphere, trying to maintain his supply of carbon by swallowing daily some eight or ten pounds of seal's blubber or other animal food. All our straw will be cut into fine chaff, like saw-dust, for litter. There appear many advantages in this, such as the diminished space it occupies, the readiness with which it absorbs liquid manure, its more sudden fermentation, its avoidance of frequent turning, its portability, both as chaff and manure, and above all, the facility of commixing it intimately with the soil in preparation for root crops. In the tank we shall probably introduce a layer of earth or of gypsum between each layer of manure, particularly in the summer season, so as to secure the ammonia.

The liquid manure will be applied by a water cart to the growing crops (the ammonia being first fixed by sulphuric acid) and as the green crops are mowed for consumption in the yard, the liquid manure will follow the scythe. We have also used much common salt, especially on the light land.

## THE WEAK POINTS OF THE PRESENT SYSTEM.

I believe I am quite correct in stating, that in our heavy land districts only fifty acres out of every 100 are available to produce food for man or profit to the Farmer. Full twenty acres are consumed by the farm horses, twenty-five acres in long fallows growing nothing, but involving an outlay of nearly £5 for each acre, and from five to ten acres occupied by banks, ditches, and farm buildings, leaving the Tenant the produce of from forty-five to fifty acres to pay all charges on 100 acres.

I think it is high time such a system should be altered, that by perfect drainage, economy of manure, and superior cultivation, twelve acres should keep the horses, and *all the rest* (save the homestead and external iron or wood boundary fence) be available for corn or roots. That this is perfectly practicable is proved in Lincolnshire, parts of Scotland, and other highly cultivated districts. It is an easy and profitable way of adding forty percent. to our territory without the cost, cruelty, and trouble of conquest, military protection, or migration, with the still more pleasing reflection of not having to rend asunder those kindly ties of home, affection, and friendship, the want of which is bitterness in the cup of many an honest emigrant.

With regard to Fences, there appears a sort of veneration for them entirely unaccountable. I object to them *in toto*, except such as are of wood or iron. The banks on which they stand are privileged receptacles for every description of noxious weed, insect, bird, and vermin. Unhoed, unploughed, unharrowed, they furnish an annual crop of seed-weeds, carried by winds and by birds on the land, that defies all the Farmer's attempts to clean it: that renders long following necessary, and involves a perpetual expense in hoeing, and loss by superseding so much of the regular crops. In fact, in a variety of ways they involve a loss far beyond the annual interest, for the repair of wood or iron fences, or charge for their gradual deterioration. I object even to well-regulated thorn fences, on the score of exhaustion by their roots, the expense of clipping, and the impossibility of disturbing the ground on which they stand. But my dislike amounts to positive indignation at seeing the generality of fences occupying one-tenth of the land that should grow our food, and employ our labour and our capital, spoiling another tenth by their supply of weeds and vermin; their interruption of air and light—to say nothing of the facilities they afford for fraud and neglect of duty, and the difficulties they interpose to a ready supervision by the Farmer or his Bailiff. If shelter is needed at particular seasons, it can regularly be afforded by other means.

In cold and elevated districts, well-regulated plantation-belts are essential, but cannot be required in our midland and southern counties, where there *should be* well-arranged homesteads, through which no north or east wind should be permitted to breathe—much less blow.

Another gross oversight is in the placement of buildings. How often is profit unwittingly sacrificed to minor considerations! To gain the view of a road, or because the premises would show better, we starve our cattle with a north or east aspect, shutting out the sunny warmth, and to increase the intensity of cold, erect *detached* buildings or cause a stronger current of air (something like St. Paul's Churchyard on a windy day). Gutters to the buildings or drainage to the yard itself are seldom thought of, it being a *sine qua non* that a Farm-yard should be both cold and wet.

There are many other matters that strike me as requiring amendment. Time is money (at least it is paid for in money), therefore light spring carts and improved implements with active but strong horses, will necessarily make quick smart men; but this cannot be till we drain our lands, knock down our fences, and substitute dry firm land for knee-deep, fence-arched, green, and muddy lanes. If, as a matter of calculation, there are forty points in agriculture (and there are more) a saving of one-half per cent. in each will clearly make a difference of twenty per cent.

I have been found fault with for removing the trees, "spoiling the landscape and beauties of the country," as if Farming were not a *business*, and carried on for *profit* rather than appearance: one might almost as properly suggest to the manufacturer costly and spacious ornaments to take the place of his spindles and machinery. Besides, perfect drainage of house, buildings, or land, is impossible where you have trees and fences, their roots will travel many yards in search of moisture, will seize on and occupy a drain (as a vine-root would on a bone), and effectually choke it. I know an instance where the root of a pear-tree followed the retreating water of a well *forty feet*.

I have been censured for erecting so capacious a barn, and for building it with bricks on the plea of its endangering the sample in a damp season. This objection is untenable, the roof having gutters, and the ground on which it stands being perfectly drained *inside and out*, a matter of importance, as water rises by capillary attraction. We have also about four dozen of iron air-bricks, as ventilators, and take care not to fill it entirely but leave a space for ventilation between the corn and the roof. Last season, with its contents of twenty-five acres, the sample was excellent, and having just hastily filled it before that heavy rain which wetted most of the stacks through, and deteriorated the samples five shillings a quarter, it saved us at least £20.

Threshing machines are valued principally for their facility of conversion, and the quantity they perform. To me their more perfect extraction of the grain, and prevention of fraud or neglect, are far more important considerations. A single grain of wheat in fifty is two pound in every hundred, or five shillings per acre, and an examination of straw whenever we have the opportunity, gives us fearful evidence of what is lost by imperfect threshing and shaking.

I frequently see with pain the farmer engaged in laborious pursuits (the work of his laborers,) when his time should be much more profitably employed in keeping correct and daily accounts of all his monetary and other transactions, so that by a reference to each particular department, he could at once detect generally, or in detail, the weak points that require amending.

I am not one of those who think a farmer more likely to succeed for dressing or acting like one of his common laborers—it is the mind and calculation makes the man.

AS TO THE NON-APPLICATION OF CAPITAL TO LAND IMPROVEMENTS.

It seems singular that in this age of superabundant capital and superfluous unemployed labor, there should never have been a concentration of wealth for the purpose of improvement in agriculture. We have had companies with unlimited capital for the wildest and most unprofitable schemes, as well as the most trivial. We lend without compunction our hundreds of millions to employ the labor and strengthen the hands of Foreign Nations, who are now our competitors in agriculture, commerce, and manufactures, and who may be to-morrow our greatest enemies in warfare.

It seems like a national disgrace, that whilst we have had companies for almost everything, from a railway to a steamwashing and milk company, we have had no "improvement of our Native Land Company." And yet there is nothing so grateful as the soil—so safe—so permanent—large in pecuniary amount—so honorable and pleasant in pursuit.

There may appear difficulties in the way—but in what undertakings are they not? Under a well-arranged Act of Parliament, thousands of landlords whose mortgaged estates are now almost an incumbrance to them, would readily avail of an opportunity that would render their at present sterile lands valuable property, increase the capital employed on them, improve the condition and diminish the competition of our farmers, reduce pauperism and discontent by furnishing employment to the willing laborer without emigration, and keep in our own country, and for our own benefit that large sum annually paid for foreign corn. If there had been such a company, I, for one, would have invested my spare capital in it; but there not being one, I have carried out individually, at no small personal trouble and thought, those improvements which I hope to see some day effected, as a matter of course, by a well regulated charter of associated capitalists, who will derive not only a good pecuniary benefit, but the more enviable gratification of having conferred a valuable boon on their fellow-countrymen.

I am, Sir,

Your obedient servant,

I. J. MECHI.

5, Leadenhall Street,  
London, June 11, 1844.

P. S. I am preparing drawings and ground plans of my buildings and machinery, which with copies of my letters, I shall be happy to give to any gentleman interested in agriculture. The plans and designs are my own. The general application of the expenditure is as follows, viz:

Draining, fencing, levelling, ditching, and roads.	£2200
Barn, stabling, tanks, sheds, yards, &c.	2000
House and offices	1000
Machinery, implements, steam apparatus, &c.	500
Manure, man, &c.	500
	<hr/>
	£6200

The item for house has been objected to, but I have yet to learn that a farmer is not entitled to be as well housed as a tradesman or manufacturer, and I am convinced brick and slate buildings are ultimately much cheaper than board and thatch.

I would caution gentlemen who may visit my farm this year, against raising their expectations too high, for although the land is all cropped and doing well, considering the dry season, I would have them remember that last year it was considered the poorest farm in Essex; that since January, 1843, we have cut 80 miles of drains, and spread their contents, (nasty yellow stiff loam) on the surface; that we have removed 5000 yards of banks and fences, filled up the ditches, cut new ditches (on the heavy land there should be one every seven or eight acres.) made new roads, cut down and converted between 200 and 300 trees, carted across the land 60,000 bushels of stones, 300,000 drain pipes, 400,000 bricks, 200 loads of timber, slates, iron, stone, sand, lime, and building materials; that we have removed all the old buildings, and erected new ones on a different site; that everything has been out of order and out of time, and that all this was done in sixteen months, *without following a single field.*

LETTERS

ON AGRICULTURAL IMPROVEMENT.

BY I. J. MECHI.

LETTER IV.

SIR,—

Having in my three former letters disposed of the details of my Farming Operations, I will now proceed to consider,



First, the imperative necessity of Agricultural Improvements in a national point of view; and, how those improvements can be most readily effected.

Secondly, The defects in the present system of Farm Valuations; and evils resulting therefrom to Landlord, Tenant, and Country.

