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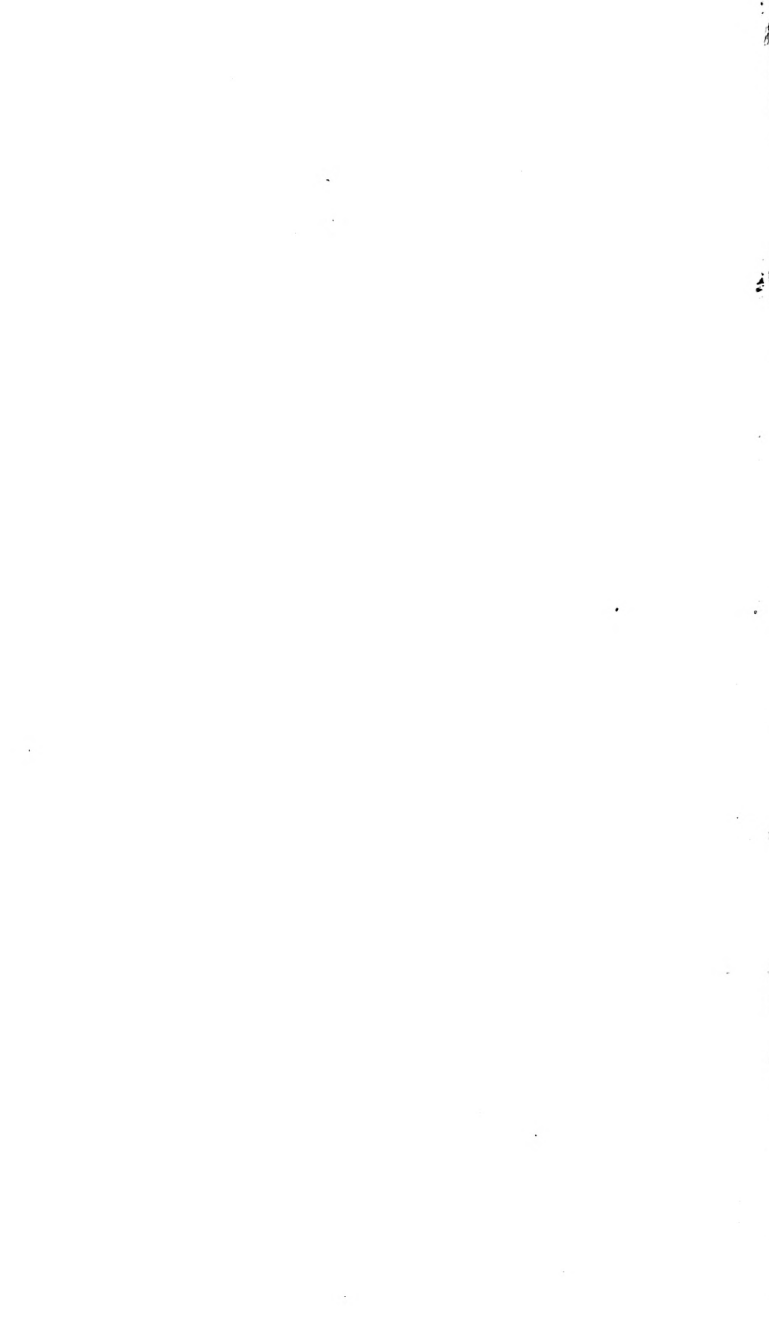
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CONTAINING A
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ON
PRACTICAL AGRICULTURE, &c.

BY WILLIAM BUCKMINSTER.

BOSTON:
DAVID H. WILLIAMS.

1840.

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P R E F A C E .

THE following pages contain the essence of the *Boston Cultivator*, which was published weekly, in newspaper form, during the year 1839.

Our original subscribers will recollect that we promised, at the commencement of our paper, to furnish each one of them, at the close of the year, with a bound book, containing the principal portion of the permanent and most valuable articles of the paper, at the same price that is usually paid for binding a volume of newspapers.

We dislike the quarto form for a newspaper, for, in reading, we are not always sure we put the proper parts together to match ; and the expense of binding our large folio sheet would be one objection to preserving the papers in that form. Another serious objection would be the room the folio must occupy, and the labor of holding it while examining its contents.

For these reasons, many of our early patrons requested us not to give them a quarto sheet, and all have now an opportunity of securing, in convenient form, the spirit and substance of the fifty-two numbers.

When we commenced the publication of the *Cultivator* we supposed a book as large as our annual registers would be of sufficient size to contain all we might wish to preserve ; but, on trial, we find we are obliged to make our book much larger

than we contemplated, and still leave out of it some articles that we should like to preserve.

But this redundancy enables us to make a selection; and we are under no necessity of publishing the whole contents of the first page of our newspaper in order to make up a book.

Most of those mechanics and farmers who think it useful to look into books occasionally, to learn what others in their line are doing, will find it very convenient to *preserve*, in the form of a book, valuable recipes in the arts, as well as records of the various improvements in agriculture.

We have often seen in newspapers valuable articles which we should like to see again. We retain a faint impression of the contents, but not sufficient for any valuable purpose; and, when it is too late, we make an unsuccessful inquiry for the object of our search.

An index to the volume will at once direct the inquirer to any article he may be in search of; and, by bestowing a small sum, which any farmer or mechanic may well spare for books, he will soon form a family library that may be enjoyed by himself and his family, and then be transmitted to his heirs to the third and fourth generation.

W. B.

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TO OUR BROTHER FARMERS.

GENTLEMEN, you have often heard of us through the medium of other agricultural journals, but now you will see us in a more conspicuous station than prudence might advise us to take.

The only apology we have is the zeal we bear to the more perfect cultivation of our native soil, — our beloved New England. In taking upon ourselves the trust of conducting a journal which will be the medium of communicating information from you and to you, we pray you to understand we assume no dictatorial powers. We do not profess to teach you how to manage your farms. We rather choose to be the medium through which *you* shall make communications to one another on our favorite topics, and thus elicit facts and arguments in favor of a more improved system of cultivation.

We wish this day to commence and to continue a system of *mutual instruction* in which you shall all bear a part ; and to afford you a medium, on the very lowest terms in our power, through which *facts* may be readily communicated, from which conclusions may be drawn, for our advancement in our profession and calling, and for the edification of all concerned. Living remote from towns and from each other, we are prone to become careless and inattentive to our best interests ;

we forget and we neglect important duties, for the want of a little jogging, and we let slip the golden opportunity of overcoming difficulties until it is too late. In this respect, mechanics who cluster in cities and in villages have a decided advantage over us in all colloquial intercourse; and, by long practice, they acquire a habit of communicating their thoughts with more fluency than we who associate less with our fellow-craftsmen.

We are accordingly accused of being more backward in adopting improvements than other classes; and, to compensate for our living more remote from each other than any class of workmen, we must write more and read more. For these we have the means. We have wholly the advantage of the mechanic in the leisure afforded us in our long winter evenings for reading and for writing. Let us improve these advantages, and endeavor, by a course of mutual instruction, through the medium of books and papers, to make compensation for the disadvantages of dwelling remotely from each other. Let us remind each other of what should be done, and of the time of doing; and, if any one has discovered an improved mode of cultivation, let it be communicated as rapidly as improvements are among mechanics.

We have no idea that we have yet arrived at perfection in the art of cultivation. If any one has reached that goal, let him teach another the way. We met a farmer the other day, wrapped up close in wisdom and his great coat, and invited him to join our society; that is, take our paper. "No," said he; "I know how to farm it without books." "Yes," we said, "we are well aware of that, and we wish you to communicate your knowledge to others, that they may become rich like yourself." He wrapped his coat about him still more tight, and said, "One is enough for me to take care of." We hope and trust that few in the community keep their wisdom so close as this

man, and that the great majority take as much pleasure in making known new modes of cultivation as some of the other sex are said to do in divulging the profoundest secrets. There is a pleasure in communicating information: both sexes delight in it. By the system here recommended we make our duty a pleasure, and we may thus hope to persevere till we make New England a garden, and the wild places to blossom as the rose.

All, without exception, are invited to join us for the promotion of knowledge. We will give them certificates of membership for life, if they will take so deep an interest in our institution; and we hereby promise to communicate as much information to any member as he shall communicate to us.

ORCHARDS.

WE would not say much on orchards at this time of year were we not constantly reminded, winter and summer, as we pass along the road, of the amount of labor that has been thrown wholly away by inefficient attempts to plant an apple-orchard. We have come to the conclusion, from the orchards we have observed in our various travels, that the owners of ninety-nine in a hundred had generally thrown away their labors, and that the orchards they attempted to plant were only a nuisance to their grounds. These lands were generally quite rich enough for trees of this kind. This was not the evil. The trees were not well selected at the first; they were not carefully taken up; they were not properly set in the ground; they were not tilled after setting; and the cattle, in most cases, were called in to trim the trees. It was an old max-

im, that he who plants an orchard, plants it for the next generation; we should say, for his cattle to rub against, or for his hogs, that were fond of the bark of the trees.

Now he that plants an orchard need not make up his mind that he is necessarily at work for others; and we hope, if we can but make him believe he is at work for himself, and is not an hireling, or disinterested, he will proceed in his labor with faithfulness and skill.

We will warrant him, if he will exercise any common degree of judgment, a good crop of apples within five years of his transplanting; and, if he plants an acre, he shall have winter and fall fruit enough for a dozen in a family.

Now to the work. His land should have been tilled the year before setting his trees, and made as rich as usual for Indian corn. It should be ploughed in the spring, before setting the trees, and well harrowed. This ploughing need not be deeper than for corn. It is a great error to set trees deep in the earth: some do it to procure moisture for the tree, some to make room to thrust in a quantity of manure, and some so that the tree may have a firm support, and not be racked by the winds.

Now we say to you, brethren, imitate none of these modes. A tree set deep is set in the poorest earth: place your trees so that the roots may have the richest. Never put manure of any description about the roots, if you would have your trees live. Place nothing but good garden mould next the roots. Give them sufficient room. Make the hole for them *broad*, but not *deep*.

When you have covered the roots with good garden mould, and spread out the fibres so as not to crowd a peck of them into one heap. Roots are not fond of close intimacy: like bachelors, they always prefer a separate bed; and, like old maids, they should always have one. When you have covered these roots with good soil, take from your cow-yard any coarse litter

that will retain moisture, and place it around the tree, treading it down close, so that it shall form a support to the tree. This litter should lie several inches thick after it has been trod down. If you have none of this litter, coarse manure may be used: old stack hay or straw will answer the purpose. This litter must lie here through the season, and be kept trod down close. Now, you need no stake to gall the trees: your litter is a sufficient prop. You need put no water about the roots; for your litter or coarse hay impedes evaporation to such a degree, that the earth under it will continue moist through the whole summer. If the tree is racked a little by the winds, so much the better: it is thus taught early to rely on itself for support. A staked tree is like a spoiled child,—spoiled with too much nursing. The litter about the tree will prevent the racking by the winds, and the opening of the ground to let the air to the roots, and will save you the trouble of hoeing or tilling for the first year. No weeds will grow under this litter, no grass,—the two great obstacles to the extension of the roots. Your soil will thus be kept mellow, and porous, and moist.

In autumn, before any snow falls, you must remove all the litter that has not become rotten, to a distance from the trees. You will thus give some offence to mice, that are always fond of making their bed, like politicians, close to some towering object that may afford them future support. If your cats have done their duty, and killed off their fresh-meat stock in due time, you have nothing further to do the first season. But, if your cats have been negligent, and got their rations out of your commissariat rather than glean them abroad in honorable services in the field, you must go out, as soon as the first snow has fallen, and tread it down close about the roots of your trees. Your field-mice must now seek some other habitation, in case they had commenced building as squatters on your soil, and you need be at no further trouble through

the winter ; for they, like the Cherokees, are not for voluntary immigration in the midst of snows. Now your trees are well set. They have not only put out the leaf, but their limbs have extended—if you saw to the work yourself—from half a foot to a foot each way. They will need but very little trimming this second season, if you trimmed them a little on setting them. They must have top. Their leaves are their lungs ; and a good proportion of leaves are indicative of good health, as good lungs are in animals. What will you do with your trees this second summer ? Will you suffer the grass and weeds to draw away all moisture from the neighborhood of the roots, and occupy the space intended for them ? We trust not. Keep your land in tillage three or four years at the least. You may raise exhausting crops, if you will apply manure ; you may raise beans or drilled turnips, without manuring this season ; you may sow turnips, broad-cast, as late as the first of July, without injury to the trees ; in fine, you may plant almost any thing among your trees, and they will grow quite as fast as they should grow, provided always you keep up good tillage.

On the first of October, in the fourth year, we will call on you—in case you took your trees from our nursery—and help you pick half a dozen barrels of winter apples from an acre of trees. If this happens not to be a bearing year, we shall wait one year longer, and then give you a friendly call, and see that you have appointed some *two-legged* animal to trim, in preference to such as sometimes, for want of proper instruments, cut a little too close, and do not leave the body quite so smooth as it might be left with a knife.

More may be said next week on this subject, if you will draw your chair up close, so that this everlasting clatter on the pavements shall not interrupt our converse. Will you call at our office again ?

SWAMP LANDS.