Thirdly, The relation of Landlord and Tenant to each other, in a pecuniary point of view; their identity of interests, and the importance of Long Leases with Corn-rents.

Fourthly, Suggestions for rendering the Royal Agricultural Society a standard and model of Agricultural Improvement in every essential point.

Lastly, Popular but prevalent errors as regards Agriculture, with a few general remarks.

The existence of a superfluous capital, with a superabundant unemployed population, is a dangerous anomaly—threatening, in its continuance, destruction to our nation. Luxury for the wealthy few, and poverty for the willing but unemployed many, must produce discontent, anarchy and ruin. It is an alarming fact, that much of our income is derived from the capital we lend to Foreign Countries; whilst in our own we deal out grudgingly, in rates and in charities, a tithe of what ought to be the just and well-earned wages of the industrious but not employed labourer.

Ask the majority of your independent friends whence they derive their income? The widow will tell you, "My money is making a road, cutting a canal, or building a town in America." The orphan will say, "Mine is supporting a civil war in Spain or South America, or growing corn in Russia for the London market." The capitalist will report his strong box full of bonds—Chilian, Columbian, Peruvian, Mexican, French, Spanish, Dutch, Portuguese, Russian, Austrian, Prussian and Neapolitan (some of which by-the-by do not pay interest or principal;) but neither the widow, the orphan, or the capitalist will tell you their money is profitably and delightfully engaged in growing food for themselves and their families—in providing employment and profit for their fellow-countrymen of every grade, from the labourer to the merchant. No! Agriculture has had as yet no charms for the capitalist or speculator. We must reform, and quickly too, some of our errors, both as capitalists and farmers. The one lends his money to strengthen foreign competition in agriculture, commerce, and manufactures; the other sows uselessly and prejudicially more seed than the total annual amount of our wheat importation—the extra quantity sown actually diminishing the produce to a similar extent; yet all this takes place whilst we are complaining of superabundant capital and population, as if an industrious population could be too great. My opinion is, the more numerous we are the more prosperous we shall be, for we live by one another. The denser the population, the greater our power and our trade,

provided we keep our capital at home and at work amongst ourselves.

To ship off our labourers and our money is nothing less than suicide. It is giving away, economically and politically, the sinews of our strength; and I call upon every man who has the welfare of his country at heart to put a stop to it. This leads us to the question,—“How is this to be done?” I answer, easily; and point to my operations at Tiptree Hall Farm, as a solution of the difficulty. If every capitalist expends, as I have done, forty-six pounds sterling money in improving each acre of poor and indifferent land, the sum total required would be many hundred millions. I need hardly point to the magical effect of this expenditure on our trade, commerce, and manufactures. Every individual in this country would feel it. It is too grand and delightful a prospect to hope to realize. There is too large a mass of miscalculation, ignorance, prejudice, pride, and long custom to be removed. Facts and results will scarcely do it; but reason and truth must prevail at last; and I look forward with hope that the wise, the patriotic, the intelligent, and the wealthy, will exercise their influence by example and precept, to procure so desirable a result. Agriculture is our best sheet-anchor; to that we must look for employment and for profit; it is a vast field for enterprise; it is our vital strength as a nation; and our pride of country alone should stimulate us to be independent of foreigners for the supply of our daily bread—the staff of our lives.

In considering how these improvements can be most readily effected—it is quite clear that individuals generally have seldom the means, the ability, or the inclination to carry out a perfect system of Agricultural Improvement; it must be done by companies of associated capitalists, the same as our railways and other great undertakings. I will venture to assert from experience, that there is not, in agricultural undertakings, one-tithe of the difficulty or uncertainty that attended railway operations.

Rival Companies will be beneficial to the public by the protection of competition. General rules, however, on fundamental principles, must be obtained by sanction of Act of Parliament;—and I apprehend an examination of competent authorities would lead to a table of laws adapted to the security and profit of the shareholders, the benefit of the landowner and the welfare of the tenant.

Mortgagers might transfer their mortgages to the Company, with full authority to carry out necessary improvements, on condition of receiving from the Company all benefits over and above five per cent interest for the Company's capital. Should the landowner desire a sale, the Company would have the opportunity of purchasing outright by public competition; or the landlord might have the power of redeeming his property, on paying the Company principal and interest up to a period of sufficient notice.

In all cases where there is not an absolute sale, landlords shall have the power of redeeming their property or transferring it to another Company, under equitable arrangements to both parties.—The variations in rents and prices of corn would be no greater, on an average, than the fluctuations in railway or other shares.

As to the fear of Companies engrossing land, the same objection cannot apply to them as to charities. Shareholders invest for profit, and rivalry will necessarily prevent oppression. What tenant would not rather trust to fair competition under a Company than to individual favour, cupidity or caprice, to say nothing of the uncertainty of individual life.

Landlords would also benefit. Frequently now (I know several cases) a landlord, without agricultural knowledge, is prevailed upon, by a designing or an incompetent tenant, who shows an annual statement of heavy losses, to reduce his rent, till he receives but two per cent for his money.

I proceed to consider—

*The propriety of valuing Improvements; the defects in the present System of Valuations, and its evil results to the Landlord, the Tenant, and the Nation.*

Now a bad Farmer is almost sure to get a new lease (for who is anxious to take it after him) whilst a thorough good one is almost as certain to be turned out, or have his rent raised—the landlord being generally ready to avail himself of those improvements which a wise farmer is compelled to make for a profitable return. These improvements are *bona fide* his property, and ought to be legally as much so as the coat on his back; it is a scandal and disgrace that they are not valued to the incoming tenant.

Let us see, in fact, how it acts on the landlord; I shall prove clearly he is a loser by it ultimately.

The outgoing tenant is obliged in self-defence to starve the land and injure the crops the last four years of his lease, whilst it takes the incoming tenant another four years to repair the damage done by his predecessor; so that between the two there is during eight years less labor and capital employed, less food grown, less profit made, and an increase in the poor's rate, without any corresponding benefit to the landlord. In nine cases out of ten an improving tenant resists being charged a large interest, in the shape of increased rent, on his own capital. He makes way for a miscalculating bad farmer, who ruins the land, ruins himself, and ultimately the landlord is obliged to put up with a small rent—not, however, till all parties have been put to a considerable regret, inconvenience, and expense, arising from exchange of residence, to say nothing of expensive sales, valuations, and leases, a non-acquaintance with the peculiarities of a new farm, and the breaking up of many friendly and relative ties, formed during a local residence.

With regard to the pecuniary relation of landlord and tenant, I shall endeavour to show that long leases and corn-rent (that is, the value of so many bushels of wheat at the current price of the day) are essentially beneficial to both landlord and tenant, as well as to the country at large. Under

this system landlord and tenant have but one common interest—they rise or fall together. The present custom of fixed money-rents acts alternately most injuriously on both. An unexpected war may find a tenant benefitting by an enormous price; whilst his landlord has only his four per cent., reduced, in fact, to two per cent., by all commodities having risen to war prices.

On the other hand, a tenant hires on a war lease—a sudden peace makes him bankrupt by the violent reaction; and still his landlord must let him farm at peace prices, whilst he was deprived of war benefits. The landlord is evidently the greatest sufferer and should hasten to amend so unfair and so ruinous a system.

*The want of a well-founded code of rules for agricultural improvement is much felt. At present each individual claims for his own plan the palm of excellence. This must no longer be.*

Our Royal Agricultural Society, to which every landowner and farmer should belong, has already effected vast good; but still greater remains to be done. They should have extensive model farms, with schools and libraries attached. There should be shown, after patient investigation, the most perfect and certain modes of drainage, irrigation, and warping; the most complete, durable, and economical arrangement of buildings; the most advantageous mode of tillage and course of crops; the greatest economy of manure and labor; the minimum of seed and maximum of distance in sowing; the most advantageous stage of ripeness; the effect of steeping seeds in manures; the most profitable mode of housing and feeding stock, and the advantages of removing all trees and fences. When all these national and important subjects are accurately ascertained by a competent but limited board of paid and responsible Directors, deciding regardless of personal considerations, then let a code of unerring rules be promulgated and enforced with the full weight and sanction of the Society, as a guide and beacon to the doubtful wanderer in search of agricultural knowledge, who, eager to avoid the shoals of error, is now distracted by multitudinous and conflicting opinions.

Chemistry and Mechanic will, no doubt, daily lend new aids to agriculture; but the points I have mentioned must always form the unalterable basis of our agricultural structure.

Much is being said about how we are to pay for our Foreign Corn Importations, whether in goods or money. This is not our affair at all—we are purchasers. If you will have foreign corn, flax, and other things, that you might profitably produce at home, you must pay for them; and the seller (the foreigner) will not allow you to dictate to him how he shall take his payment, whether in goods or in money; that is his affair, not yours. The whole question of Foreign Corn Importation is, to my mind, trivial and insignificant, as compared with the importance of national agricultural improvement; and I hope to see the latter occupy the minds and speeches of our statesmen and orators to the exclusion of the former. I consider our dependence on foreigners for food a glaring and national disgrace, unworthy of our wealthy and highly civilized country.

Let us grow corn instead of timber, fences, and rubbish: we can do better without one than the other. I am told, "we must have timber! what should we do in case of war?" I answer, "how do we get our tea, coffee, wine, and every other foreign article in time of war?" So long as we have money to buy, and hearts of oak to defend and convoy our purchases, Old England can never feel a want, nor want a market to buy in.

Besides, what a gross folly it is to grow our own timber in corn fields, at a cost of four shillings a foot (I am sure it cost more), when we can import it at one-third the price.