As a general rule, we may safely assume, that our low lands are our best lands; not the best for corn, or potatoes, or rye, or oats, or barley — we have high and dry lands enough for all these — but there is still another harvest more valuable than either one of them. For grass, these low lands are preferable to any other; and grass is our most profitable crop. We are not telling what *should be* most profitable, but what is. We would not dispense with the raising of grain; but, if New England must buy, why buy grain in preference to hay, or any production of grass? Grass and hay have long been, they now are, and they long must be, the most profitable harvests. And our low lands are our best lands for grass; yet we suffer more of these to lie wholly unimproved than any other species! Why is this? We fear to meddle with them. They are miry; the plough cannot be used, for the ox is not able here to assist us; hand-hoeing is tedious; paring and burning the surface is attended with difficulty. Draining must be attended to, and a host of troubles these meadows give birth to as soon as we attempt to reclaim them. Hence we look on from year to year, and see our richest prairies the home of the mud-tortoise, the burrow of the musk-rat and the mink, the haunt of the musquito, and the terror of the nightly wanderer who starts at the grum salutation of the bull-frog.

These swamps are the natural receptacle of all the rich particles of earth that are washed down from the surrounding highlands. They also, in many cases, are made up of a vegetable growth, which forms a rich manure, when properly decomposed, to be applied to highlands. This vegetable growth, in some cases, advances rapidly; and ponds are now becoming visibly less, in consequence of the encroaching grass, and

weeds, and bushes, on their margins. These vegetables grow up as high as the surface of the water, and then remain stationary for ages, till, by their multiplication and their spreading, they fill the chasm, once a pond of water. This accounts for the perfect levelness of surface of very extensive meadows. That these are made-lands, or recently made, compared with other portions of the creation, we have further evidence from the logs and leaves that are very frequently found buried many feet below the surface.

There are various modes of bringing these lands under cultivation; and these will be stated, together with the expense attending them, with much accuracy, in some of our future numbers. We mean to be very particular in these statements, for we have made actual trial of the various modes, and are still pursuing the work of bringing such lands into English grass. At present, we will only say, generally, that we have never attempted to subdue any such lands without complete success, and a very profitable harvest; and that, to determine which of several modes we should adopt to subdue them, we should examine into the texture of the meadow, and the facilities for bringing on materials to help form the soil. When we can pare and burn, we want no soil nor manure to be carried on.

TURNIP VERSUS POTATO.

WE seem to be now all agreed that more roots should be raised for the fattening of animals than we have been in the habit of raising. Corn must be raised, but it is an expensive article for fattening beasts. A small portion of corn-meal, oat-meal, or buckwheat-meal,

mixed with roots, pumpkins, squashes, apples, &c. make a good and cheap diet. The question now is, what roots shall we prefer?

Shall we set aside the potato, the admiration and theme, for half a century, of a wondering set of admirers, who have discovered, not only that it does not impoverish, but that it actually enriches, our soils? We cannot part with the potato. When ripe, it is wholesome food: it has become a necessary of the dinner-table. When unripe, it is one of the most poisonous articles we attempt to use for food. Let us have potatoes enough for the table still; but, for fattening beasts, we can do better. Potatoes are said to *subdue* the new-broken sod, and fit the ground for future crops. We agree they *subdue* the land, and they *oppress* it. They exhaust our *light* soils more than corn does, and are not followed by so good crops as corn is, when both have an equal share of manure. We are aware our doctrine is somewhat new: we shall attempt to prove it satisfactorily in our future numbers. But to the turnips. We think we can raise three to four bushels of the yellow turnip — the *ruta бага* — as easily as one of potatoes, and that the turnips exhaust the soil much less than they. All theory is decidedly in favor of our position, as the turnip has more extent of leaf, more superficial surface to be acted on by the atmosphere, than the potato has: it consequently gets more of its living from the air, and less from the earth. Again, the turnip has but little root, and cannot draw so largely from the soil as plants with more extended ones. We can raise excellent turnips with a little *surface* manuring, and the crops that follow are generally good. Potatoes require, in old land, already *subdued*, much manuring. The crop of grass that follows is not equal, in our sandy loams, to the grass that follows Indian corn, called by most people a great exhauster.

The cost of *seeding* an acre of potatoes is no small

item. Sometimes we put on twenty bushels to the acre, and the cost of these is oftentimes ten dollars in planting time. Ten dollars for seed! Mr. Williams, who obtained a premium for the largest crop, states in his report to the Massachusetts Society, that he planted eighty bushels of seed on his acre, — forty dollars worth of seed! This is a larger sum than the whole crop of an acre of corn brings on the average. Then the planting or dibbling out of eighty bushels of potatoes will make the back ache of two of our stoutest laborers. Now the seed for an acre of ruta бага, properly sown, costs less than fifty cents; the seed for one acre of corn, twenty-five cents. It is believed that one bushel of turnips affords, when cooked, as much nutriment as one of potatoes. It is true, there are soils where turnips cannot be cultivated to good advantage, at least not in drills; but both the yellow and the white turnip may be easily raised by sowing broad-cast, and they both delight in new or unsubdued grounds.

This subject will be pursued.

[From the Farmers' Cabinet.]

FACTS AND OPINIONS OF LIME.

“Examine all things, and hold fast to that which is good.”

THE extensive and increasing use of lime for agricultural purposes, renders it highly necessary that farmers should be put in possession of all the leading facts in relation to so important an article, and one in which large numbers of them are dealing annually, some of whom have sustained loss from lack of that kind of knowledge which would enable them to protect their interest.

It has been ascertained, from a series of experiments carefully made in England, by Bishop Watson — and it is presumed that they will apply equally well in this country — that, upon an average, every ton, of 2240 pounds, of good limestone produced 1292 pounds of quick lime, weighed before it was cold; and that, when it was exposed to the air, it increased in weight daily, at the rate of a hundred weight per ton, for the first five or six days after it was drawn from the kiln.

A ton of fresh well-burnt lime will absorb 680 pounds, or nearly one third its weight of water, without being slacked; and a bushel of good stone lime, when slacked, will measure two bushels; of course, slacked lime should sell for one half the price per bushel of stone lime.

There is a great difference in the value of lime, depending on the purity of the stone out of which it was burnt. Some lime contains one fourth or more of sand; and often other impurities enter into its composition, which materially lessen its value. Masons and bricklayers are among the best judges of lime, for they know that the purer it is, the better it works, and the more sand may be mixed with it. Some lime is so poor, or contains so much foreign matter in its composition, as not to admit of any or only of a very small quantity of sand being added to it in making mortar. The lime that is most profitable for making mortar is also most valuable for agricultural purposes. The purer lime is, the more water it takes in, and the longer it is in slacking, and it increases more, both in weight and measure by the process of being slacked, than poor or impure lime does.

Water dissolves the alkaline ingredient of lime, and it has been ascertained that at the freezing point it dissolves double the quantity that boiling water does, differing in this respect, perhaps, from all other bodies.

Lime-water, or the alkaline solution of lime, is per-

fectly transparent, and possesses an acrid, alkaline taste, somewhat similar to the ley from wood-ashes.

Dr. Alston states that one pound of quick lime furnished him with 600 pounds of lime-water without its being sensibly weakened, and that he continued the application of additional quantities of fresh water to it for twenty-six months.

It is presumed that it is this alkaline solution of lime that produces the principal effect on the soil and on vegetation. Lime and its solution are well known to be powerful antiseptics, resisting or impeding putrefaction in animal or vegetable substances, notwithstanding it has been stated in many books of agriculture that it promotes fermentation and putrefaction, and renders bodies more quickly and readily soluble in water.

Quick lime, applied to succulent vegetables, absorbs the moisture from them, and renders them perfectly dry and brittle; and, if the quantity of lime be great compared with the vegetable matter, combustion takes place, and the vegetables are reduced to ashes, but are not decomposed in the usual understanding of the term.

Lime spread on the surface sod is in some measure prevented by the grass and the fibres of the roots from descending into the earth, and the rains from time to time dissolve it, and carry down the alkaline solution, so as to moisten every particle of the soil with it. This neutralizes the acidity of the soil, and the carbonic acid gas of the atmosphere converts the solution into carbonate of lime in connection with every particle of earth it comes in contact with; and this being much less adhesive than clay, when it comes to be ploughed, the particles easily separate; and hence the property of lime in rendering the soil less adhesive, and more readily penetrated by the roots of plants in search of food.

Particles of sand not being penetrated by moisture,

where that predominates, the alkaline solution of the lime passes between them and becomes a carbonate, forming an adhesive cement between them; and hence it renders a sandy soil somewhat more compact and retentive of moisture.

Where much vegetable matter abounds in a soil, it will absorb and retain the solution of lime as a sponge, which, being converted in its interstices into a carbonate, will tend to impede its too speedy decomposition; for vegetable matter, in our climate, decomposes with too much rapidity for plants to take up the nutriment it affords as rapidly as it is produced, and consequently a portion of it is lost or dissipated; but, by the decomposition being impeded or checked by the carbonate of lime, it proceeds more slowly, and continues to give out food for plants more gradually, and for a much longer period of time; and this corresponds with the observation of our most intelligent farmers, that, where lime is used, the manure or dung continues to produce its effect for a much longer time.

The partially decomposed vegetable matter in the soil also operates as a reservoir for moisture, and gives it out to the adjacent soil when it becomes dry, so as to keep up a more perfect equilibrium of moisture, which is stated to be the fact where lime is applied; for manure that is only partially decomposed holds moisture in much larger quantities than that which is thoroughly rotten. This may be observed in every dung-heap in the country; for the straw holds the moisture whilst the decomposition is only partial, but when it becomes thorough it lets it loose; and hence we see the essence of dung-heaps running to waste during the summer season.

These views are thrown together for the purpose of arresting the attention of those who are much more competent to discuss this intricate subject than the writer; for we find sometimes that even an erroneous theory, by leading to discussion, promotes the discovery

of truth. It is therefore hoped that those who are disposed to examine and discuss this important subject, will avail themselves of the Farmers' Cabinet for that purpose. X.

We copy the above for the purpose of eliciting facts and arguments as to the operation of lime. We shall not recommend this article to our brethren as a manure, until we know more of its virtues. In England, lime is applied abundantly to various crops. The theory of its operation is by no means well settled. It has commonly been supposed that lime is analogous to wood-ashes, and may be used wherever they are used. X. adopts the theory, that lime prevents the too rapid decomposition of vegetable matter. Then it must act directly the reverse of ashes. They certainly hasten decomposition. We want more facts, and then theory. — Ed.

ECONOMY.

COME, brother farmers, draw up rather closer now, since we have become a little acquainted, and let us lay plans to have an abundance next year, though some of us fell a little short the past season. The governor tells us, in his late message, that the energies of an enterprising people on a fertile soil, have, under Providence, much improved our condition. It is encouraging to have people in high places take notice of us, and we will show the world that a little commendation shall not be lost on us. We wander: now blow out that candle on the mantel-piece, for we did not meet this evening to read, and we will talk by that fire-light, which shineth enough to enlighten the whole

room. A stove would do the same, if the doors of it could be kept open ; but then we must keep an extra one of those animals called "help," to take up the dirt of the floor and hearth, and cast it out into the draught, instead of brushing it, in a moment, into the fire-place, to be mingled with the ashes, to be laid on the corn. Economy must be our word in hard times ; and if you find us recommending modes of culture that are expensive, that cost more than they come to, why, stop our paper, and say we are leading you astray, and you prefer to make no advances in your profession. We know we are often misled by theoretical writers. We know we cannot farm it by book. We also know *we cannot remain stationary*.

Look abroad and see the designs of the Almighty in his works of wisdom. Has he created us of full size at once ? Has he given us a soil that needs no improvement ? Has he created any thing that is not progressing ? Nothing is at rest. Our earth, our platform, is flying through space at the rate of about 2,000,000 miles in a day. Man is formed in weakness. He comes not to maturity at once. His farm will never be perfectly tilled. He must not hope for more than an approximation to perfection, but he must advance. Let none of us say *we cannot improve*, we will not alter.

The times are changed. We cannot now send the same proceeds to market as formerly. We must not raise grain in the county of Middlesex to send to the Boston market, as formerly. We must be governed, in some degree, by the prices in the market. At the present price of pork and beef, we can do well to fatten and supply the market ; but we cannot expect these prices to continue, and we must make our calculations on taking a more general view. And, even at present prices, we can hardly afford to fatten pork wholly on grain. By the aid of the dairy and of vegetables that are not saleable, mixed with a small portion of grain,

we can afford pork for a little more than half the present market price, but we must begin in season in the fall. We must not keep our hogs till late in winter: we must commence fattening as soon as summer and fall vegetables are fit to be plucked, and we should quit before these vegetables are frozen and spoiled.

Our soils in the old and long-settled parts of the country are not what they were: the first crops were luxuriant, and the land then needed no dressing. We have now cropped our plain and easily tilled lands till they have become in a great degree barren; while our rougher soils, that the plough was more afraid of, are still comparatively rich: they have not been exhausted.

To prove that much of the soil of our plains is naturally as good as that of rough and rocky lands, we will only take you by the hand and show you a first crop after clearing, on such plain lands. You see as large a growth here as on any soil, and the principal reason why many of these plains appear so barren is, they were too inviting to the plough. We have tilled till they are wholly exhausted of vegetable matter. New matter must be supplied; and, if we are not able to supply it, we cannot afford to pay taxes for the lands. We will sell a portion, and, with the capital thence arising, we will make the remainder produce more than the whole did. This we call the commencement of economy. If you are rich, you ought not to be troubled with the care of hundreds of acres; if poor, you may be pestered to hire the capital, to pay the interest, or to pay rent. You cannot place two hundred acres so near your barns as you can place fifty. On the large farm you have much farther to cart your manure, much farther to bring home your produce. Your cows must be driven twice a day much farther, and if your hired "help" can come home as quick to dinner, they seldom *return* so quick to the distant field, as to that near the house.