A great error amongst farmers is the desire to grasp a large quantity of land, instead of concentrating their capital by improvement in a smaller compass. One of the important results of my suggestions as to valuing and making improvements, would be, that instead of £6 to £8 per acre being (as it is now on an average) a sufficient tenant's capital, double that amount would be required, as on my farm. This alone would find employment for considerably more than one hundred millions of additional capital, so that, in fact, when we had disposed of all our foreign bonds and securities, I doubt if we should have near money enough to carry out entirely my practical scale of improvements, except slowly and gradually.

Some gentlemen think the removal of fences and throwing open the country would be detrimental to game. This is contrary to the proof: wherever land is thoroughly drained and the turnip culture introduced, so surely will game (if protected) thrive and increase. Wet and pasty undrained land is inimical to game—particularly in a wet season.

Let agriculture form an honorable portion of our general education—why should it not? Let Tull and Tusser range side by side with Homer and Virgil. Then would our nobility and gentry be independent of incompetent or dishonest stewards and land-agents, and be able to appreciate those of a more worthy character. Agricultural Education and Apprenticeships for our young farmers are imperative. Why should there not be as much uniformity in growing a sack of corn as in manufacturing a piece of cotton, or a hat or coat?

How many a worthy person, retiring from the toils and turmoils of a busy city to enjoy the tranquil peace of agriculture, regrets the want of agricultural knowledge!—often are his hopes and intentions frustrated and his property diminished by interested or erroneous advice, of which, till too late, he cannot judge. When I see landlords making returns in rent (in my opinion an injudicious operation), I think how much better would it be to present their tenants with an Agricultural Library. Farmers, from the very nature of their occupation, and their isolated position, are seldom able to travel from country to country in search of facts; but how readily is a multitude of agricultural experiments and experience brought to their fireside by a selection of good and practical books! Some may say, "Oh! farmers are too prejudicial to read." Experience has taught me the contrary. Bring them the book—they may affect to despise it, but they will keenly, anxiously, and with sound sense, scrutinize all that concerns their pecuniary

welfare. Reason tells us that the farmer, born bred, and mixing with others of precisely the same way of acting and thinking as himself, cannot be expected to have so expanded a mind as a Manufacturer or Trader, who is daily in contact with strangers from every corner of the globe.

It is to be feared too, that jealous landlords form too low an estimate of a farmer's character, and consider his success and elevation as degrading them—as if his gains were their loss. Let us hope this feeling will gradually give way to a better, and that a farmer who follows the hounds, and dresses and acts respectably, will be considered quite as likely to farm well and make as good a member of society as one who imitates in every respect one of his laborers.

Where individuals are desirous of improving their own estates without disbursing capital, I know of no plan as good as allowing the tenant annually a certain sum out of his rent for improvements, taking care that they are really beneficial, which is very easily ascertained and arranged: generally speaking, tenants would most readily contribute their share, particularly in the matter of drainage.

The national health is deeply concerned in agricultural improvement, for it is notorious that perfect drainage of land and buildings insures the absence of agues, fevers, and other complaints, that are sad drawbacks to the personal welfare and pecuniary comforts of our agricultural population, to say nothing of the importance, in a national point of view, of having a hardy healthful race in lieu of a debilitated and vitiated population.

The mind and the body are too sympathetic to be uninfluenced by each other. Humanity, policy, and self-interest then call loudly on us to unite for the worthy purpose of national agricultural improvement.

I am, Sir,

Your obedient Servant,

I. J. MERRI.

4, Leadenhall Street,  
London, July, 8th, 1844.

P. S. I shall publish annually, a faithful and correct Debtor and Creditor account of my farm, valuing the crops and stock at one uniform average price (the average price in the county of Essex for the last fourteen years). This will prevent confusion, and admit of a correct comparison of one year with another. The quantity produced, and the cost of producing, will be the principal and most interesting considerations.

*To make Paint Durable.*—Dissolve an old India-rubber shoe of common size, in three or four gallons of oil, by heating it; and put on the paint after being prepared, while it is warm. White lead and oil make an imperfect body, and soon wash off. India-rubber added to paint, makes it glossy and durable.

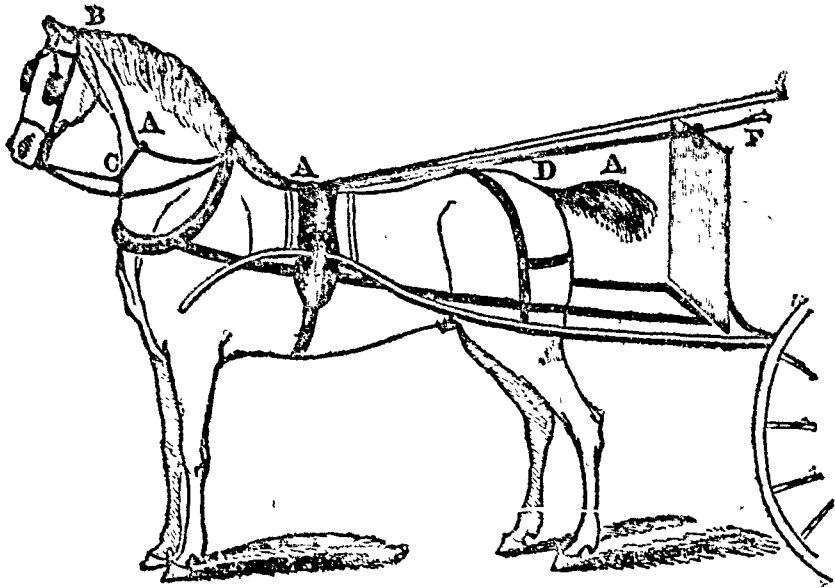
## INFLUENCE OF KNOWLEDGE UPON AGRICULTURE.

Here, then, there is an opportunity for the highest degree of intelligence, as applicable to the improvement of agriculture; for who can doubt that these extraordinary results are the consequence of that intelligence and enlightened skill, which are equally the instruments of success in every other art. But it seems idle to argue this point. All the improvements which have been made in agriculture are so much the result of the application of mind and of knowledge to the subject, as any of the improvements made in manufactures or the mechanic arts. Accident has produced nothing. The dull, plodding laborer originates nothing, any more than the beast which he drives. The present advanced state of agriculture as a practical art, all the improvements which have been effected in it, are due to the highly intelligent minds, the men of science, of learning, of observation, of skill, who have applied their attention, and have devoted their time, talents, and fortunes, to it.

The pioneer in the improved agriculture of the United States was Jared Eliot, of Connecticut—an educated clergyman, whose essays have a permanent value, and may be read with advantage even at the present day. The author of the *New England Farmer's Dictionary*, a most valuable book, published half a century since, and which has rendered an immense service to agriculture, was the Rev. Samuel Deane, of Maine. John Lowell, who contributed far more than any other individual to the improvement of agriculture in the United States, was an accomplished lawyer, a man of science and of taste, and as much distinguished for his intellectual rank and attainments as he was eminent for the highest virtues which could adorn his character as a man. Aaron Dexter, the beloved physician, an eminent chemist in the very imperfect state of the science, a man whose name was a synonyme for kind-

ness, and to whose memory I shall be pardoned for here recording the humble tribute of my most grateful affection and respect, was an eminent friend and promoter of agricultural improvement. Fessenden, Buel, and Gaylord, were all men of highly cultivated minds, stored with scientific lore, distinguished for their zeal in the cause of an enlightened agriculture, and honored with the power, which they used with so much zeal and efficiency, of conferring immense benefits upon the agricultural community. While even this Report is in progress, the grave has closed over the remains of a devoted friend to agricultural improvement in Massachusetts—a man of the highest order of intellect, of a mind rich in various knowledge, and of profound legal attainments; and for his personal worth, his public spirit, and private virtues, surpassed by none in his claims upon the affection and respect of his friends and fellow citizens. On the English side of the Atlantic, Tull, the author of the improved husbandry; Young, the eminent agriculturist, who kindled so great a zeal, and diffused so great a mass of information, among his countrymen; and Sinclair, as great a benefactor to improved agriculture as England has known,—were all men of liberal education and distinguished scientific attainments.—Von Thaer, on the Continent, himself a host in agricultural skill and science, was bred to a learned profession. If I were at liberty to violate a rule which I have made absolute, I might refer to many living examples, on both sides of the water, of men of the finest genius, the most accomplished education, and rare scientific attainments, who have rendered, and are daily rendering, the highest benefits to practical agriculture, and which without their aid and enterprise would never be realized. It is, then, with agriculture as with every other valuable art;—its success and improvement must depend mainly upon the education of those who pursue it, and all hope of its progress must rest upon the science, in the most extended sense of that term, which is brought to bear upon it.—*Coleman's European Agriculture.*

## SAFETY REIN.



*Safety Rein.*—We give above a cut of this invention, copied from the Spirit of the Times. It will be seen that the operation of it is, to choke the horse; so as effectually to subdue his running disposition, whether it proceeds from vice or fear. Any one who has read of the catching and taming the wild horses of South America, knows the power which is soon obtained over them by means of the all-potent lasso. With it, in a very little time, the most high-spirited and ferocious of these “lordly racers of the wild” are subdued and rendered obedient as kittens. Its operation is so sudden and effectual, that it astonishes and overwhelms the animal, and renders him totally powerless for evil or resistance.

It will be seen that it is wholly simple, and little more expensive or inconvenient than the check rein.