MANURES.

BROTHER farmers, we shall have much to say to you on manures. We shall often interrogate you as to the best modes of *making*, *preserving*, and *applying* manures. These are three important considerations in our calling. It may be thought by some of you that enough has already been said on the subject. Many, truly, have written upon it, and some have written truly. But let us have the sentiments and the experience of practical men. From our observation of the practice of farmers in New England, we are satisfied that, on an average, they lose one half the advantage they might derive from their manures. We lose, in the first place, by neglect of gathering it together; secondly, by suffering it to spoil in the heap, for want of proper mixing; and, thirdly, by a wrong application of it to the soil. The liquid portion of it is allowed to be as valuable as the solid; and this, in many instances, is wholly lost. We often suffer a mass to dry up, or evaporate, by lying thinly spread over a yard. We often lose by heaping it together and suffering it to burn. We lose much by spreading on the surface of the field green manure that cannot be covered with the harrow; and we lose more by laying it out in small heaps of one or two shovels full to a hill, and planting our seeds in those heaps. We lose in winter by heaving it out at the windows, and suffering it to freeze in a scattered situation.

We assert, with the utmost confidence, that we can, by taking proper care of our means, make every part and parcel of our farms rich; that is, so rich that one acre shall feed one cow through the summer, and another acre shall give us sixty bushels of corn; and this without buying a single load of manure from the stables. This matter must be better attended to by us who occupy a soil that has been cropped, and mis-

managed till much of it now hardly pays the expense of cultivating.

This must not be. The prices of our produce will justify us in making more strenuous efforts to supply the demand. In some of our numbers we shall go more into detail, and offer some practical hints on this vital principle of agriculture, this life-blood of our hopes of improving our natal soil. We promise you, in the mean time, we will not lead you into extravagant expenditures of outlay, that you will never see returned in this generation. We will leave all that to theoretical calculators, who never handled the spade or the fork, and we will discourse to you "of what yourselves do know." We will endeavor to stir you up by way of remembrance in such a way that, like Paul, you shall greatly magnify your office.

THE ROHAN POTATO.

To the Editor of the Cultivator :

DEAR SIR,—Appreciating the motives which have induced you to commence a paper, devoted to the interests of the farmer, and at the same time affording an agreeable and interesting family paper, with the hope of adding something to the value of its pages, I have taken the advantage of a few leisure moments to give you some observations upon that remarkable vegetable, the name of which stands at the head of this article.

Potatoes are a crop to which our farmers do not pay sufficient attention. When it is considered how valuable an article the potato is, and that there is probably scarcely a family in the New England States who do not have them upon their tables at least once a day, it would seem that there is no product of the farm to

which more attention should be paid, to some the most profitable kinds. Maine is looked to for the supply of superior sorts of this vegetable ; and, though we will not deny that the soil and climate of that State are every way suited to the potato, yet we believe that, by proper culture, and attention to the sowing of seed, crops of as excellent quality may be raised in any other part of New England.

The very fact that the potato is so commonly and generally used at the tables of both the rich and the poor, and that the crop rarely if ever fails, is the cause of their being so neglected. What we would throw to hogs, or give to the cow, does not seem worth the while to spend time about, to improve the product or the quality of the article, as the gain would be less than the labor. But this is a widely mistaken notion. And in the Rohan potato there is abundant proof of the fallacy of this mode of reasoning.

We hope, at some future time, to give some account of all the principal kinds of potatoes that are generally grown ; but want of room now compels me to cut short any further general remarks, and come at once to the Rohan.

A good deal has been said in the agricultural papers about it, and what I shall state will be, in part, a condensed account of the various statements which have been published respecting their productiveness, as it is for this quality that I mostly look upon its value. The history of its origin has appeared in some of the journals, but, as it may not have met the eyes of your readers, I shall give it now as briefly as possible.

The Rohan potato takes its name from the Prince de Rohan, of Geneva, in the vicinity of which city it was raised about the year 1830. The man who originated it was so choice of it, and regarded it so highly, that king William could not get him to part with a single tuber. He cultivated it in a little walled enclosure ; had them taken up only in his presence ; kept

them under lock and key ; and they were cooked and given to his cattle only before his own eyes. No one could get them. The prince Rohan having a splendid collection of *cactuses*, and among them some kinds which the possessor of the potatoes took a great fancy to, he begged the prince to give him some ; but the prince would only do this for some of the potatoes, money being no object. The amateur consented, and gave him two potatoes, with a promise upon his honor that he would never send any of them to Holland, Belgium, England, Prussia, or Germany. By his fortunately not including France and Switzerland, the prince was at liberty, without forfeiting his word, to send some to France, which he did ; and from thence they were imported to this country in the spring of 1836. So much for their history, which is very singular. The produce of this potato in Switzerland was so great that it would hardly be believed : three potatoes weighed, respectively, 13 lbs. 7 oz., 11 lbs. 9 oz., and 9 lbs. 13 oz. !

What I have now to state relates to their growth in this country. Mr. Thompson, of Catskill, N. Y. was the first who received any of these potatoes, eight or ten of which cost *forty-five dollars*. Judge Buel, after cultivating the Rohan two seasons, gives the following as his reasons for recommending them to the public :

First, because their quality for the table will justify it. If not superior, they are good. The flesh is yellow, solid, and of good flavor.

Secondly, because they admit of great economy in seed. Two eyes is a sufficiency (and many of the tubers have 30 or 40) to plant a hill, and three or four bushels to plant an acre of ground.

Thirdly, because they require comparatively little labor in harvesting, a man being able to dig thrice as many of them in a day as of ordinary kinds. The tubers are very large, 110 of the largest completely

filling a flour barrel. Twenty-seven bushels were dug in our presence in *one hour*, (the tops being [previously] pulled) by one man, at moderate labor.

Fourthly, because they yield an abundant crop: from 85 rods of ground were gathered 175 bushels, while the common kind did not give half a crop.

The experiments of other cultivators fully certify to the truth of Judge Buel's. The following are instances of their produce the past dry season, when other kinds were in many instances not worth digging:

Mr. Woodruff, of Windsor, Conn. from about twenty potatoes, weighing a fraction over a quarter of a pound each, raised *twenty bushels and a half*. The average of the most productive hills was 8 lbs. 10 oz.: the largest single tuber weighed 2 lbs. 13 oz. Mr. W. spread the surface of the ground with barn-yard manure, and turned it in with a plough; furrowed ten inches deep; covered the seed with four inches of earth.

Hon. Wm. Clark, Jr. of Springfield, from *one potato*, raised *one bushel*.

Mr. C. C. Nichols, of Northampton, from *three pecks*, raised *eighteen bushels*.

Mr. Roswell Hubbard, of Hadley, from *four pounds*, obtained 1173 pounds! 293 produced to one planted.

One gentleman, in the neighborhood of Catskill, from *one and a half pounds*, raised *ninety-two and a half pounds*; and another, from *one pound*, raised ninety-three and a half pounds.

Mr. Hager, of Oxford, Conn. from 13 oz. tubers, produced, in a dry loam, 144 lbs.

Many other similar experiments could be given, but we doubt not that these are ample enough to leave no doubts of their productiveness.

As to their value as a potato for the table, I do not think they have been fairly tried. Prince Rohan speaks of them as being extremely farinaceous, and, if so, they must be a fine potato. The high price which they command will, for the present, prevent their

merits being fully tested, as few who raise them are willing to eat them when they are so valuable. As soon as they are plentiful, this will be decided. One merit they possess, which few other large potatoes do, and that is, the large tubers are not hollow.

In cultivation they require good land, deep ploughing, and frequent hoeings, to make them show their full character: in light soils, they produce a crop where the St. Helena and others have failed. The hills should be about *four feet* apart, and only two or three eyes planted in each. The stalks grow from six to eight feet high, and prince Rohan states that he supported them on stakes: this, however, was only done to make them produce as much as possible. They should be planted very early, as they are a late variety, and should not be dug until late in autumn.

I would invite every farmer to try this potato, and I have no hesitation in saying that it will be found to be all that it has been recommended. AGRICOLA.

BROTHER MECHANICS.

WE were inquired of the other day, by one of the brethren, what right and title we had to the appellation of mechanic. Look at the "great organ of all agricultural communication to the public" of Wednesday, January 2d, and you will see we are dubbed a knight of the order. We hope you will not be so much offended at our admission into good company as the Indian was, when the missionary constantly called him brother.

"You say 'brother, brother,'" said the Indian. "How came we brother?"

“O,” said the missionary, “you know we all sprang from Adam.”

“Ugh! ugh!” said the Indian; “me glad ’t aint no nearer.”

We shall not let you know at once the full extent of our mechanical genius; but you shall hear something of it each week. We fear you did not well understand the communication of last week, from our Dorchester correspondent, on horse-shoeing. It was hastily written, and might be made plainer. He proposes that *each side* of the shoe should be made wider than common, so as to leave a less cavity for the formation of a snow-ball; and to let that cavity be wider behind than elsewhere, so that a ball would not stick fast in the shoe: thus, \wedge .

The blacksmith has one of the best trades for the winter season. He is at no expense for heat or for light, and can pursue his occupation to good advantage in the evening. He can then prepare his shoes and other articles, so that customers may not be hindered. He must make his horse-nails; but he now makes them from wrought rods, that are drawn out by machinery, and that are purchased at but little higher cost than his bar-iron. Indeed, he can purchase rods drawn of almost any size; and when he is supplied with an assortment, his work is often half done for him by machinery.

The printer is daily working wonders. Commit your thoughts to paper: fill a page, and in a few minutes he will hold up before you an image of your own ideas in so clear a light that you are at first startled at the completeness of the reflection. It gives you back almost as ready an image of your thoughts as the mirror does of your person.

The Greeks and Romans never thought of this method. They could imprint with the pen; but written letters are so imperfect, they are not to be compared with the steel type. It is a curious fact,

that the Romans made use of stamps containing letters enough for a whole name. With these they branded casks, &c. ; but it did not occur to them that, by setting and transposing *single letters*, they could apply the rules of permutation and combination almost to infinity. They approximated to the art of printing in the use of their stamp, with a number of letters joined. Had the thought occurred to them of the transposition of *single letters* in their plate, the world might have advanced in knowledge, and avoided that gulf of ignorance—the dark ages—through which, for a long time, it was compelled to grope, for the want of readier means of communicating intelligence.

TRANSPLANTING.

TREES for transplanting should be taken from the nursery before they become too large. Two or three years' growth from the bud or the graft is better than a longer term for the apple or the pear, the peach or the plum. When a tree is of longer growth, the roots are extended farther than we are aware. To take it up, we dig about it, and cut off a part of its roots: we then seize hold of the body, and attempt to pull it up; it stands firm: we rack and twist it, and get out of all patience with its tenacity of life. An assistant takes hold to help pull it up, and to draw out some of the roots full length. After shattering one or two of the principal roots close to the body, one root is sometimes drawn out nearly whole, and three feet long. These shattered roots are like a shattered knee or ankle: amputation only will prevent a lingering death. If large trees are transplanted, they should be taken up

with great care. It is not of so much consequence to take up long roots as it is to preserve from fracture that portion of the roots which is nearest to the body or stump. Let the extremities of the roots be cut slick, and a thousand new fibres will shoot out for the one cut off, and will soon afford nourishment to your transplanted tree, provided always that your roots are not large. We recollect hearing the venerable J. Lowell, Esq. say he thought he never gained by taking from the nursery trees that were more than about five feet high. We give such trees more proportionate attention than we give to larger ones, and they are not so likely to come to a stand. With proper attention, they will grow and extend their limbs the first year; and the vessels in the woody fibre will not become contracted and dry, but will keep open and healthy. If we once suffer the transplanted tree to come to a stand, and grow none, or not extend itself, for one year, we may as well pull it up. It is like a stunted calf or pig, and will never regain its standing.

After a few years' healthy growth, if grass-roots are suffered to withdraw the moisture from the ground about the tree, they will not spoil it. If the top has not been trimmed too much—as gross an evil as too much government in a family—the tree will soon form such a pavilion as to stint the growth of the grass, and may, in a rich soil, successfully contend against it: still it is best to plough occasionally, and keep the land light. It is noticed that apple-trees growing in a cluster come to bear much sooner than those that stand far apart. The reason is, they sooner afford a shade, and check the growth of the grass about their roots. The soil is loose under the branches; and the slender grass that barely subsists about their roots, if mown and made into hay, is worth but little. So a single tree, when its branches have extended and spread far and wide, will often defend itself against the grass, which is ever intruding where there is the least chance for

subsistence, and, like a Scotchman, will get a living where other plants would starve.

But trees that grow in grass-fields rarely produce such fair fruit as those about which we keep the earth light and well tilled. This is an important consideration for those who raise apples for the market; and it is advisable to set our trees in straight lines, that we may plough among them with as little injury as possible. Now you do not like to put a plough in your orchard, if you can avoid it; you fear you may bark the trees; you know you will not raise half a crop of corn, or of potatoes, or of grain. You therefore put a little chip-dung about the roots of the tree; and in time you raise quite a hillock there, which seems to turn all the moisture from the sweet heavens away from your trees. This chip-stuff is the very worst article you can apply. It is not only too bulky for its strength — producing a bank where you would prefer a hollow — but it is usually full of worms and insects, that often get on and ride your tree to death. Pray let us give you a little advice on this one point. It will be valuable not only for Middlesex and for Worcester, for Essex and for Norfolk, but for all New England; for the United States and her Territories; and as for the Canadas, — why, we think we would better let them manage their own affairs. Instead of planting among orchard trees, and exposing them to the repeated visits of the plough and hoe during summer, we plough the ground about the first week in September as well as we can, laying all the vegetable growth beneath the sod: put on a few loads of fine manure, if we have it to spare; if not, we do without it, as it is not our object now to get a great growth of grass. We then roll the furrows down close, harrow, and sow our seed as in other cases where are no trees. Six or eight pounds of clover-seed should be reserved for an acre, to be thrown on some time in winter. Nothing but herds-grass and red-top are sown in autumn. Clover is apt

to be winter-killed, if it first springs in the autumn; and, if we sow in winter, it is buried deep enough before the first of May. In this way, with a little care, we avoid injuring the trees, we render the land light—it will keep light three or four years—we get as much grass for the scythe as we ought to get from an orchard, or as we can cleverly dry on the ground, and we perform the whole at little expense. If we have no manure to spare, we plough; and the repeated ploughing in of green crops always enriches a soil from which we take no grain.