The rein, it will be seen, is fastened to a hook on the top of the head at B, and the other end at F. The strap C crossing the throat, through the loops of which, at either end, the reins pass, is the one which does the work. The man in the vehicle, by pulling upon the reins at F, tightens the cord C, and by choking the animal, puts mischief out of his power. This cut ought to have been given in the last number, but was not ready.

*Directions for using the Safety Rein*—In putting on the rein for a gig, keep the buckle to the left hand, or near side. That will place the loop, which is on the middle of the rein, below the hook or head of the bridle, which prevents it from being thrown out by the motion of the horse's head. For a pair of horses, keep the two short chapes outmost, and the loops on the middle downward. For saddle, keep the buckle to the left hand.

To derive the full benefit of this rein, it is recommended after the horse has been a few times firmly gripped with it, to use it occasionally, and it should frequently be used instead of the bit-rein to stop him on ordinary occasions; this will re-

mind the horse of this subjection, and will accustom the rider or driver to the ready and accurate use of it in case of an emergency.

By attending to these directions, the most troublesome horse will, to a certainty, become quiet and manageable.—*Prairie Farmer.*

## SUBSTITUTE FOR IRON ON RAILROADS.

Our's is an age of improvement. Inventions crowd upon us from every direction. When we fancy that we have seen the development of the climax of man's genius, the world is startled by some newer and bolder and grander invention. Magnificent though many of the discoveries of the age have been, those very discoveries themselves have taught us to believe that genius is yet in its alphabet, and that other generations will find themselves as far in advance of the present, as the present is of the past.

Although we have endeavoured to keep our readers advised of the progress of important improvements, we have neglected to mention a discovery which many believe will render iron rails unnecessary on railroads, viz: a substitute of a prepared wooden rail, and car wheels without flanches.

The difficulty of propelling carriages at a rapid speed, with safety, on wooden rails six or eight inches wide, is now overcome by an invention of Mr. W. Prosser, and the mode by which he has effected this object may be thus described:

The rails are made of beech, or other hard forest timber, six to eight inches square, let into wooden sleepers, and secured by wooden wedges, forming one great frame or wooden grating of longitudinal and cross sleepers. The four principal wheels which support the carriage are without flanches, and present a perfectly flat surface to the wooden rail. It is evident that upon encountering the slightest curve in the rails, these wheels would be quite inadequate to keep the

carriage upon its destined route; the remedy provided is in four extra or anti-friction wheels; these are placed, two in front and two behind the driving wheels, upon axles, at an angle of 45 degrees: a deep groove formed by two flanches is made in their circumference, exactly corresponding to the inner and upper angle of the wooden rail, and thus they serve as the guiding wheels to the whole machine.

When the railway is in the direction of a right line, only one of each pair of bevel wheels can be in action at the same time according to the tendency which the carriage may have to move on either side from the centre of the rail. On a curve, the difference is simply that the outside bevel wheel of the front pair, and the inside one of the back pair, come into play and counteract the disposition there is in the carriage to fly off at a tangent with the curve.

Another very important function performed by the bevel wheels is, that in case of an accident occurring to the running wheels, they would act as supporters to the carriage, and carry it on in safety.

Experiments have been made which fully establish this. There has for some time been an experimental wooden railway at Vauxhall, England; and it has been discovered that when the fore wheels of the carriage were removed, it ran without them at full speed, throwing the whole weight of the front part of the carriage and its passengers on the bevel or guide wheel.

On this road, which has grades of 1 in 95, 1 in 22, and 1 in 9, and a curve of 620 feet radius, a speed of 24 miles per hour was attained, the bite of the wheel on the wood being so great as to give immense power to the engine.

The power secured thus, depends of course, very much upon the weight of the engine. One of 16 or 18 tons would be able to draw 100 tons at a speed of thirty miles per hour. It is stated positively that an engine weighing 10 tons, running on wood, will have more tractive power than one weighing 18 tons running on iron.

But what of the durability of the materials? On the experimental road at Vauxhall, an engine weighing 6 tons, run over the road 28,000 times during the two months it run, which is nearly equal to seven years use running twelve engines per day. The rails were composed of Scotch Fir, about 9 feet long and 6 inches square; and although fir has but about one eighth the strength of American beech, they exhibited no appearance of wear from friction, and the edges were as well defined as at first.

The rails used were prepared by Payne's patent process for preventing dry rot and decay in timber. Says a writer upon this subject:—

“Experiments having confirmed the capability of Scotch Fir to withstand the traffic of twelve engines per day for seven years, without any visible wear,—it would be difficult to say how long rails cut from beech, sustaining eighty-two tons pressure, would last.”

The average cost of iron railroads in England

is £25,000 per mile. If built with wooden rails, it is estimated that they would cost but about £5,000 per mile. In this country the cost would, of course, be less.

Another advantage claimed for wooden rails, thus prepared is, that more abrupt curves could be allowed, and greater inclinations, from the fact that the great elasticity of wood gives greater tenacity to the wheels or, in technical parlance, the “bite” of a wheel on wood is double that on iron, as has been proven by the following experiments:—

On the surface of an iron wheel 4 feet diameter, a lever 8 feet long was placed, with a weight of seven pounds attached to the lever 3 feet from the centre of the axis of the wheel; the surfaces of the lever being iron at the tangent of the wheel, it required a weight of 28 pounds attached to the crank to make it revolve. On substituting a wood surface from the iron one, it required a weight of 2 pounds.

Another experiment confirmed the result with the iron surface: a weight of 28 pounds attached to the spoke of the wheel, at a distance of 5 3/4 inches from the centre, made it revolve; whilst, with a wood surface, it required the same weight to be attached to the spoke, at a distance of 11 1/2 inches from its centre, thus clearly demonstrating that the power obtained by the bite of the wood is nearly double the bite of the iron.

We refer to these experiments, not that we have any very strong faith that they will lead to the abandonment of the iron rail, but to show what is hoped for by those who take a very great interest from having very strong confidence in this new discovery.—*Monroe Democrat.*

*To purge a Horse Quickly.*—When medicine is administered to a horse with his bowels in a natural state, or costive, it will not operate in less than twenty-four hours, and is frequently thirty to forty in doing so. When the horse's bowels are purging, medicine will act very rapidly; this arises from the great irritability of his bowels, and purging with him is always the result of inflammation. On the other hand, costiveness is the cause of inflammation. When there is inflammation of the bowels in the horse, purgative medicine should never be given. In nine cases out of ten, when severe, the medicine will be fatal. Palliative treatment, not remedial, is to be resorted to in cases of inflammation.—When purges are to be used, this must be borne in mind. To the horse, fasting and thirsty, give one to two pounds of Glauber salts, with plenty of warm water, in which has been stirred some meal. In three or four hours after, give an injection, composed of three gallons of warm water, one quart of common cheap oil of any kind, or melted lard, one quart of molasses, and half a pound of salts, all well mixed up together. If the first injection does not produce purging, give a second. If the horse have no inflammation give him exercise, if he has, avoid it carefully and keep him cool. A. STEVENS—*Am. Ag.*

*Remedy for Colic in Horses.*—Take two quarts of cold water in a hand basin, add with your fire shovel say a pint of hot wood ashes or embers, and stir. Cut off an inch and a half from a common hand of tobacco and shred in the mixture—stir all up and let it stand fifteen minutes and settle. Pour off a common black bottle full of the fluid and drench your horse—in half an hour he will be well.

*Rationale.*—The gas which bloats the horse is probably carbonic acid gas and light-carburetted hydrogen, the product of the vegetable decomposition which is going on in the intestines—at any rate it is a gas which is immediately absorbed by its combination with an alkali. The tobacco is a powerful anti-spasmodic and cathartic—it therefore prostrates the nervous sensibility, checks the inflammation and increases the action of the lower intestines. In a critical or extreme case it will be well to give an enema of a strong decoction of tobacco with a common syringe. Out of more than one hundred instances in which I have seen this remedy used, I have yet to witness the first failure. It also has an advantage over very many remedies, viz: it cannot injure a horse in perfect health. Feed light for a day or two.

*Causes of Colic.*—The main cause consists in the presence of a greater amount of food than the intestines can elaborate into nutriment, or of a kind of food difficult of digestion, producing spasm, obstruction, vegetable decomposition and consequent inflammation. *Hard driving on a full stomach* will produce colic, because the effort weakens the tone of the digestive powers and they cannot elaborate the food—which then produces irritation and inflammation.

*Cold water when the horse is heated*, because it is a powerful stimulus and will produce spasm or obstruction, or by the re-action produces weakness of the digestive organs. It also gives too much fluidity to the food—fluids are more difficult of digestion than solids. It also increases the fermentation. *Hearty feeding after hard driving*—because the stomach and intestines sympathize with the general fatigue of the system and are

easily overloaded, and the appetite will induce the horse to eat more than he can digest.

*Colic is first flatulent—then inflammatory.*—In the flatulent stage, or in what is called belly ache, aromatic remedies or half a gill of spirits of turpentine, or a pint of whiskey and black pepper may be given; all these stimulate the system and may assist it in overcoming the difficulty. But in the latter and inflammatory stage, which rapidly succeeds the former, these same remedies would produce speedy death by increasing the inflammation. In nine cases out of ten, this disease is not observed by the ordinary driver until it has assumed the inflammatory form—in which stage the remedy at the head of this article should be given with as little delay as possible; and it should not be omitted even if the horse be supposed to be in the hands of death itself—for I have seen them recover when every bystander had dismissed all hope.

Yours truly. T. N. WELLES,  
French Creek, Peoria co.

Nov. 25, 1842.