When our orchards are in rough, rocky land, we cannot use this process to so good advantage; and the next best thing for a bearing orchard is a drove of hogs. In one month, they will wholly change the complexion of your trees. A deep-green leaf will be substituted for a pale or yellow one; and the whole orchard, like a tidy family, will show by its dress that it has been visited by good company. This mixed company must be watched a little, to see that it do not run riot, as the company once did at Gen. Jackson's levee. He discontinued the levees without ceremony; but you may continue your visitors in place by fixing, as Black Hawk did, a jewel in the nose, that serves to civilize the race faster than new rum ever did any of the Indian tribes.

Some of our breeds of grunTERS never meddle with the bark of the apple-tree; but it is well to have an eye on our most clever servants, and, by giving them a pretty good living, remove as far as possible all temptation to trespass on our trees or on our treasure. These animals should be removed from the orchard by the first of September, or before, into their parlor and dining-room, where they should not be allowed to see so much company as to keep them up late o' nights, and cut short their sleep.

ON SEEDING DOWN.

MUCH discussion has taken place as to the proper season for seeding lands down to grass. It would seem hardly a proper time, in Massachusetts, to sow much in January, but you cannot choose a better month for sowing your clover-seed, provided there is snow enough to show your tracks. Indeed, we may sow this seed in any of the winter months, if the ground was suitably prepared in the autumn.

Lands that have been planted, and are to be sown with grain, should generally be laid down to grass in the spring season. Sometimes this is delayed till fall, and then the stubble is ploughed in, and the seed is sown on the furrow; but this seldom succeeds so well as spring sowing. The stubble-ground dries so quick in August, or in September, that much of the seed never vegetates, and much of it often dies after sprouting. This often happens also with spring sowing; but if you can sow early in spring, you run less risk of losing your seed, than to sow it on stubble-ground. If your land be light, and inclining to sand, you cannot do better than throw twenty bushels of wood-ashes on an acre at the time of sowing, or soon after your grain is up. These draw moisture to your plants, and preserve them better than any article you can apply.

Ye have heard it said of old, "put ashes on the low land, because they are of a hot and dry nature;" but we say to you they are the coldest manure you can apply, and that they will keep your dry grounds moist longer than any article you have ever applied. Do you want proof of this? Set a barrel of dry ashes on the *ground*, and in a very short time they all become damp, and they remain so.

We will say more of ashes in a future number, and do our seeding now. With the exception of stubble-ground, we think fall sowing preferable to spring sow-

ing. We are not obliged to go through the tedious and unprofitable process of planting and hoeing our low grounds in order to renovate and bring them into grass again. We have a shorter, less expensive method. You all have lands too low to be planted at a profit. You therefore suffer these to lie from year to year, yielding nothing that will pay for whetting your scythe. You dread to meddle with such land, as we once did ; for, after you have planted it, and obtained half a crop, you could not lay it down smooth for the hard lumps it contained, or for the mire in the hollows. Such land, if not too rocky, may be directly brought into excellent grass, without summer fallowing, or losing a crop.

In the last week in August, if you have several acres to turn, you must begin to plough. Do not take a rooter, or a plough not longer than a hog's snout, but take one that has some length in the waist — the ladies now think they *have been* to an extreme in short waists — take one that will take up a slice and lay it down again completely the other side up. Let all the grass be turned in ; we want it there for manure. We have such ploughs, and we advise you to look them up. As soon as you have ploughed one acre, put on a dozen loads of your fine manure which you have been preparing through the summer, and, first having rolled down your furrows close, spread your manure evenly, harrow the ground thoroughly lengthwise of the furrow, then a little diagonally, but never crosswise. In a short time you will make the acre like a carrot-bed. Then sow a peck of herds-grass, and a bushel of red-top seed, *before the ground has time to dry*, and cover the seed with a bush-harrow. It will vegetate much sooner for sowing on a fresh furrow : it is no more likely to be winter-killed than seed sown in spring. As soon as it is so late that seeds will not vegetate, you may sow on eight pounds of clover-seed, or less, if you would like a lot of fall feed the next year ; and clover thus sown will not be much in the way of your other

grass. It will help to fill up the interstices, and when it has flourished two years, it dies and leaves a tap-root in the soil to rot, and afford nourishment to the roots of the more saleable grasses.

When you have finished one acre, you may take up another ; and you cannot, at that season, be better employed. We don't allow of mowing bushes : let them grow to be fire-wood, or let the plough run in your pastures, and root them up ; so you can have nothing better to do about the first of September than plough and sow down. At that season, too, your team is strong : it costs little to keep it, for it is fed in the very field you are ploughing, and is always on the ground, ready for work.

You have now turned in about ten or twelve tons of rowen to the acre to be rotted. If you doubt this, weigh the grass, root and branch, of one square foot, and multiply that by the number of feet in the acre. This rowen will keep your ground light one year longer than you can keep pulverized earth light ; and, when you find the rushes and the sour grasses coming in again, as they will in low, moist land, go through the process again ; and the oftener you repeat this, the richer will be your land, if you forbear to take off a crop of grain.

Grass does not impoverish land. Do you doubt this ? After you have mown a field seven years, you will raise as good a crop of corn, or of potatoes, as if it had been mown only three years. It does not produce as much grass, because the ground has become full of roots, and, as we say, bound out ; so that the oftener you turn in a crop of this rowen, the richer your land. After a few repetitions, you will need to apply no manure. The former mass, turned under, will, in its turn, become a top dressing, and you can then renovate your grass-lands at much less expense. We have been trying this process for some years, or we should not recommend it to you with so much confidence. We

speak of what we know. We have thus turned low interval lands, that had lain unproductive for more than half a century, and got them into fine fields, that produce good crops of the best kinds of hay, instead of a little moss and mouse-ear that would starve a frog.

Higher lands may be treated in the same way, if they are not wanted for grain; and thus we may renovate a whole farm, for our process does not require half so much manure as the planting and hoeing process. We must raise grain, but we are not obliged to use *all* our manure in planting. We must till a less area, and till it better, and thus be more sure of a supply than by planting a large number of acres.

[From the Genesee Farmer.]

ENTOMOLOGY.

MR. TUCKER, — I was highly pleased with the suggestions made to your correspondent, A. H. in the present volume of the Monthly Genesee Farmer. I have no doubt, in my mind, but that the study of entomology, when rightly pursued, is one of the most pleasing and interesting studies in nature. For my part, I have had hitherto little opportunity to make any progress in labeling, classing, and arranging insects; yet I have a considerable collection of insects promiscuously arranged, till I can get further instructions from the proper books, and a good entomologist. I have nearly pursued the plan recommended by A. H. for several years. I have a box, say eighteen inches square, and six inches high, with a drawer and a glass at top, small holes at side, through drawer and all, to let the air in; and it has been matter for the greatest wonder to me to observe the different transformations of insects; for instance, about the first of September, 1837, I secured

a curious kind of grub, or caterpillar: in a few days after, it transformed into the chrysalis state, and thus continued till some time in May last, being in this state better than eight months, at the end of which time the beautiful *Papilio turnus* made its appearance from this chrysalis. And I have also observed numbers of others enter and pass their different transformations, among which is also the worm, or grub, which eats off the cabbage in spring, when first planted out. This grub I took up with some earth and put it in my box; fed it with cabbage-plants: in a few days it buried itself in the earth which I put in the box, to undergo its final transformation; and, in a month or so, it came out a perfect moth, or butterfly, of a beautiful variegated ash color. I have not ascertained the name, but I have it preserved. I think it would be very satisfactory and useful to have some attention given to this subject. In the present volume, an inquiry is made from Michigan, and, in a later number of the same volume, Mr. W. Colvil supposes that the blight, or loss of plums; is caused by an insect. I (and I have no doubt there are many more) would be very happy to hear answers and information on this subject.

The following is one of *eight* numbers, *furnished by us* at the request of the publishers of the *Yankee Farmer* — Mr. Cole, of Portland, editor — on the subject of manures. The 8th number was inserted by the editor in his paper of January 12th, — our *Cultivator's* birth-day.

ON MANURES, AND THEIR APPLICATION TO THE SOIL.

LIME is the next article we shall introduce to notice; and what shall we say on lime as a manure? We

might say almost any thing, and support our theories by high authority. We daily hear much said of lime as a manure, and if implicit faith and trust are to be put in English writers of eminence, lime must be considered an essential aid of the farmer.

There cannot be much doubt that lime, in certain cases, has been useful in agriculture.

In England, it is often obtained at a rate quite cheap compared with the cost in Massachusetts, and their lime is said to be of a different quality from ours. It is also a fact, that lime has often been used in Massachusetts, without producing any apparently beneficial result.

Theorists disagree, *toto celo*, as to the mode of its operations; but yet all theorists with whose writings we happen to be familiar, strongly recommend the use of lime.

Some assert that lime operates much like wood-ashes; that it is beneficial rather as a stimulant than as an item to form a constituent part and parcel of the plant to which it is applied; while others contend that it is an essential ingredient of some plants, one of which is wheat, and that this grain cannot be raised without it; and, where there is a deficiency of the article in the natural soil, this deficiency must be supplied from the kiln.

Some *theorists* assert that lime is a powerful decomposer of vegetable substances, and that it may be advantageously applied wherever wood-ashes is applied with effect.

Other *theorists* as gravely contend that lime *retards* the decomposition of vegetable matter in the soil, and *therefore* it is an important article in agriculture, preserving for future use a store that might be too soon expended by the draughts made upon it in our hot seasons.

Who shall decide when doctors disagree?

We are in want of experiments testing the value of

this article. It is believed that it has never been extensively used in Massachusetts, nor till within a few years past. It seems clear that it acts as an antiseptic when applied to certain substances; for instance, to posts in a fence, to board fence, to the roofs of houses covered with shingles, to the sides of barns, &c. &c. All these applications have been made on the principle that lime is an antiseptic, and tended to preserve the timber to which it was applied.

Wood-ashes, too, have been applied to the surface of the earth about posts set in the ground, and experience shows the benefit of this application.

Now does lime promote the decomposition of vegetable matter? Wood-ashes surely do, when applied to the soil filled with it. If lime operates the reverse of this, it should no longer be ranked, as a manure, with ashes. Lime is a constituent portion of wheat: it enters into the composition of the plant, and, where lime is naturally deficient, it seems reasonable that it should be procured and mixed with the deficient sod. All soils are found to have some portion of lime in them. Now fifteen or twenty bushels of wheat, a high average crop on an acre, will not contain more than one or two bushels of lime, at most. If, then, we apply that quantity, it would seem sufficient for the wheat crop, even if the soil before was totally destitute.

But the English apply one hundred bushels to the acre, — often fifty to sixty. They cannot do this on the principle of thus furnishing to the soil a component part of the future crop. They use it thus freely for different reasons: they seem to think it ameliorates the hard, clayey soils, by rendering them less adhesive. They also contend that lime is beneficial on a sandy soil, rendering it more retentive of moisture! Lime thus works as great wonders as the breath of the traveller, in a cold morning: it was used to *warm* his hands, and to *cool* his porridge.

Are we yet prepared earnestly to recommend a boun-

tiful application of lime? I once spread three casks of lime on about twenty square rods in my garden, which was a sandy loam, and stood in much need of manure. It was destitute of any vegetable matter, having been tilled for two or three years in succession. After the lime was spread on, I accidentally found a heap of manure for sale, and I applied that at the rate of five cords to the acre, on the limed ground. My first year's crop was small; my second was no better; my third was not so good as that where no lime had been put, and my seventh crop has never shown the benefits of the lime. From the appearance of the cabbages and turnips the second year, I fancied the lime had destroyed or eaten up my manure. This lime is still to be seen in the ground, and I hope, some time, to reap the benefit of the application. When that time arrives, I trust I shall be able to give you further account of my success: till then, I cannot be very positive as to the propriety of giving two or three shillings a bushel for lime to improve the soil. I *have supposed* that lime was, as a manure, to be ranked with wood-ashes, and that it should be applied in places where it had something to do, some vegetable matter to act upon. If I am not correct in this, I have no theory to propose, and shall be content, at present, to use no more of this article than the plant to which it is applied may want for immediate use.

W. B.

Framingham, Dec. 1838.

The respected editor of the Yankee Farmer has devoted two columns of his paper of the 19th inst. in pointing out our erroneous notions in regard to the use of lime. It is very evident he has caught the fever of the day, and must therefore cry lime! lime! lime! or be wholly out of fashion with gentlemen farmers. We have been very highly complimented, by the editor, for our former numbers published in October, November, and December, in his paper, under the signature of

“W. B. Framingham;” and, as those numbers have been selected from his paper, and been republished in all parts of the Union with apparent approbation, we intend to give them a still more extended circulation,—reserving, however, our *copy* right to spell the words our instructors in English taught us, when we were of an age to learn. We shall spell turnip without an *e*, and *lie*, from ashes, differently from *ley*—pronounced *lee*—a field.