—*Prairie Far.*

*To destroy Ants.*—“It 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 strewed 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, New York, March 3, 1842.* “Proteus” forgets where he met with the foregoing extract, neither has he tried it; but, concluding 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.*

*Corn-stalk Sugar.*—The Albany Cultivator gives a little additional information on this subject. In an experiment mentioned, one pint of flour was mixed with two gallons of skim milk, and one pint of this mixture was added to thirty gallons of juice. This prevented any decomposition of the sugar during the process of evaporation, and is supposed to make success surer. As the juice comes from the mill, it should run into a receiver which will hold just enough to fill one of the kettles or pans; while in this receiver the mixture of flour and milk and also the necessary quantity of lime, must be added and well stirred in. It is then poured at once into the boiler and heat applied; a very firm, thick scum is by this means separated, and the juice becomes clear; it is then run into one of the evaporated pans, and the boiling kept up briskly. As the boiling proceeds, it is recommended to throw occasionally a shovel-full of red-hot coals into the pan, having first blown the ashes off; as you put in more juice, add more coals, and as the pan becomes filled with coal, take out that which was first put in. This is done in the first stage of the boiling process. The pan for finishing should be shallow, and have but a depth of 2 or 3 inches of syrup in at one time.—*Mich. Gar. & Far.*

*A method of preserving Fruit Free all the Year.*—Take of saltpetre one pound, of bolearmeniae two pounds, of common sand, well freed from its earthy parts, four pounds, and mix all together. After this, let the fruit be gathered with the hand before it be thoroughly ripe, each fruit being handled only by the stalk; lay them regularly, and in order, in a large wide-mouthed glass vessel; then cover the top of the glass with an oiled paper, and carrying it into a dry place, set it in a box filled all round to about four inches thickness, with the aforesaid preparations, so that no part of the glass vessel shall appear, being in a manner buried in the prepared nitre; and at the end of a year such fruits may be taken out as beautiful as when they were first put in.—*Family Recipe Book.*

## THE HAPPY FARMER.

BY MRS. LYDIA H. SIGOURNEY.

Saw ye the farmer at his plough  
As you were riding by?  
Or wearied 'neath his noon day toil,  
When summer suns were high?  
And thought you that his lot was hard?  
And did you thank your God,  
That you, and yours, were not condemn'd  
Thus like a slave to plod?

Come see him at his harvest home,  
When garden, field, and tree,  
Conspire, with flowing stores to fill  
His barn, and granary,  
His healthful children gaily sport,  
Amid the new-mow'd hay,  
Or proudly aid, with vigorous arm,  
His task as best they may.

His dog partakes his master's joy,  
And guards the loaded wain,  
The feathery people clap their wings,  
And lead their youngling train.  
Perchance their hoary grandsire's eye  
The glowing scene surveys,  
And breaths a blessing on his race,  
Or guides their evening praise.

The Harvest Giver is their friend,  
The Maker of the soil  
And Earth, the Mother, gives them bread,  
And cheers their patient toil.  
Come, join them round their wintry hearth,  
Their heart felt pleasures see,  
And you can better judge how blest  
The farmer's life may be.

*To judge of the Quality of Wheat Flour.*

—Take four ounces of the flour of wheat, separated from the bran; let it be mixed with water so as to form a thick paste, which must be thoroughly kneaded for a quarter of an hour. The paste is afterwards to be well washed, continually kneading it with the hands under the water, and changing the water from time to time. This washing and kneading are to be continued until the water no longer becomes white by the operation; the glutinous matter, which is of a whitish gray color, then remains in the hands. If the wheat was sound, the matter is glutinous and elastic; if the wheat was heated, the matter will be brittle; if the wheat was in a state of fermentation, no glutinous matter will be obtained from it.—*Family Receipt Book.*



## SOILS.

Cultivated soils are composed of certain earths, salts, and vegetable matter, and as a general rule it may be stated that in the temperate zones, and under ordinary circumstances; the earthy part of soils does not vary far from ninety to ninety-six per cent. The salts are of course in small yet active quantities; and the vegetable matter ranges from half per cent. to seventy or seventy five. The essential earths,—those on which the peculiar qualities of all soils are based,—are sand, clay, and lime; or the compounds formed of *silex*, *alumina*, and *calcium*. There are other elements entering into combination with these, but it is on these, and the relative proportions they bear to each other in the soil, that their fertility is depending. Pure sand, clay, lime, or vegetable matter, will not produce healthy plants, or indeed in most cases, any vegetation, however imperfect; it is the mixture or combination of these that constitute a fertile soil, and analysis is the method by which the nature of these combinations, and the proportion of each element, is made known.

The mixture of these elements is usually purely mechanically, and always so with the *silex* and the lime; but in the clays, the sand and alumina is frequently chemically combined, or in such a state that mere agitation in water will not separate them. The purer kinds of pipe and plastic clay are of this nature; indeed what is called pure clay, although composed of perhaps sixty per cent. of *silex* and forty of alumina, is of this character. Where sand and alumina is mechanically mixed, it becomes loam, the name and character of which is determined by the proportion of the several elements of sand, clay and lime it contains. Professor Johnston has in part classified the soils thus formed, as follows: *Pure, or pipe clay*; about forty per cent. of alumina, and sixty of silica. No sand subsides when agitated in water. *Strong, or unctuous clay*; pure clay, with from five to fifteen per cent. of sand, which can be separated by boiling and settling. *Clay loam* contains from fifteen to thirty per cent. of sand mechanically united, and which may be separated by washing. *Loamy soils* deposit from thirty to sixty per cent. of sand by mechanical washing. *Sandy soils* contain no more than ten per cent. of pure clay. *Marly soils*, are those in which the lime is more than five, but does not exceed twenty per cent. Marls are sandy, loamy, or clay marls as these several substances preponderate in the mass. *Calcareous soils*, are those in which the lime exceeds twenty per cent. and thus becomes a prominent constituent. *Vegetable soils*, are those in which the decomposed organic matter exists in proportion of from five to ten per cent., as in garden mould, or from sixty to seventy-five per cent., as in peat. It is also clear that these soils will be clayey, sandy, or loamy, as these several earths may predominate in the mixture.

It sometimes happens that the surface soil, or the part usually cultivated, is unproductive, or

perhaps entirely barren, from the too great preponderance of one of the principal earths, while the subsoil may be of precisely the character wanted to give it the greatest fertility. This occurs oftener on a sandy soil than any other, as on such soils there is a constant tendency to permit clay and vegetable matter to sink through the porous surface, to a more dense subsoil.—Thus there are many tracts of sandy soils so light as to be unfit for cultivation, resting on subsoils that require only to be combined with the surface one, to give the proper combination for the highest degree of fertility. Such instances may be found in this country, and they will become more common, as the time increases during which our soils have been under tillage. Sprengel, among the soils analyzed by him, gives instances of some wholly barren, but which contained in the surface soil from twenty-seven to thirty-eight per cent. of vegetable matter. Analysis showed that while these lands contained from seventy to ninety-five per cent. of silica, there was but one or two per cent. of alumina, and a mere trace of lime, and thus the cause was shown at once why they were unproductive. On the contrary, the subsoil in these cases was rich in the earths and salts most wanted, and had it been raised and mixed with the surface soil, abounding as that did in humus or decayed organic matter, a soil of the most fertile description would have been the result.—There is scarcely an instance of barrenness in soils, in which an analysis, such as may be made by any one, will not point out the evil, and thus lead to the best means of remedying it.

For the purpose of determining the proportions of the principal earths and organic matter there is in a soil, we have found the following course, which is the same in substance as that recommended by Professor Johnston in his essays, for a rough analysis, to be sufficiently accurate, and more easily performed than any other. Nothing is required for its performance, but a set of common druggist's scales with grain weights; a capsule of platina for burning the earth, (or a piece of sheet-iron, or even an iron spoon will do, where the platina is not at hand,) and a small quantity of muriatic acid, with a common tumbler or two. Select the soil to be experimented upon, in such a manner that it may be a fair sample of that of which you wish to ascertain the constituents. By drying it in the air, making it fine, and passing some of it through a not very fine sieve, a quantity for examining is obtained.

Take of the soil so provided one hundred grains. Spread it in a thin layer on white paper and place it in an oven, the heat of which should be raised till the paper begins to be slightly discoloured. An hour or two should be employed in this process. Take from the paper and weigh; the loss will be the water driven off.

Take one hundred grains dried as above, and place them on a platina capsule, or some untinned clean iron, and heat the earth to dull redness over a spirit lamp or charcoal fire. Take from the iron, when cool, and weigh. This will show

the amount of organic matter burned out, or the per cent. in the soil.

Take one hundred grains of the dried soil and mix it thoroughly with half a pint of cold water. To this add a large table-spoonful, or half a wine glass of muriatic acid, and stir the mixture frequently. It may stand over night to settle; pour off the liquid in the morning, and fill the vessel with water, to wash off the excess of acid. When the water is clear, pour it off carefully, dry the soil and weigh it. The loss will show the per cent of lime in the soil, and although not rigorously accurate, will be sufficiently so for all ordinary purposes.

To determine the quantity of sand in the soil, and by its separation, the amount of clay also, it is better to take as much as two hundred grains, and this should be from the undried mass. The two hundred grains may be boiled in water, as that will incorporate the soil more fully with the fluid, and then poured into a glass, where the sand will soon subside to the bottom. When the clay begins to settle, the water must be turned off, and the sand collected and weighed. This will show the per cent of sand, and the remainder will be the clay, or nearly so. Sometimes the sand will contain considerable quantities of lime. When this is suspected to be the case, it may, after separation, be treated with muriatic acid, as directed above, and the remainder will be silicious sand alone. In determining the quantity of lime, the glass should not be filled, as where the effervescence is active on the addition of the muriatic acid, a part of the material may be lost, and the result be consequently erroneous.