But to the subject. We are not yet too old to learn, when we have a proper instructor; but we must acknowledge that, in this case, we do not comprehend our master. If we consent to spread one or two bushels of lime on an acre of wheat, because wheat takes *some* lime out of the soil, we are told, peremptorily, that we should use twenty or thirty bushels, because the wheat takes up but a small portion of the lime sown! And when we stated that we had tried three casks, or nine bushels, on about twenty rods of ground, we are told that the reason why our crop was not benefited by it was, that we used “eight times as much as was *recommended* for a light soil.” If seventy-two bushels, our quantity, is eight times too much, then nine bushels would be the *right* quantity to an acre; just now, twenty or thirty would not be too much! But “our lime is much superior to the English lime.” Then two bushels might do, possibly, notwithstanding English books to the contrary. Again, some lime has sand in it, and therefore, says he, “if such lime be added to a sandy soil, it would increase that ingredient in the soil, of which there is already more than enough;” “and sometimes twenty bushels is enough on sandy soils.” This is precious; twenty bushels on a sandy soil, yet, if there is sand in the lime, the more you put on, the worse you make the soil. The result seems to be, that you must put *sandy* lime on to a clayey soil, and *clayey* lime, or none at all, on to a sandy soil. Again, “lime acts powerfully on any

fibrous or hard vegetable substance, and forms a compost, partly soluble in water, which becomes a suitable food for plants." Lime, then, does operate like ashes. Just now he told us it did not, and it must not be ranked with ashes. But if lime is such a powerful decomposer of hard substances, why is it applied to wood of all kinds, to preserve it? Limed fences, &c. are not soon decomposed by the lime. How long does it take lime to decompose the pine boards in a barn? one year, or two?

When we are clearly taught this, we can make some wise calculations as to the usefulness of lime in decomposing vegetable matter in the soil. In conclusion of all this logical reasoning against our doubts about the economy of using much lime, our teacher further says, "we would not advise the use of much lime, *by those who have not tried it* on their farms."

What is this but saying to farmers, — us farmers, — when you have tried a thing, and find it useful, use it; but if you have not tried it, we would not advise the use of it. This is the reasoning that most people adopt, when they have no clear ideas on a subject.

It is really amusing to see two columns of a paper occupied in pointing out our errors, by a writer that finally comes to the very conclusion with ourselves in regard to the propriety of buying much lime for our sandy soils, before we shall be better satisfied of its efficacy.

We think the *conclusion* of the writer much better than his *reasoning*.

ON FEEDING CATTLE.

IN the counties of Essex, Middlesex, Norfolk, and Worcester, we have much meadow land that produces

kinds of hay that will support young cattle very well throughout a part of the winter season. If they have nothing better through the whole winter, they become poor in spring, and a large portion of the summer is spent before they begin to grow again. Cows are often wintered, in part, on such coarse hay, and towards spring are allowed to come to a better table to prepare for spring business. It is a very common practice to feed out the poorest hay in the fore part of the winter, and to reserve the best for spring.

We do not commend this practice, for cattle do not get through the winter so well, nor are cows so profitable as if differently fed.

The sudden and sad change from a rich autumn diet, such as our fields generally afford in the fall, to a meagre meal of meadow hay, is apt to make the boiler, or stomach, collapse, or contract too suddenly, and causes a great contraction of the milk and blood-vessels, which is injurious to the system, and which may be avoided. Some people fear to let their cattle taste, at certain seasons, of any good fodder, lest they would not taste of the poorer; but this notion is erroneous. Cattle that have been long fed on the best of hay are very fond of a change, and will then eat the coarser kinds with avidity. Where, then, is the harm of mixing their fodder a little? not as the Indian, who thought the best mixed liquor was two gills of rum put together, but let some good English hay be often mixed up thoroughly with a poorer kind, that the whole may be sweetened. If this mixture should take place in the haying season, the good hay would impart its sweetness to the poorer kinds, and thus a food would be prepared not so luscious as to cause satiety, or so meagre as not to be relished. At our best tables we eat roast beef and potato, mutton and turnip, turkey and coarse brown bread. We are fond of the mixture, and think it better than turkey and beef one day, then potatoes and turnips the next. But, to be serious, there seems no propriety in keeping up such strong partitions between the better

and the poorer food. Oats and wheat should ever be threshed in such good season as to starve the mice, and be ready to be mixed up with the corn-stover as soon as it can be harvested. The butts and husks of corn, when housed in good season, have much richness and virtue in them: being yet full of saccharine matter, they require something drier to be intermixed, to keep them from moulding too much. They impart to this straw a sweetness that makes it relished by cattle, and both straw and husks are better for the mixture.

There is another consideration that should induce us to feed our good food in the first of winter. Our cows are in milk, or they ought to be; and, while they yield it, they must be well kept. A good farmer should not let his cows go dry four months in the year. Two months are enough in all reason, and some cows will give milk nearly the whole year round. If our cows become dry by the first of December, "*it is owing to their bringing up,*" as the boy, eating porridge, told a sneerer who said *he* should rather eat swill. Much is in habit. But what shall be done with the milk when it is too cold weather to churn? Eat it, or sell it, and buy bread and meat. Give it to your hogs: it is cheaper than grain, and if they cannot relish it, raise the cream on it, and let us have it for a breakfast toast. It is better than butter, which will keep till spring, when you begin to be short of every thing, — fresh meats, turnips, cabbages, parsnips, and apples.

The more milk you draw in winter, the greater capacity have your cows for an abundance in summer, if you keep them well. Do not suffer them to be hide-bound nor udder-bound, but keep all their vessels open with roots of some kind which you can raise mighty cheap if you once resolve.

Our corn-stover should be dealt out mostly in the fore part of winter, for it is the best dry fodder for cows in milk. They will yield more on good corn-stover than they will on the best English hay, as our experience teaches us. If we had suitable cutters for this

fodder they would be more valuable than the cutters of straw or of hay; for these may be eaten without a knife, but who can masticate a three-foot corn-butt? Cattle make awkward attempts to bite them in two, and sometimes succeed by holding fast one end with the foot, while their gums and under teeth pluck off a portion of the other. They make as hard work of it as men of fifty — not bachelors — do, in gnawing an apple: the under *help* must do the chief business, as the upper set were not procured to labor.

SUGAR-BEET:

A CORRESPONDENT of the Cincinnati Gazette furnishes the following interesting facts, collected by observation, in relation to the culture of the beet:

“When on a visit to the farm of our enterprising citizen, Lot Pugh, thirty-two miles north of our city, I saw a white sugar-beet, raised from seed imported from France, which measured *thirty inches* in circumference, and weighed, after being removed from the ground and divested of foreign substances, twenty-two pounds. Although the specimen which was measured and weighed was taken from a field of several acres, still it probably was not the largest, for the greater part of the crop appeared to be of equal magnitude. A mangel-wurzel from the same grounds, and raised from imported seed also, measured twenty-five inches in circumference, and weighed sixteen pounds and a half. It must be observed that, as these beets were removed from the earth on the 23d of August, they had not attained their full growth. Indeed, it is probable that many of the former may measure three feet in circumference, and the latter two and a half, when they are fully grown.

The manager of the farm informed me that he raised fifty tons, actual weight, of beets to the acre, last year, and that his crop is much better the present season. He also said that it required but *little more labor to raise fifty tons of beets than fifty bushels of corn*, while the former was quite as good for horses, much better for cattle, and rather better for stock hogs. He also asserted that suckling calves preferred beets, when properly prepared, to milk. Indeed, I could almost select, from among fifty-six head of Durham cattle, those that had been fed, during the last season, on beets. They were not only fatter, but smoother and better grown, than those that had been kept on other food.

Although cattle and hogs will eat beets in a raw state, still they are much better when boiled. The apparatus and fixtures used by Mr. Pugh for boiling, or rather steaming, food for three hundred hogs, and forty or fifty cows, with other stock, cost about one hundred and fifty dollars, and consumes a quarter of a cord of wood per day.

Mr. Pugh had not attempted to make sugar from his beets, but if its manufacture is profitable any where from this article, it would certainly be so here, for no soil can produce a better growth. Two hands can prepare the ground, plant and cultivate five acres of beets in a season, and the product would doubtless yield many tons of saccharine matter."

[From Bigelow's Technology.]

CEMENTS.

Limestone. The substances made use of for the uniting medium between bricks, or stones, in building, are denominated cements. The calcareous cements,

composed of a mixture of lime, sand, and water, in consequence of the facility with which they pass from a soft state to a stony hardness, have, in common use, superseded all others. Lime, in the state of quicklime, is obtained by burning in kilns any of those natural bodies in which it exists in combination with carbonic acid; such as *limestone, marbles, chalk, and shells*. The effect of the burning, or calcination, is to drive off the carbonic acid. If quicklime, thus obtained, be wet with water, it instantly swells and cracks, becomes exceedingly hot, and at length falls into a white, soft, impalpable powder. This process is denominated the *slaking* of the lime. The compound formed is called a hydrate of lime, and consists of about three parts of lime to one of water. When intended for mortar, it should immediately be incorporated with sand, and used without delay, before it imbibes carbonic acid anew from the atmosphere. Lime, thus mixed with sand, becomes harder, and more cohesive and durable, than if it were used alone. It is found that the sand used in common mortar undergoes little or no change; while the lime, seemingly by crystallization, adheres to its particles, and unites them together. Cements composed in this manner continue to increase in strength and solidity for an indefinite period, the hydrate of lime being gradually converted into a carbonate. The sand most proper to form mortar is that which is wholly silicious, and which is sharp, that is, not having its particles rounded by attrition.

Fresh sand is to be preferred to that taken from the vicinity of the sea-shore, the salt of which is liable to deliquesce and weaken the strength of the mortar. The proportions of the lime and sand to each other are varied in different places; the amount of sand, however, always exceeds that of the lime. The more sand can be incorporated with the lime the better, provided the necessary degree of elasticity is preserved; for the cement becomes stronger, and it also sets, or consolidates

more quickly, when the lime and water are less in quantity and more subdivided. From two to four parts of sand are used to one of lime, according to the quality of the lime, and the labor bestowed on it. The more pure is the lime and the more thoroughly it is beaten, or worked over, the more sand it will take up, and the more firm and durable does it become.

Clay. This abundant and useful earth is composed principally of alumine and silex. It possesses the valuable property of forming, when wet, a ductile and tenacious paste, which is changed by heat to a stony hardness. Common clay, of which bricks and coarse potter's ware are made, contains oxide of iron, which causes it to turn red in burning. The purer sorts, such as pipe-clay, become whiter when exposed to a high heat. The earthy smell which clays emit when breathed upon appears also to be owing to oxide of iron. Absolutely pure clay emits no smell. *Refractory* clays are those which endure the greatest heat without melting. The best fire-proof bricks and crucibles are made from slate clay, and contain a good deal of sand. Sometimes they are made of old materials, which have been before exposed to high heat, pounded up and mixed with fresh clay. A mixture of two parts of Stourbridge clay, and one part of coke, has been found very refractory.

Asbestos. Asbestos is a mineral of a fibrous structure. One of its varieties, called amianthus, is composed of very delicate, flexible filaments, resembling fibres of silks. It has been manufactured into cloth and paper, which possess the property of being incombustible. It is difficult, however, to find fibres of sufficient length and firmness to produce objects of any great use. It is sometimes mixed with clay, in pottery, to increase its strength. It has also been used for the packing of steam-engines which are of high pressure, or in which steam is used at an elevated temperature.

GRASS.

“And God said, Let the earth bring forth grass.”—Gen. i. 11.

THE Mosaic history of the creation is very concise, just giving a general account of the order in which its different parts were called into existence. And it is a most remarkable fact, that modern discoveries in geology, far from supplanting this history, are a very strong confirmation of it. Geologists are now satisfied that plants were called into existence long before the creation of animals, and that, of all animals, man appears the last in the list of created beings. Both plants and the inferior animals are found imbedded in rocks of secondary formation; but no instance appears of the inhumation of a human being in one of these rocks. From this and from other circumstances, it seems that mighty convulsions shook the earth, and swept off and buried its inhabitants, while man was yet primitive dust.

It is not now our design to prove the truth of this ancient history; but, like the good people of Connecticut, when they adopted the divine law as their code, we will be ruled by this until we find a better.

Grass, according to this history, stands first in the list of vegetable creation. Grass was called forth before animals had existence; and most of the land animals must have perished without it. This was at first their only food; and this, at the present time, is the most important of vegetable creation. In ancient times, grain was not in use. We have reason to suppose that for ages the human race was fed from milk, from the flesh of other animals, from the herbs of the field, and from the spontaneous fruits of the garden.

Figs alone would sustain life; and, growing without culture, they would naturally constitute the principal food. Grain, then, is a mere luxury, and might be

dispensed with ; yet the Graham doctors still indulge their disciples in the use of grain ! Even in the cold and figless climate of Britain, grain, in former times, was not relied on as a staple article ; but, as population increases, grain is demanded ; for the tract that would be required to feed a buffalo would maintain its thousands of human beings, when well planted with grain.

In the most populous portions of the earth — China is an example — few beasts can be kept. Grain is produced by manual labor ; and vegetable diet is the only food of the mass of population. A dollar now expended in meal will feed ten men a week : a dollar expended in meat would hardly last a day.

The raising of grain requires a soil by nature rich, or made so by culture. In a populous country are created the means of enriching the soil ; and these means supply the exhausted fields with the necessary pabulum or food of future plants. This is nature's rotation ; and nature's laws must be obeyed. If we will maintain our population on the luxury, grain, with the product of grain we must restore an exhausted soil. Grain is the great exhauster ; and we could readily render our plains fertile again, if we were not obliged to crop them with grain. Grass grows spontaneously, and does not exhaust our soil. You will dispute and controvert our doctrine until you have well considered the subject, and then ninety-nine of you in a hundred will agree with us. When your lands have been mown seven years without manuring, you obtain a larger crop of corn or grain, on ploughing up, than if you had mown them but four. What is the reason of this ? You get as large a crop because your grass is not an exhauster ; you get a larger crop because in seven years the soil becomes filled with grass-roots, to be decomposed as soon as you kill them with the plough. In seven years, your grass-land is hide-bound and choked with abundance of roots. It will not give you half a crop of grass ; but it is not because your land has been growing poorer in grass ; for if you

plough and lay immediately to grass again, you will, in most cases, double your crop. Please to consider this doctrine well; and when you have expressed your assent, we will urge you a step farther. As it is now winter, we may as well stop and think a little upon it till we meet again. We wish to put you in a way to double the profits of your grass-lands without injuring your other crops. This is a matter we have much at heart. If you can double your quantity of hay, you can keep double your present number of cattle. We think it possible to do this without the aid of LIME.

If you have as many cattle as you wish to keep, why, sell off half your land, and let us double the number of farmers as well as that of stock.

☞ We have engaged William Buckminster, Esq. of Framingham, to give us a series of articles on agriculture. He is an intelligent practical farmer, diligently engaged in improvements: his communications come home to the business and understanding of our farmers, and they will be much profited by giving them a thorough examination. We now publish one number on the important subject of manure.—*Yankee Farmer*.

ON MANURES, AND THEIR APPLICATION TO THE SOIL.

THE most important inquiries of the farmer are, “How shall I render my lands most fertile at the least expense? How shall I keep them in a state of fertility? What crops tend most to impoverish them?”

Probably the most powerful manure, and the quickest to operate on the soil, is the flesh of animals, or animal matter; but this is not so durable as that which operates more slowly; and it may be laid down as a

general rule, that those manures which are most active are soonest spent and gone. Lands, therefore, that have been manured with fish not only receive no improvement by the application, but in many cases they have been run out and impoverished to such a degree as to be wholly unfit for cultivation. It has been customary, in some places near the sea-shore, to put two alewives to a hill of corn, and apply no other manure. This powerful stimulant lays the whole soil under contribution, and exhausts every particle of the vegetable matter contained in it. It lies heavy and dead. The flesh of land animals would not operate so quick, and would remain longer to nourish the plants within its reach.

The excrement of animals operates differently according to the different circumstances under which it is placed. If kept in a cellar, and trodden down close by cattle, so that the air has not access to it, you will find it as fresh and as green at the end of six months as when it was first deposited there. The air is essential to its decomposition; and, on the same principle, the bottom of a fence-post keeps sound much longer than that part which is more exposed to the air.

This kind of manure needs to be cautiously managed, else much of it is wasted. Some good farmers have doubted whether we ever lose any of the beneficial salts of this manure from exposure to the sun and air; and they accordingly spread it on the surface of their fields, and care not to bury it deeper than a harrow will cover it. They contend that nothing evaporates but its watery particles, and that all which is valuable to vegetation remains in the soil. Some insist that this kind of manure should not be used till it is a year old, and that it should lie in heaps long enough to become rotten before it is spread on the soil. We need more experiments on this subject than we have yet seen published. As my uncle Toby used to say, "Much may be *said* on both sides of the question."

Some of our good farmers prefer to apply this kind of manure in a green state, and cover it well with the plough. They say if it is once buried beneath the surface, though buried deep, you may be sure it will impart to the soil all its richness, sooner or later; that, as the gases issuing from it never descend into the sub-soil, they must ascend; and that our only risk of losing its strength arises from not burying it deep enough. This theory is plausible, and is gaining ground in New England. It is pretty evident that the useful salts in this manure cannot descend far beneath the surface of the soil. If they could we should find the sub-soil rich in a field that had for ages been highly manured. We find it not so. Yet may there not be a loss in burying it too deep, not only in the first season, but ever after? Can you keep this kind of manure buried deep—in a cellar for instance—for years, without loss of its strength? From some experiments which I have made, I think you cannot keep it without loss, even in a cool place, where no fermentation takes place.

If this be so, then there is a loss if we bury it too deep in the soil. I think I have buried it so deep that it never gave a good account of itself the first year, or the second, and I had no hopes of it afterward.

That considerable loss arises from its evaporation, when laid on the surface, there is as little doubt. To be satisfied of this, one has only to pass by a field in the summer, manured in this manner: his olfactory nerves will teach him that something stronger than “watery particles” is passing off from the field, and going, possibly, to enrich another’s crop in a distant enclosure. And who can say that this may not be nourished by the passing effluvia as effectually as the man who was nourished by the steam from his neighbor’s beef steak?

There is a proper medium to be observed. Manure of this kind is found to do the most immediate service when slightly covered with earth. The roots of plants

are then not invited to an unreasonable depth, which retards their progress to maturity, and keeps the plants too long in a green state. For Indian corn, particularly, which seldom suffers from drought, we may plough and bury our manure too deep.

W. B.

Framingham, Oct. 8, 1838.

MAPLE SUGAR.

THE following directions for obtaining sap and sugar from the rock-maple were handed us by a friend. We do not expect to teach our New Hampshire and Vermont friends how to tap the maple; still it is possible they may derive some new ideas, as all do not adopt the same course in manufacturing the sugar. This mode of tapping with an auger has been practised for many years, but we were not before aware that the auger should not penetrate more than half an inch into the sap-wood. It is possible, in this age of honeyed words and sugar mania, that some may wish to be sweetened with the sap of the rock-maple tree that may be reared with their own hands by the road side. This is one of the cleanest and most beautiful of our forest trees, and may be propagated and transplanted with as much ease and safety as any tree which we have cultivated.— ED.

It is commonly in February, or the first days of the month of March, that the work of making maple sugar is begun,—the time when the sap begins to rise, though the earth may be covered with snow; and it flows nearly two months before the trees begin to show any vegetation. Having chosen a central place in respect to the trees that are to furnish the sap, a shed is raised,

called a sugar-camp. Its object is to shelter from the weather the caldrons in which the operation is carried on, and the persons who direct it. One or more augers, of about three quarters of an inch diameter; some small spouts to receive the sap, tubes of alder or sumac of eight or ten inches, open on two thirds their length, and proportioned to the size of the augers; buckets to empty the spouts and carry the sap to the camp; caldrons of the content of fifteen or sixteen gallons; moulds proper to receive the sirup, when thickened to the point suitable to be transformed into loaf; finally, axes to cut and prepare the combustibles, — are the principal utensils necessary to this work.

The trees are perforated obliquely from below upward, at eighteen or twenty inches from the ground, with two or three parallel holes at four or five inches distance one from the other. It is necessary to take care that the auger does not penetrate more than a half inch into the wood, observation having proved that there is a greater flow of sap at this depth than at a greater or less. It is recommended, also, and it is the custom, to pierce them in the part of the trunk facing south. This practice, though well known to be preferable, is not always followed.

The spouts, of the content of two or three gallons, are most commonly made, in the Northern States, of white pine, white or black ash, or maple. The chestnut, the oak, and especially the black walnut and butternut, must not be employed for this use, because the sap is easily charged with the coloring part, and even with a degree of bitterness with which these woods are impregnated. A spout is placed on the ground at the foot of each tree, to receive the sap that flows by the two tubes introduced into the holes made with the auger. It is collected daily and carried to the camp, where it is deposited temporarily in casks, from which it is drawn to fill the caldrons. It must always be boiled in course of the two or three first days after it is drawn

from the tree, being susceptible of readily entering into fermentation, especially if the temperature is moderate. They proceed to the evaporation by a brisk fire, taking care to skim it during the boiling, and they add to the richness of the liquor by the successive addition of a new quantity of sap, until, finally acquiring a sirupy consistence, it is passed, after cooling, through a covering, or any other woollen stuff, to separate the impurities with which it may be charged.

Some persons recommend not to heat it to the last degree of boiling, till twelve hours; others, on the contrary, think it may be done at once. In either case, they pour the sirupy liquor into a caldron, which is to be but three quarters filled, and by a brisk and well kept up fire, they bring it readily to the degree of consistence required to be poured into the moulds destined to receive it. It is known to have arrived at this point when, taking some drops between the fingers, they perceive some small grains. If in this last boiling the liquor boils over, a small piece of lard, or butter, is thrown into the caldron, which makes it immediately subside. When the molasses has flowed from the moulds, this sugar is no more deliquescent than the brown sugar of the colonies.

The process above described is exactly the same, whether the sap is drawn from the sugar-maple, or the red or white maple; but these two last species must furnish double the sap to make the same quantity of sugar.

Different circumstances contribute to render the crop of sugar more or less abundant. Thus, a very cold and dry winter is more productive than when this season has been very variable and very moist. It has been observed, also, that, when, during the night, it has frozen very hard, and on the following day the air is very dry and clear, the sap flows in great abundance, and that then a tree gives two to three gallons in twenty-four hours. It is estimated that three persons may tend two hundred

and fifty trees, which give one thousand pounds of sugar, or about four pounds to a tree, which, however, does not appear to be always the case with those engaged in the business; for many farmers on the Ohio assure us they do not obtain but about two pounds.

Trees which grow in low and moist places give more sap, but less charged with the saccharine principle than those situated on hills or slopes. They draw proportionally more from those situated in the midst of fields, or the length of inclosures from habitations. It is remarked, also, that when the districts where they annually make sugar are deprived of other kinds of trees, they obtain more favorable results even from unthrifty sugar-maples.

MECHANICS.

It is a subject of regret that the true principles of mechanism are not more generally taught in our country. Our people are as ingenious as any on the face of the globe; and, if they could or would profit by the labors of each other, they might advance farther and faster towards their objects than when each sets up for himself. We would not fetter genius; we would have each think for himself; but there is no necessity that each should build up a system from the foundation, and derive no benefit from those who have gone before him. He may build on their foundations, but, if he feels too independent of the pioneers of science to be instructed by their success or by their failures, he will be likely to make little advance in any branch of knowledge beyond those who started from the same goal. We are led to these reflections on witnessing the multitude and variety of machines contrived to effect the same object

by those who are unaware of what has already been done, and who are astonished, on presenting their claims at the patent office, or to the public, to find they have been anticipated long ago by others of whose inventions they never had heard. By not attending sufficiently to the principles of the mechanic arts, many contrive new machines of complicated form, with variety of wheels, and pulleys, and cogs, and bands, imagining that by all this trumpery they are gaining power, when in truth every additional item of gearing serves only to diminish power by the multiplication of friction. Hence the hundreds of patents for churns, for washing-machines, &c. &c. each more complicated than its predecessor, and of course requiring more power. Simplicity is the grand desideratum in all machinery, but that is too often disregarded. First principles are neglected, and we waste our strength in vain. The principle of the lever and steelyard are not generally understood, and we have been surprised at the ignorance, on these subjects, of those who ought to be better informed.

The simplest mechanical power is that of the lever. When the lever is ten feet long, and the fulcrum, or prop, is one foot distant from the body to be raised, one pound attached to the long end of the lever will raise nine pounds hung on the short end, because the one pound is nine times as distant from the fulcrum, or pivot, as the nine pounds are.

On this principle is formed the common steelyard; and any one who has an exact rule may prove the accuracy of a pair of steelyards merely by applying that rule and measuring the distances of the notches, or indents, in which the poise, or *balance*, rests in weighing.

Suppose the weight on the hook of your steelyard be five pounds, your *fulcrum*, or *pivot*, by which you hold up the steelyard is one inch distant from the hook; then take just one pound for your poise, and place it

just five inches from your fulcrum, and it will balance your five-pound weight ; or, if your poise weigh half a pound, you must place it just double that distance from your fulcrum, or hook, held in your hand. If your steelyards will not stand the test of your measure, they are false. But in order to make the steelyard conform to this rule, the short arm should exactly balance the long one. This is not often the case, and, instead of putting on more weight at the short end, it has been usual to reduce the *poise*, or weight, on the long arm. This would amount to exactly the same thing, if the poise continued stationary, and equally distant as the weight from the pivot ; for it is obvious, as in all equations, that adding to one scale is the same thing as deducting from the other ; but, to be equal, both scales must be equally distant from the pivot on which they turn. Now the poise in the steelyard is one of the scales, and this is continually shifting ground ; when, therefore, this poise is five times as far from the pivot as the weight is, one ounce added to it, or taken from it, makes five times the difference that it would do when five times nearer. Thus, by reducing the poise, the simplicity of the steelyard is totally deranged, for you must graduate your indents and figures by a complicated rule, or your balance is obviously wrong.

To avoid this difficulty, the balance weight is fixed on the side with the main weight, or, what is the same thing, a scale, heavy enough to balance the poise end is used, and the steelyard has now become a balance, and will give you the weight as accurately as two scales with fifty-six pound weights in one of them. And it is now extremely easy to detect a false balance ; you have only to weigh the poise and measure the distance of the indents and figures on the long arm, or scale beam. It is on this simple principle, this plain rule of simple proportion, that our largest scales for weighing hay, &c. are or should be constructed: 1 pound, 50 inches from the pivot, balancing 50 pounds hanging one

inch from the pivot, on the opposite side ; and a 50 pound poise will weigh down a load of 2500 ; for 50 times 50 = 2500. Simple as all this is, we have many patent balances.