By the simple process we have here described, any farmer who chooses may determine the general character of his farm, or any part of it.—*W. Gaylord's Transactions, N. Y. S. Ag. Society.*

### SHELTER FOR SHEEP.

Every one has perhaps heard of the man whose roof remained unrepaired to the perpetual detriment of all dry articles and sound lungs within doors,—because when it rained, he could not repair it, and when the weather was fair he did not need to repair. For a similar reason, many flocks of sheep pass year after year, unprotected because shelters are not needed in summer, and cannot be made in the depth of winter. To induce their owners to adopt an improvement, and provide, in time, suitable shelter for their flocks, we wish to state a few facts in the case.

Lewis A. Morell, of Tompkins County, N. Y., before he had provided shelter for his flock of Saxon sheep, 1200 in number, lost from 70 to 100, during the winter, and once lost 150. For the four successive years after protection, the average number wintered being 1,800, the average yearly loss amounted only to 31, being less than 1 3/4 per cent.

L. W. Childers, of the English Agricultural Society, brought his sheep to shelter about Christmas, and found before two days that they did not

eat so much as when exposed, by the proportion of five to three. When in the field, his flock required fifty baskets full of turnips a day; but when sheltered they needed only thirty a day.—“Yet such progress,” said he, “did they make, that you would have thought they had been eating fifty bushels a day, when shut up, and only thirty when in the field.” In another experiment, which was accompanied by accurate weighing and measuring, where turnips and oil-cake were given as food, the quantity of turnips diminished in a few weeks nearly one quarter, and the oil-cakes diminished about one-third; while the increase of weight resulting from shelter was more than one-third. The editor of the *English Agricultural Gazette*, inferred from actual experiments, performed by himself, that twice as many sheep might be kept in a fattening condition on the same quantity of food under perfect shelter, as under entire exposure. If these results were obtained in the mild climate of England, what may not be expected in our severe winters?

L. A. Morell is satisfied that at least one ton of hay to the hundred sheep is saved by protection every winter. “Of oats, which I feed liberally before protection, the amount saved is equivalent to 500 bushels each year, and yet my sheep have been in finer order than when they were grazed; showing, notwithstanding the virtue of grain, that there is more virtue in warm shelter.” The most successful manager has also found that the aggregate in four clips of wool from his flock, resulting from protection, amounted to 1250 lbs.; and that the increased number of lambs exceeded one hundred a year.

In view of these facts, we wish every farmer to make a calculation of the amount of food thus saved every winter, the increase of the weight of his sheep, the saving of life, the increase of wool, and the increase in the number of his flock.

If it will cost one dollar per head, to winter sheep by the ordinary way, then to winter 1000 would cost \$1000.

One third of this saved would be	\$333
The difference in loss by wintering; according to L. A. Morell, would be about 50 sheep, which at \$2 each, would amount to	100
Putting the increased value of his sheep, by increase of weight, at one-tenth the value of the flock	200
Increase of the fleece, say 160 lbs.,	60
Increase in lambs, say 60,	50
	\$743

equal the total saving every year, by the use of suitable shelter, at a very moderate estimate, and which would abundantly pay for suitable shade, if they required erecting every year.

Now is the time of year to make preparation, to prevent the disastrous results, which must always attend exposure through our long, storms, and freezing winters.—*Alb. Cult.*

**Immense Natural Bee-Hive.**—In a cavern on the right bank of the Colorado, about seven miles from Austin, there is an immense Hive of wild bees, which is one of the interesting curiosities in that section. The entrance of this cavern is situated in a ledge of limestone, forming a high cliff which rises almost perpendicularly from the river bank to the height of about one hundred and fifty feet from the water's edge. This cliff fronts partly on a small stream named Bill creek. The mouth of a cavern is about ten feet from the top of the cliff. In a warm day a dark stream of bees may be constantly seen winding out from the cavern like a long dark wreath of smoke. The stream often appears one or two feet in diameter near the cliff and gradually spreads out like a fan, growing thinner and thinner at a distance from the cavern, until it disappears. The number of bees in this cavern must be incalculably great—probably greater than the number in a thousand or ten thousand ordinary hives.

The oldest settlers say that the hive was there when they first arrived in that country; and it is quite probable that it existed in the same state many years previous to the settlement of the country. The bees, it is said, have never swarmed, and it is not improbable that the hive has continued for more than a century to increase, year after year, in the ratio that other swarms increase. The cave appears to extend back many rods into the ledge, and probably had many lateral chambers. The bees doubtless occupy many of these lateral chambers, and it is probable that new swarms annually find new chambers to occupy, and thus they are prevented from going off to a distance in search of hives. Some of the neighboring settlers have repeatedly, by blasting the rocks, opened a passage into some of these chambers, and procured by this means many hundred pounds of honey.

But the main deposits are situated too deep in the ledge to be reached without great difficulty, and perhaps danger. A company was formed at Austin, a few years since, for the purpose of exploring the cavern and removing the honey; but some untoward event prevented the accomplishment of the undertaking. It was estimated that there are many tons of honey and wax in this immense hive, and, if its treasures could be extracted readily, they would doubtless be found far more valuable than the contents of any gold or silver mine that adventurers have been speaking of for years in that section.—*Texas Telegraph.*

**Cure for Diarrhœa.**—A certain cure for this complaint is found in rice water. Boil the rice, take the water, make it palatable with salt, and drink it copiously while warm. We never knew this simple thing to fail.

**Butter** is improved by working the second time after the lapse of twenty-four hours, when the salt is dissolved, and the watery particles can be entirely removed.

**Value of Urine as a Manure.**—To show the fertilizing effects of urine as a manure, Sir John Sinclair says:

"Every sort of urine contains the essential elements of vegetables in a state of solution. The urine of a horse being so much lighter, would be more valuable than its dung, if both must be conveyed to any distance. The urine of six cows or horses, will enrich a quantity of earth sufficient to top-dress one English acre of grass land; and as it would require £4 worth of dung to perform the same operation, the urine of a cow or horse is worth about 12 shillings per annum, allowing 8 shillings per acre as the expense of preparing the compost. The advantages of irrigating grass lands with cow urine, almost exceeds belief. Mr. Harley, of Glastenbury, who keeps a large dairy in that town, by using cow urine, cuts some small fields of grass six times; and the average of each cutting is fifteen inches in length."

This fact furnishes strong proof, from the very best sources, of the great value of urine as a manure, and it suggests a most striking truth to the mind of the agriculturist, in the fact of the immense loss sustained by him, in permitting the urine of his stock to go to waste—a truth which we think should make him seriously consider upon the propriety of adopting some practicable plan, by which it may be saved, and made to contribute to the fructification of his soil. As most stables and barn-yards are constructed, the major part of all liquid manures are now lost to the owners; but by a little attention in hauling loam and leaves into the latter, and giving the proper form to them, a very large proportion of that made by the cattle would be absorbed, and thus preserved for the purposes of the spring crops.—*Amer. Far.*

**To make Fruit Trees Thrifty.**—In the month of March wash them as high as a man can reach with one quart of whale oil-soap diluted in fifteen gallons of water; and if in April there are caterpillars, give them another dose; then put round the roots of the apple and pear trees two or three shovelful of charcoal dust or anthracite ashes; to the peach, plum, and nectarine trees, I have tried various experiments, yet have hitherto been most pleased with tobacco stems, which are purchased at two cents per bushel. Half a peck of stems round each tree is sufficient. The roots are first laid bare; the tobacco is then placed over them and covered with soil. To this, three or four shovels of anthracite ashes may be added with advantage. The past spring I have tried on all save peach and nectarine trees—which were so diseased by worms, I ordered them to be cut up—an application of warm (not hot) coal tar from the gas house. We first removed the earth from the roots, picked out the worms, and then with a painter's brush covered the trunk of the tree eight inches up from the roots. After this the soil was immediately replaced about the tree. The effect was astonishing. In May we applied half a pint of guano as a top dressing to each tree, and thir-

tier trees, fuller of fruit, and with a deeper, richer, and greener foliage, cannot be seen. I mean to treat all my peachs in this way, as the cheapest and best manner of protecting them. Two peach trees I have got up last fall as past all hope of saving. On these I tried an experiment of putting to each 15 gallons of urine, neutralized with half a peck of plaster of Paris. The trees are now living, and the leaves are green; but whether they will thrive well remains to be seen. I think, however, the dose will effect a cure; and if so, it is worth knowing. You shall have the result hereafter.

R. L. COLT.

Patterson, N. J., June 5, 1845.

—Am. Ag.

**Painting Houses.**—It is good economy to use plenty of paint for all kinds of wood-work that is exposed to the weather; and nothing gives a neater or more comfortable appearance, to a village, or to a country residence, except trees and shrubbery, than to see the buildings of every description well painted. It is therefore desirable and expedient for farmers to attend to this matter; and according to the following sensible advice, originated we know not where, this is the very time to be about it.

“It has long been a subject of inquiry as to the best time to apply paint to the clapboards of houses for durability. Repeated experiments have been made, within twenty five years past, which have resulted in the conviction, that paint applied between November and March, will stand more than twice as long as that which is spread in the warmest weather. The reason is obvious; for in cold weather the oil and other component parts of the paint, form a hard substance on the surface of the clapboard, nearly as hard as glass, and not easily erased, or even cut with a sharp knife, and will not soon wear off, whereas paints applied in the months of July and August, and more especially if in a severe drought, the oil immediately penetrates into the wood like water into a sponge, and leaves the lead nearly dry, which will soon crumble off.”

An apparatus for pulling out stumps of all sorts and sizes, is now in successful operation at the farm of John Barreille, Esq., just below Rockcliff.

A strong oaken beam is attached by a chain to a stump, not by the middle of the beam, but so as to act as a powerful horizontal lever, having a larger and smaller wheel at each end, and a pair of horses to work it.

To this lever, and on both sides of the fulcrum, are fixed iron rings to which chains are hooked. These chains, at a short distance from the stump, unite in one line of hooked iron rods, 9 feet long each, which extend, and are fastened to the top of a pair of shears 22 feet high set up over the stump to be operated on when it is a large one. From the top of the shears a chain and hook reaches to one of the stump roots.

All being now in readiness, the horses are put in motion, and one of the branch chains attached

to the horizontal lever, is of course tightened, while the other is slackened.

The horses having made a half circle round the fulcrum stump, the slackened chain is shortened, and the horses being turned in the opposite direction—the chain which was before slackened, is now tightened, and the opposite one slackened, and so on till the stump is overturned.

Altho' the machine combines great simplicity with power—and can be understood in a minute when seen, it is difficult to describe it very intelligibly.—If we can succeed in getting a wood-cut of it—we shall revert to it again.—*Bytown Gazette.*

**To change the color of a Rose.**—If the stem of a white rose be placed in a solution of yellow prussiate of potash for four or five hours, and then placed in a solution of sulphate of iron, the color will be changed to a delicate primrose, while the fragrance remains unchanged.

#### FROM THE PRACTICAL RECEIPT BOOK

**Good Bread.**—Flour, 1 sack; salt, 4 pounds; water, sufficient quantity; yeast 4 pints. Dissolve the salt in 3 gallons of water (warm), then add a little of the flour and the whole of the yeast; keep it in a warm place until it rises, then add more flour and warm water, and after three or four hours the remainder of the flour and sufficient water to bring the dough to a proper consistence. When the whole mass of dough is in a proper state, it is to be cut into loaves and baked.

The bakers employ alum in making their bread, as it not only makes the dough more retentive of moisture, but improves the colour of the bread. The proportion is usually 8 to 14 ounces of alum per sack, or even more.—By this process a sack of flour will produce from 345 to 350 pounds of well baked bread, or if less baked, from 370 to 385 pounds.

**Drop Cakes.**—One quart of milk, a large tea-spoonful of saleratus dissolved in a cup of cream; to which stir in flour very smoothly until a thick batter. Then dip your spoon in milk and with it place your batter at short distances in a buttered pan. Very delicate, made entirely of cream, either with or without eggs.

**Buckwheat Cakes** are less tough and not as liable to sour, when mixed with salt rising instead of hop yeast.

**Soft Gingerbread, very Nice.**—Four tea-cups of flour, two cups of molasses, half a cup of butter, two cups of buttermilk, a cup of thick cream, three eggs, a table-spoonful of ginger, and the same of saleratus. Mix them all together, with the exception of the buttermilk, in which the saleratus must be dissolved, and then added to the rest. It must not stand long before being sent to bake.

## PLANK FLOORS INJURIOUS TO HORSES.

Why are elevated plank floors in stables injurious to horses feet?

1st. Because they deprive the hoof of receiving certain assistance, which they require for their well being, and which in a state of nature they receive by moisture. The hoofs of horses are a horny, elastic, porous substance, capable of receiving moisture, which is indispensably necessary to their well being; in a natural state they receive it, and in a domesticated state they might, if men would hearken to the mandates of nature; the evils of domestication to the horse are recognized by many intelligent observers and admirers of the horse, in proportion, as we vary in our treatment to the horse, from his natural way of living, in the same ratio does disease and lameness exist; 'tis a solemn fact, start not at the idea, that the diseases of horses are induced by the deeds of men; candid observation will prove the truth of this assertion. The horse's natural floor, the earth, is the best, and only suitable floor for him; on that, his hoofs receive requisite moisture, on plank floors they do not; why? because it is not there. The plank floors are generally (always I believe when they are made fashionably), made higher at the fore-part, than the hind part; consequently, what little moisture there may be from the dung or urine, is drawn away from the fore-feet; the effect is, the horse becomes lame in the fore-feet, hoof-bound, narrow heels, &c., while the hind feet remain sound and healthy; why? because the hind-feet receive moisture from the dung urine, &c., when the fore-feet fail to receive it; it will be found upon examination that nine-tenths of the horses that are lame, are so in the fore-feet stage, carriage, road and hackney horses, that are stabled all the time, (except when in use) are generally the subjects of such lameness. A majority of writers and farriers, acknowledge and deplore the prevalence of lameness in the fore-feet, and it is easier to cut a knot than untie it, they say that bad shoeing is the cause of all this lameness, so blind are they to cause and effect, that they appear to me to know not what they say; they have got the boot on the wrong leg, and I will show it. Blacksmiths are like other men, they have their failings, and so may perhaps lame horses occasionally, but because of this, must they bear the blame of all other men's misdeeds? No, no, they should, not, nor will not, if we would only seek for the true cause of all this lameness. I am a blacksmith, I stand good for the defence of myself and brethren when falsely accused. The same cause will produce the same effect: horses that are kept up are generally shod all round by the same man, and in the same manner; well now, if bad shoeing lames the fore-feet, why will it not lame the hind ones in the same manner? Tell us why, you fault-finders who falsely accuse horse-shoers? or else desist; look at the effects of your own bad management, niceness and false philosophy, and you will find that your dry plank floors are the cause of so much lameness, and not bad shoeing.

Another evil attendant upon making the stalls higher at the front, is, that it compels a horse to stand in an unnatural position, which is certainly improper; when a horse stands in such a manner, the muscles and arteries of the hind legs are kept constantly on the stretch; frequently producing wind-galls, &c. These ideas, if true, may suggest the idea of level stable floors; and of the importance of moisture to the hoof, which may be imparted by washing with water, daily, the legs of the horse, with water that must of necessity be kept in the stable.

J. MADDOCK.

Richland, Ill., June 20th, 1845.

—*West. Cult.*

*Rotation of Crops.*—It is a subject of paramount importance to know in what manner vegetables perform their functions, to maintain a healthy existence; how far they are influenced by atmospheric agents; and to what extent the soil ministers to their wants. It was the general opinion of the last and preceding century that the atmosphere contributed little or no advantage to the production of fruits and vegetables, unless the benefit of showers—being perceptible by the more luxuriant growth of the crops on which they descended, and the greater increase and better ripening of fruit visible from exposure to the genial influence of the sun—may be supposed to indicate some slight knowledge of the advantages of such influences; but to specify the qualities of the agents by which such changes were effected has been left for modern science to explain.—Within the present century there have been many plausible theories suggested by some clever men, to explain the qualities of the atmospheric agents by which vegetation is influenced. Their views had been impeded by some thick mists that they could not see through, until Liebig penetrated them, and explained the whole phenomena so clearly, that all gardeners can now receive valuable instruction from the sound reasoning contained, and well-attested facts detailed in his writings. That manures were known to possess fertilising properties is evident from the perusal of the works of the many authors who have written on the subjects of gardening and farming. Tull had taken great pains to prove that by frequently stirring and pulverising land, and by deep diggings and ploughings, a soil may be made to produce better crops, and a succession of them, without any manure, than land neglected in such particulars, but supplied with manure, could do. The benefit derived from frequently stirring the soil around growing crops is generally admitted. Such benefit is to be attributed to the increased pulverisation of the soil, the more free admission of air, and the more certain destruction of weeds; but the nourishment that each crop extracts from the soil must be supplied as manures, organic and inorganic substances. A knowledge of the analysis of the plant to be grown, specifying the constituents of which it is composed, will give us the best clue to the application of the ingredients.

which it requires for its perfect development. It is well known that the second crop of the same sort of vegetables, grown on the same soil, will not be produced in the same perfection as the first crop. It is affirmed by some that an excrementitious matter, thrown off by the roots, will act injuriously on the same sort, if immediately following; in short, that such root-excretions will act as a poison to the succeeding crop. But it is certain that what was formerly attributed to root-excretions is now proved to be caused by the crop extracting from the soil the different ingredients necessary for its existence and maturity; and by partly or wholly exhausting it of such substances, of the elements of which it is composed, the succeeding crop is deprived of the food particularly required for its growth and maturity. By supplying the soil with the particular materials of which the plant is composed, we could then continue to grow the same crop on the same piece of ground for many years, the influences of air, heat, light, and moisture being the same. But until that more perfect knowledge, to which we are advancing rapidly, is attained, we must continue the rotation system of cropping. By that system the long tap-rooted vegetables, which extract nourishment from the soil at some distance from the surface, are succeeded by vegetables with fibrous or widely-spreading roots, which extend more closely to the surface; the ingredients extracted by one is no detriment to the other crop. But such practices cannot be long continued without a supply of manures, and the more the manures are made to contain the constituents of the plants cultivated, the greater will be the produce; and in proportion to the absence of one or more of such ingredients, will the crop be affected. Hence the importance of possessing a correct analysis of plants as a guide to the best system of cultivation.—*William Keane, Chelsea.—Gard. Chron.*

**To Cook Tomatoes.**—He that does not love tomatoes is an object of pity. Every art of cooking should be employed to inveigle the appetite of every man to love a vegetable so wholesome.

Peel a dozen ripe tomatoes and fry them in a little sweet butter (which nine Hoosiers out of ten will understand to mean a little clean lard), together with two or three sliced green peppers; sprinkle on a little salt; and finally slice up an onion or two, and let the whole cook thoroughly. This is the Spanish method of preparing them.