[From Bigelow's Technology.]

LOCOMOTION.

ANIMALS of the more perfect kinds possess the power of shifting their place at will ; which power they exercise both in transporting their own bodies, and in conveying other masses of matter. The chief obstacles which oppose locomotion, or change of place, are gravity and friction ; the last of which is, in most cases, a consequence of the first. Gravity confines all terrestrial bodies against the surface of the earth, with a force proportionate to the quantity of matter which composes them. Before they can be removed from one spot of this surface to another of equal height, they must either be lifted from the ground against the force of gravity, or carried horizontally along the surface, resisting with a degree of friction which increases with their weight. Most kinds of mechanism, both natural and artificial, which assist locomotion, are arrangements for obviating the effects of gravity and friction.

Motion of Animals. Animals that walk, obviate friction by substituting points of their bodies instead of large surfaces ; and upon these points they turn, as upon centres, for the length of each step, raising themselves wholly or partly from the ground in successive arcs, instead of drawing themselves along the surface. The line of arcs which the centre of gravity describes is converted into an easy or undulating line, by the compound action of the different joints. As the feet

move in separate lines, the body has also a lateral, vibratory motion. A man, in walking, puts down one foot before the other is raised, but not in running. Quadrupeds, in walking, have three feet upon the ground for most of the time; in trotting, only two. Animals which walk against gravity, as the common fly, the tree-toad, &c. support themselves by suction, using cavities on the under side of their feet, which they enlarge at pleasure, till the pressure of the atmosphere causes them to adhere. In other respects, their locomotion is effected like that of other walking animals. Birds perform the motion of flying by striking the air with the broad surface of their wings in a downward and backward direction, thus propelling the body upward and forward. After each stroke, the wings are contracted, or slightly turned, to lessen their resistance to the atmosphere, then raised and spread anew. The downward stroke also, being more sudden than the upward, is more resisted by the atmosphere. The tail of birds serves as a rudder to direct the course upward or downward. When a bird sails in the air without moving the wings, it is done, in some cases, by the velocity previously acquired, and an oblique direction of the wings upward; in others, by a gradual descent, with the wings slightly turned in an oblique direction downward. Fishes, in swimming forward, are propelled chiefly by strokes of the tail, the extremity of which being bent in an oblique position, propels the body forward and laterally at the same time. The lateral motion is corrected by the next stroke, in the opposite direction, while the forward course continues. The fins serve partly to assist in swimming, but chiefly to balance the body, or keep it upright; for the centre of gravity being nearest the back, a fish turns over when it is dead or disabled. Some other aquatic animals, as leeches, swim with a sinuous or undulating motion of the body, in which several parts at once are made to act obliquely against the water. Serpents, in

like manner, advance by means of the winding or serpentine direction which they give to their bodies, and by which a succession of oblique forces are brought to act against the ground. Sir Everard Home is of opinion that serpents use their ribs in the manner of legs, and propel the body forwards by bringing the plates on the under surface of the body to act successively, like feet, against the ground. Some worms and larvæ, of slow motion, extend a part of their body forwards, and draw up the rest to overtake it, — some performing this motion in a direct line, others in curves.

When land animals swim in the water, they are supported because their whole weight, with the lungs expanded with air, is less than that of an equal bulk of water. The head, however, or a part of it, must be kept above water, to enable the animal to breathe; and, to effect this, and also to make progress in the water, the limbs are exerted in successive impulses against the fluid. Quadrupeds and birds swim with less effort than man, because the weight of the head, which is carried above water, is in them a smaller proportional part of the whole than it is in man.

SHORT-LEGGED ANIMALS.

OUR most judicious farmers prefer the shortest-legged neat stock, both for milk and for labor, and many are beginning to doubt whether even a long-leg horse is better than one with short legs. They have formed their judgment from experience,—the only true test in all matters of this kind. Many learned arguments may be adduced in favor of long legs; and, if the community should come to the conclusion on the subject by mere reasoning, without regard to experience, we be-

lieve long legs would be the most popular candidates for farmers' favor, both for the yoke and for the dairy ; and we should conclude that the horse especially could not travel so fast with short legs as with long ones ; but, on considering the subject well, we find a philosophical reason in favor of short legs for travelling, and this applies to animals of all descriptions. If you will revert to an extract in our last number from Bigelow's Technology, you will see a partial explanation of our theory. In moving forward, a man *commonly* advances one foot at a time : if he takes a long step his body sinks, for his supporters are not perpendicular when he brings up the other foot : his body rises, then sinks again, as he advances it forward of the first foot ; thus, at every step, his body rises and sinks ; that is, moves in a curved line : it describes the arc of a circle, of which the leg is the radius, or spoke, as the wheelwright says. Now the farther he strides, the lower his body sinks, and the greater must be the effort to bring it up again : his whole body is continually rising and falling while he walks, so that he loses ground by his deviation from a straight line ; and, the longer his legs are, the more he deviates from that line, and the greater effort is required to raise the body again. Take a wheel with only four spokes and no rim ; it will be constantly rising and falling while you roll it on. Take one, now, with eight spokes, and its deviation from a right line will not be half so great as that of the first ; and the longer these spokes are, the greater the deviation in either case. With four spokes and no rim, the hub of your wheel, in passing, describes a track much like that of our *improved* new roads, that require no other deviation from a right line than the mounting of hills and the sinking into valleys.

Horses, or other animals with long legs, naturally take longer steps than others ; thus their bodies have farther to travel, and a greater effort is required to bring them up again after sinking below their level.

So much for theory. Now for fact, — experience. The officers of our revolutionary army discovered that the short-legged soldiers, and especially those that stepped short, were less fatigued on a march than others were. Isaac Howe, of Framingham, who is now near eighty years of age, entered the army in 1775, at the age of sixteen. He served through the war, and was a most excellent soldier: he was also one of the best laborers we ever hired. He has often told us that it was a common saying in the army, — “The soldier that steps short is least fatigued on a march.”

We have uniformly found that short-legged horses were every way to be preferred; and that, of long-legged ones, those were best that took the shortest strides. Low horses handle their feet best, for they are nearer to them. They stumble least, for the stumbling-blocks are nearer their sight; and, if they fall, their fall is not great, like that of the high house of the foolish man; nor like that of Lucifer, never to rise again.

Cows with short legs are observed to have better udders than others; and their trunks are better formed to make room for the lungs. Their tails are longer, in proportion, and they more easily brush the flies from their hind feet, so much exposed to the afternoon calls of those inquisitive visitors.

THE LADIES.

“And the Lord God said, It is not good that man should be alone: I will make an help meet for him.” — Gen. ii. 18.

Now, my dear, delicate friends, let us not see this Scripture perverted or wrested, as many texts are, to the destruction of the dairy, the farm, and the hopes

of the husband. The cows must be milked twice a day, and we want a little aid from you, as wages are high, and the mower must not long be detained. As we are sometimes kept late in the field, we hope to find all the cows milked on our return; but milk them properly, or they may better stand till our return.

Let no small children enter the yard at the time of milking. Let not the cows be disturbed at night, but approach them with kind words. If you scold them, or whip them, you may be cheated of half your milk. After you have brushed the dirt from the udder, and seated yourself on the right side of the cow, grasp the teats, one in each hand, near their extremity. Squeeze gently at first, or the cow may be pained and start away: after a few squeezes you may venture all your strength. In about half a minute, if the cow has been well bred, the milk will flow as fast as you can possibly draw it from the teats. Now let nothing interrupt your labor. Squeeze the teat and draw it down at the same moment; and, at every relaxation of your hand for more milk in the teat, press up your hand against the bag and this will have a tendency to bring all the milk out of the udder: it is an imitation of the butting of the calf against the bag.

You must not stop to speak nor to be spoken to until your cow is finished. If one speaks to you, the milk streaming into your pail makes so much noise you stop in order to hear; then the milk, which began to flow so freely, goes back again into the ducts that supply the udder, and you lose your opportunity. Like the sap of the maple, you must take it when it flows, or its juices go to enlarge the tree: so a cow, half milked, will gain more flesh, at the cost of your milk and cream. Move the udder, at the close of milking, in every direction, to be sure you have all the milk; but do not spend a long while in stripping lest you get the cow into a lazy habit of ekeing out the richest portion of her bounty.

In the morning, the cows should be driven, gently, two or three times around the yard before milking: they will yield more for the exercise, and they will be less likely to scatter manure in the way to pasture. We have seldom hired a good milker. Females are better than men: they have more patience. A good milker will obtain at least one quarter more cream than one that milks slowly. We have often proved this: we hired, one summer, a man from New Hampshire, who had managed a farm several years: he was clever, but extremely moderate. We then had four cows in milk, and discovered our slow milker was *fast* drying up our cows: we concluded to give him our aid, and let him milk only two. On the first trial, he obtained the same quantity that we did. In one week, we obtained one quart more than he at a milking. He said his cows were not equal to ours: we then shifted, and obtained, within nine days, more milk from his cows than he did from ours. This was wholly to be ascribed to his moderate milking, for he left none in the udder.

TAILS.

THE tails of neat stock are ornamental and useful. How ugly a cow would look without a tail! Then how convenient this brush in fly-time! not all the fans, and fingers, and brushes ever invented, are equal to a good tail on a cow for brushing away those naughty intruders that are always readiest to hug and buzz in a season when you can spare them best,—the hottest weather. Cattle with short tails are much afflicted with this kind of company, which at noonday annoys them to such a degree they are prone to retreat to the

woods, or to a lake, in which they will plunge deep enough to drown all that adhere to their legs. It has been observed that neat stock are more sensitive in the hind legs than in the others, and that they therefore suffer the loss of their tails.

We think it a barbarous practice to deprive of their fly-brush any description of animals, unless they have been guilty of some offence, — as the horse, for using his brush so freely as to take, like a ruthless politician, your very reins from your hands. Clip him, *cur-tail* him, and teach him better.

An idea extensively prevails that the tails of cattle and of hogs should be shortened; that hogs fatten much better, and that neat stock contract diseases unless deprived of a portion at least of this ornamental queue. Is this fact, or fib? We think it worth while to inquire. We have recently heard it asserted that there is no necessity of docking the tails of animals. We solicit communications on this subject. If it be necessary to cut away any portion of the soft, spongy extremity, let it be done.

Last December we killed two pigs of the age of five months: we judged that one would weigh two hundred. We never had any pigs fatten better than these, and we had wholly neglected to shorten their tails.

If it be necessary to cut from the calf or from the cow, care should be taken to leave on much as possible of the hair for a brush. It is asserted that cattle with long tails are able to keep from their backs the fly that there often makes a puncture and deposits its eggs: these eggs become worms, and are not the most pleasant sojourners in hot weather.

Cows with short tails will annoy their milker much more than with long ones: with short ones, they strike his face as with a club, while long ones move more slowly, or pass entirely over the head.

MILKING.

WE have forbidden children, and cats, and dogs, and talkers of all descriptions, to enter the yard in the milking season, for all should be quiet, if you would get all the best of the cream; but if children enter not, how will they learn to milk? If you have an old cow that you intend to dry soon, let your fresh-man — or fresh-woman, as they are styled at female colleges — make a first trial on her. Teach him to sit *close* to the cow, for the nearer he sits the less will he be hurt by a kick. He should sit so far back as to front the side of the udder, and his left arm should constantly rest against the cow's right leg; then if she raises her foot, his arm will keep it off the pail; and she cannot kick him for two reasons: her limbs are so formed that she must either strike forward or back; and, if she could kick out directly towards him, he would receive no blow while his arm rests firmly against her leg: the most she could accomplish would be to push him away.

The child should grasp the teat close to its extremity, and the milk will be easier drawn.

Sometimes, in cases of malicious kicking, the cow should be whipt with a birch, but this should instantly follow the offence, or she will not well understand why she is punished; still it is better generally to flatter them into their duty as the cunning schoolmaster did his scholars, for you must expect no full pail at the time of using compulsory measures.

Well-bred cows seldom kick, but they often raise up a foot to brush the flies off, or to give you a hint that you do not hold the teats right, and that you give them pain. When there is the least doubt in your mind whether a malicious kick was intended, by all means put the most favorable construction on her conduct, and treat her accordingly, as real gentlemen always do on the conduct of females of all descriptions.

ON MANURES, AND THEIR APPLICATION TO THE SOIL.

WOOD-ASHES, leached and unleached, are a valuable manure, and, placed in large quantities on light and sandy loams, they alter permanently the quality of the soil, rendering it more adhesive, more retentive of moisture, and consequently more protective of stable manure subsequently applied.

It is a very common notion that ashes should be applied to moist soils, in order to render them drier. This is clearly a mistake. Though ashes, in small quantities, assist the vegetable growth in all soils, they never should be laid on low heavy lands: they contribute to make such lands, in time, more heavy still. Ashes operate in two ways. The lie from those that are strong is a very powerful decomposer of vegetable substances. It is from this cause that we see so marked a difference when applied under different circumstances. On greensward, newly turned and full of grass and their roots, strong wood-ashes have a powerful effect. They very rapidly decompose these substances, and convert them into active manures. When applied to old fields, destitute of roots, &c. as we often apply them by the single handful to a hill of corn, they seem to be of little use, there being nothing on which they can operate. They only serve to render the soil more compact and adhesive; but the quantity thus used is too small to produce a sensible effect by way of a permanent amendment of the soil. But leached ashes may often be purchased at such a rate as to justify the application of them to light loams, in such quantities as to render a material alteration in the quality of the soil. Thirty or forty cart-loads to the acre will often improve such a soil, not by virtue of the lie that may remain in them, but of the heavy earthy matter, the dregs, that serve to render the whole soil more retentive of moisture. But as the lie that may still remain in them in small

quantity will not avail perceptibly, unless the application be made on greensward, or other vegetable matter, these leached ashes may not be worth more than so many loads of clay on a sandy soil ; for without their lie they operate mechanically only, and not as a stimulant, or a decomposer of vegetable matter. Therefore leached ashes, perfectly drained of their spirit of lie, can hardly be counted as a manure, serving only the office of a component part of the soil.