Another method, which from a long experience we know will wear well, is as follows. The directions are for a mess of tomatoes amounting to about three plants when cooked.

Begin by parboiling two onions. While this is doing peel the tomatoes, which is easily done after hot water has been poured over them; cut them up and add the onions, also a teacupful and a half of bread crumbled fine, a table spoonful of salt, a heaping teaspoonful of black pepper, a lump of butter of the size of a turkey's egg, or about four table spoonful. Beat these thoroughly together and set them over a slow fire to stew. *They should cook slowly and for a long time; never less than three hours, but the longer the better.* About fifteen minutes before they are to be used beat up six eggs and stir them in, and put them on fresh coals and give them one grand boil, stirring them all the time. When so cooked, no directions will be needed how to eat them.

The art of cooking the tomato lies mostly in cooking them enough. They should be put to work the first thing after the breakfast things are out of the way, even if you do not dine till three.—*Indiana Far. and Gar.*

**Efficacy of Bathing in certain Morbid States of the Mind.**—Judging from the beneficial effects of cold and warm water bathing in case of mental irritation caused by cerebral disease, I should feel disposed to consider that the steady use of these remedial agents would, in incipient derangement of the mind, be accompanied by the happiest results. It is much to be lamented that the practice of regular systematic bathing is not recommended and adopted in this country. The state of the mind is closely dependent upon the condition of the cutaneous secretion. I would advise those who are subject to mental depression, hypochondriasis, vapors, ennui, or by whatever term it may be designated, to try the effect of bathing. I feel assured that in many cases violent attacks of insanity may be warded off by the use of the warm or cold bath. In cerebral irritation, evidently the result of vascular excitement, bathing the head regularly every morning with cold water, or vinegar and water, will be found highly serviceable.—*F. Windslow's Health of both Body and Mind.*

*Causing Grafts to take Root.*—Mr. A. J. Downing, an able and experienced horticulturalist of Newburg, N. Y., recommends, in the *Magazine of Horticulture*, a mode formerly practiced, of causing grafts that were put into stocks near the ground, to throw out roots. He says when this is well done, the roots of the stock decay, become decomposed, while the graft becomes a tree on its own roots, and much more likely to endure a greater length of years than a common graft. He observes that at the time of planting the trees, the grafts should be inserted a few inches below the surface of the soil.

Two or three years afterwards, during summer, and at the time when the descending sap is most abundant, which is usually in July, the earth should be removed at the foot of each tree, so as to lay bare the swelling of the graft; after which several incisions should be made with a sharp gouge raising up from below several tongues of the thickness of the bark and alburnum.

This operation will give them a concave form, of which the length will be at least double of the width. These incisions should be multiplied according to the size of the trees upon which the operations are performed; but more than a quarter of the bark should never be removed. These wounds should be immediately covered with the richest soil; one-fourth cow manure, to three-fourths of fresh loam, well mixed, is the best and simplest application. One or two shovelful are sufficient to cause the tree to throw out a large quantity of roots, which, shooting down into the natural soil, sustain the life of the roots during a considerable time.—*Maine Farmer.*

#### CANKER WORM, AND CHEAP REMEDY.

Mr. Editor,—For several years past some of the finest orchards on the banks of the Ohio have been rendered totally valueless by the destructive ravages of the canker worm; orchards which have heretofore yielded an income to their proprietors of from one to two thousand dollars per annum, not producing enough fruit for family use. These worms are extending rapidly, and many orchards some miles back from the river are this year affected. The means of prevention heretofore recommended, if they would answer at all, are so troublesome and expensive as to render their use out of the question in large orchards.—In a recent conversation with J. C. Eggleston, Esq, who resides six miles below Vevay, and

whose orchard of forty acres of apple trees has for the last four years been stripped of every leaf, and bud in spring by these worms, he informed me that a neighbour of his, Mr. John F. Cotton, has adopted a method of preventing their ascent, of easy application and trifling expense, which promises to be perfectly successful. It is this. A roll, or bat of wool, evenly carded is applied round the body of the tree and tied tightly to it, by applying a twine carefully all round on the middle of the roll. The wool above and below, rises above the twine; and thus it is buried and hid in the middle of the roll. Mr. Eggleston says he visited his neighbor last spring, and with him carefully observed the result. The worms crawl up the tree until the roll of wool is encountered, then making persevering efforts to push through it, but failing in this, they carefully hunt all round for a gap through which to pass, and finding none, they will not retreat, but get as close under the wool as they can, and there deposit the egg.

This remedy, to be perfectly successful, must be applied about the first of November as some of the worms ascend at that time, but most of them in February and March. Mr. Cotton applied the wool to his trees in February. Some worms had ascended previous to that time, but not enough to destroy all the fruit on the trees. The trees in the same orchard to which the wool was not applied, are entirely braven. Mr. Eggleston intends applying the wool this fall to his whole orchard, and expects by this simple expedient, to entirely save his fruit in future from the ravages of this insect.

He has carefully observed the habits of the insect for the last three years, and compared his own observations with those of Professor Peck, and coincides with him in every particular save one, which is, that according to Prof. Peck, this worm does not enter the ground at a greater distance from the tree than about three feet, whereas Mr. Eggleston finds them entering the ground as far out as the limbs extend. After eating the leaves and buds, they let themselves down to the ground by spinning their thread for that purpose, and enter the earth at the place where they first touch it.

If persons whose orchards are infested with the canker-worm, will adopt the method of Mr. Cotton with care, I doubt not that in time the insect will be exterminated. The eggs hatching on the trunk of the tree where there is nothing for

the young worms to subsist upon, they will of course perish, or may there be easily destroyed.

Respectfully yours,

W. T. S. CORNETT.

—*Boston Cult.*

### RENOVATION OF FRUIT TREES.

The following article deserves particular attention. Observation has long convinced us that the degeneracy of fruit trees, of which we hear so much, results generally from the exhaustion of the soil, or some particular element of it. We have ourselves witnessed the most miraculous effects produced by throwing out the dirt from the roots of old trees in the autumn, applying lime and ashes, and in the early spring introducing and mixing with the lime and ashes, new and fertile soil. If an old apple tree in an orchard dies, and a new one be simply planted in the old one's place, it will hardly grow at all, and never become a good tree, but if a portion of the old soil be carted off, and new soil substituted, and, with the addition of lime, ashes or bone-dust, dug in for a circle of several feet, the young tree will grow apace, and soon become large and fruitful.—*Dollar Farmer.*

*Cultivation of Fruit.*—In the contiguous counties of Westchester and Fairfield, and probably over a wider extent of surface, the Newtown Pippin tree has never worn the healthy and flourishing appearance of the other cultivated sorts. So generally, indeed is this the case, that cultivators are about abandoning it as one of the worn-out varieties, considering it stricken with the incurable degeneracy of age. That such an opinion, however, is not well founded, may be inferred from the fact that this fruit, when grown in the new and more virgin soils of the interior, is to this day fairer and larger than we have been accustomed to see it here. This fact would seem to indicate, not the degeneracy of the tree itself, but the want of something in the soil to enable it to bring out its fruit in full perfection. The white Doyenne or Virgalieu pear, until recently the only superior variety ever cultivated here, has for twenty years ceased to ripen its fruit. The tree itself seems healthy, but its fruit commences cracking when half grown; becomes woody, and scarcely a pear has ripened on these trees for nearly a quarter of a century, with the exception of the two last years.

Year before last a few, and last year a greater portion of these pears came to perfection. Here

again the soil has lacked something that this tree required in ripening its fruit; and the favorable change observed last year would seem to indicate that this material, whatever it is, which after a long period has been exhausted by the annual fructification, has, after a lapse of twenty years accumulated again in quantity sufficient to enable the tree to perfect some of its fruit. The Seckel pear, a most delicious fruit, having but recently been introduced here, ripens with us in great perfection; but at Philadelphia, in the vicinity where the tree originated about a century ago, (probably from a seed of the Rousselet de Rhemis, which it greatly resembles,) the Seckel has begun to suffer, from exhaustion of its appropriate food, and requires an artificial supply to restore it to its wonted perfection. This fact I learn from Mr. L. C. Ford, of Olkney Park, accompanied with the valuable information that the material wanted in this case was some ferruginous compound, as by giving a liberal supply of slag from the iron foundry to the roots of his trees, he has restored its fruit to more than its pristine excellence.

With regard to the Newtown Pippin, I am in possession of facts shewing that our soil requires only some compound of lime, probably the phosphate, to enable it to bring this apple to full perfection. The detail of this discovery would extend this article to an inconvenient length, but they will cheerfully be given to any gentleman requiring them. One of the facts upon which this opinion is based, goes to show that an old and decaying Newtown Pippin tree, which in 1840, bore chiefly small rasted, and valueless fruit, in 1842 presented a healthy and flourishing appearance, and commenced bearing large, fair, and beautiful apples, and has done the same every year since, under no other treatment than that of having the clam and oyster shells from the family table, deposited under it, which has been done from the date first mentioned up to the present time. It is worthy of notice that the very next tree in the row was a Newtown Pippin, which still continues to bear very inferior fruit, fit only for cider. The Rousselet pear, long so highly prized by the confectioners in France is now said to be rapidly failing in that country; but having been introduced into this town about 14 years since, in mistake for the Seckel, is found to be a vigorous and rapidly growing tree, producing excellent fruit.

TECHAS CLOSE  
Portchester, Westchester Co., N. Y.—*Alb. Cult.*



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