That wood-ashes, unleached, have the effect, before stated, of rapidly decomposing vegetable substances when applied to them, will be evident, not only from the different effect they produce on greensward compared with soil long under cultivation ; but we can show, merely by applying these substances to a tub of strong lie, that it has a most powerful and rapid action on them, decomposing them totally in a very short time.

Yarn put into a bucking tub to be whitened will soon be spoiled if the lie be strong ; and it is a maxim with those concerned in the process, " that the yarn must not remain there long."

A few years since, my boy was set to wash the apple-trees with lie. He made it very strong ; he used a new paint-brush made of bristles. In less than two hours, the brush came to pieces. It was completely decomposed, or rotted ; it was in that short period turned to manure. A strong piece of woollen cloth was afterwards used. This shared the same fate with the brush, and in less time.

W. B

Framingham, Dec. 1838.

LOCOMOTION.

LOCOMOTION is a subject that has often engaged the attention of ingenious minds, and since it is recently ascertained that our old modes of shifting from place to place were not the most easy and rapid, but that we may, with the new apparatus, improve our speed three or four fold without additional fatigue, it is quite natural to inquire whether the means of locomotion in common use on our gravel ways are not capable also of some improvement.

The wheel has long been used to diminish the friction occasioned by dragging bodies on the earth, and various are the modifications it has undergone to render it more perfect and free from friction. The greatest obstacle opposed to the action of the common wheel is the unevenness of the road or track on which it operates. To reduce our uneven surface to a level is laborious and expensive; but it is not a difficult matter to render the most of our roads smooth, so that wheels, and carriages, and teams, and passengers, would suffer far less than they do on our common ways. Our legislature, therefore, a few years since, ventured to pass a law requiring that the felloes of heavy loaded wheels should not be less than five inches in width. This law was not suffered to go into operation: it was to have taken effect two years after its enactment; but, before that time arrived, a majority of the body were panic struck at the near prospect of a good, smooth road, and probably considered it would prove injurious to health to ride and take the air without a good shaking at the same time; they therefore repealed the law, and we have been blest, on our common roads, with a most healthy circulation — of the blood — ever since.

It is wholly impossible to keep roads good while teamers are allowed with narrow wheels to carry six

and seven tons at a load: such loads, at least, should be carried on wide-rimmed wheels. Many now use them voluntarily, and contend they are easier drawn; but this is questionable, when the road by narrow ones is cut up into ruts, though there can be little doubt, if all loaded wheels were wide, they would run with more ease, the surface acted on being rendered perfectly smooth by the action of the wheel itself. Then it should be considered that one half the expense of *mending our ways* — a mighty task oftentimes — would thus be saved. Every road-maker and mender knows that it is the narrow wheel that cuts out gutters which invites the waters to rush in one channel, and, like a mob, harmless when separated, do mighty mischief with their concentrated forces if allowed to act together.

But we must bear with our rough and mangled roads till we have legislators who may think it as important to prevent a somerset in a cart-rut, as a reeling from a public house; who will prevent the tripping of the feet, as well as that of the tongue; and who will not spend so much of their brains — or breath — in directing what we shall eat, or drink, as in providing wherewithal we may travel with ease.

A difficulty arises in setting a wheel properly, from the supposed necessity of making the inner box larger than the outer one. So long as this fashion continues, we know of no rule for setting the wheel on the axle that is not objectionable. Indeed, there is no general rule, and we find wheelwrights guessing at the proper declination of the wheel from a perpendicular posture!

This should not be. It is obvious that the axle must not be made of a true taper where it enters the hub, for the load would tend to crowd it off, and the draft of the team also would have the same tendency. It is therefore the practice to set the wheel under, and make the under side of the axle in the wheel range

with the body of the axle: this sets the wheel under so far that it crowds towards the shoulder and creates much friction. Regardless of this, carriage makers often set the wheel still farther under the vehicle, and make the wheel dishing, the spokes standing out in a bracing position from the hub, the under portion of them being perpendicular, while the upper ones stand thirty degrees from a perpendicular position. The wheel is stronger when it assumes this dishing form, as the laboring spokes stand more upright than they otherwise would with this crooked axle; but the great difficulty is, the wheel runs hard, it presses too hard against the shoulder. To prevent the wheels inclining to run off from its toeing out too much, the end of the axle is bent forward, and this is called the *gather* of the axle; but here is no rule for the gather: each man crooks his axle according to fancy. Is it a wonder, then, that some of our carriages run so hard? We find there is much difference in their running. This increased friction is not the whole difficulty; the carriage is vastly more liable to be upset by this under setting of the wheels, and we know of no rule by which you can set wheels properly while such a difference exists in the size of the boxes: we therefore propose that the inner and the outer boxes be made very nearly of a size. We well know there is more friction with large axles and boxes, but we are satisfied we gain on the whole, and that a wheel set in a perpendicular position, with a straight axle, will need no gather, and will run with much less friction than when set in the common mode. You have, then, a plain, straight rule to go by, which may be practised by you, and taught to your children.

ORCHARDS.

WE hope you will not forget what we have said on setting out trees. We grieve to see so much time and money heedlessly thrown away, and we shall often invite attention to the subject. We have yet said but little on trimming: for years we have heard the cry of trim, trim! in some of the papers, as if we could never trim enough. We think many orchards are injured by excessive trimming, and know that large limbs should never be cut from the tree. Heading down has been practised by many, to let the sun in to ripen the fruit! One consequence is, the tree branches out, covers a large tract of land, and is forever in the way of your plough, your team, and your head. Then you look out for a high tree in vain, and you leave a great portion of the space you are fairly entitled to by deed, "*usque ad coelum*," — up to the very heavens, — entirely without occupation. We think no leading upward stem of the apple-tree should be lopped after it is taken from the nursery, or after three years' growth: a twenty-foot tree will produce you more than a ten-foot tree, and one good quality in a tree is height.

On the other hand, it is contended, by some, that a tree should never be trimmed; that nature has provided no surplus limbs, and that *nature* must be implicitly followed in all these matters; and that, when the limbs grow too thick, they will die of themselves, as we often see them in thick forests of timber, and injure the body less than any kind of trimming.

This doctrine may lead us too far. It is *natural* for grass to twine around the roots and ruin the young tree. Moss will *naturally* grow on its trunk, and caterpillars will *naturally* lodge in its branches; but we must apply the remedies, the natural remedies.

As to the forest trees, we cannot do better than let

them alone : every leaf we pluck off injures the trees. The several species of pine and evergreens are ruined by using the axe and the saw. The pitch — the life-blood of the trees — flows out at the wound, and we at the same time deprive the tree of a portion of its lungs. It may still live, as animals have done, many years after losing one of the lobes of the lungs by decay ; but the bare existence of the tree is not enough : we wish it as much top as it will bear, that it may draw on the earth and on the air for all the nourishment they can afford. Further, — by trimming young forests we open them to the winds ; the leaves blow away instead of turning to manure and keeping the soil light ; the grass-roots occupy the space intended for the roots of the tree, and you are a greater loser than he who puts his rum all into a sieve. You lose the sap, the leaves, the room for your roots, and the powers of the tree to extend its growth. But we will not be forced by theory to the contrary extreme, and shall not recommend to let fruit-trees wholly alone. We think nature has provided them with some excess of leaves and of branches, to meet the demand of the worms and of the insects that are constantly preying upon them. The storms, also, come in for a share of the spoil. Now if we destroy these worms and insects, and the storms have used no violence, a surplus of limbs and of leaves remain for the knife, and we may then, with impunity, trim the *small twigs* as we cut off our hair, our beards, and our nails. This excess, which nature has supplied for extra occasions, may be safely lopped away ; the wounds will soon be healed in either case ; but take from an animal his hand, his leg, or his finger, and, though he may yet live, you in part deprive him of his vigor.

Let apple-trees, then, have height as well as breadth. Suffer not their limbs to run low. If beside the highway, the cattle will trim too much ; if in the field, they stop your plough, that must not be a stranger

there. The stirring of your grounds and killing your grass will produce fairer fruit than all the trimming you can devise. We have now a tall apple-tree by the road side. Its fruit is the Newton pippin. It bears every year from four to fourteen barrels of good fruit. If this tree had been headed down, we could not hope for half that quantity from the tree. We are much pleased to see, in a late number of the Albany Cultivator—one of the most able and practical papers in the country—an article on trimming trees that very nearly coincides with our views.

In orchards we commend straight rows, for we can use the plough with more ease; but this is not the most essential item in setting out trees. Mr. Wright was once famous for straight rows. He would at any sacrifice put them in straight lines.

He once commenced setting a row, and, when he had planted a couple, he went in each direction, shut up one eye, like a marksman, and, after taking most critical sight at the range of the trees, observed, with much satisfaction, "There, I have set two in a line."

The best wash we ever tried for young trees is strong lie: two pounds of potash will make near a pailful; and this may be applied by means of a swab, made by nailing a piece of cloth to a handle. A painter's brush is more handy.

ON MANURES, AND THEIR APPLICATION TO THE SOIL.

MANURES of this sort, viz. the excrement of animals, if not applied to the soil before fermentation takes place, should be mixed with a very large proportion of matter that will absorb the liquid portions and retain the salts until they are wanted for the growing vegeta-

ble. It was an ancient practice to keep this sort in a heap till it had become old, at least, if not rotten; for it is evident that old stable manure operated more powerfully than new, or green manure; but, since it is ascertained that such manure, while in the early stages of fermentation, promotes vegetable growth, and that, if they lie in heaps, unmixed, they become too warm and lose much of their strength, the good manager must either add to the pile a large quantity of mould, or dead matter, or he must apply it immediately to the soil, and mix it there with plough and harrow.

If the entire strength and richness of stable manure can be secured by this immediate use of it, or covering under the field furrow, a vast amount of labor in carting and overhauling may be saved. If it is as well to mix it in the field as in the heap, none would be at the trouble and expense of heaping. What do we gain by this latter mode? We create more heat than we can do under the furrow, and consequently a more rapid decomposition. In creating this heat do we lose nothing by the escape of the gases? Do we not, in short, secure, by burying green stable manure under the furrow, all the salts that can be secured in any mode? Probably no method which we can adopt will secure the whole richness of this manure; but, as the labor of carting it a second time, and of mixing, is very considerable, and, as a certain loss is sustained on removal after decomposition has commenced, the prudent farmer will probably think it cheapest and safest to apply such manure immediately to his soil whenever that is so circumstanced that he can cover it in a proper manner.

This may be done in all crops of Indian corn and of potatoes, whether the field be greensward or old furrow; but, for field turnips, or for garden vegetables, fine manure is more proper; for we cannot, in these cases, cover it so well with the plough. Turnips of all kinds require the soil to be rich on the surface, and

no quantity of long manure, buried deep in a poor soil, will give a heavy crop.

When we speak of burying manure, we do not mean the burying of a shovelfull in a hill, either of corn or of potatoes. A more pernicious practice was never adopted by a farmer. By it he seldom harvests so good a crop in the first instance. Then in what condition is his manure the following season? In heaps! and his second crop of wheat, oats, or rye, will be in clusters. His grass, too, will grow in heaps; but he gains nothing by this, for he must spread it before it can be fit for the barn.

It should be the aim of every farmer so to husband his land that it may become more and more valuable from year to year.

W. B.

Framingham, Oct., 1838.

[From Chambers' Edinburgh Journal.]

MAKING AND SALTING OF BUTTER.

THE following notes on this subject are by an individual (a female) who has been personally engaged in the preparation of butter for fifty years:

Some time ago I observed in the Journal a comparison between Dutch and English butter. Could the particulars of the Dutch method be obtained it would be a very desirable acquisition; but I apprehend the superiority of their butter is chiefly owing to the pasture and an unremitting attention to the duties of the dairy. In our own country the pasture affects, in a high degree, the quality of the butter: old pasture produces much richer butter than new; and, on some hilly grounds, where wild flowers and certain kinds of

grass abound, the flavor is much finer than on low grounds, where the pasture is more luxuriant.

In the want of better information, regarding this very necessary article of domestic comfort, I am induced to send you a few remarks, which may, perhaps, induce others who are better informed to do the same, so that the most approved methods of curing butter may, by the medium of your widely circulated paper, be known throughout the length and breadth of the land.

As a preliminary, I must beg the indulgence of being very particular; for the whole process is made up of small things, the neglect of one of which might affect the whole. I also wish it to be understood that my observations are chiefly adapted for the use of small establishments, where from three to six cows are kept. It is inferred that every thing in the dairy is conducted with the most strict regard to cleanliness. It ought to be a cool, dry, well-aired place, free from all damp and bad smells. It is a great mistake to suppose that the art of making good butter consists merely in having it properly churned, thoroughly washed, and sufficiently salted. All this may be most pointedly done, and yet the butter turn out very bad. The main thing — and it must never be lost sight of — is to keep the milk, in all its stages, from contracting the least degree of taint. By taint I do not mean sourness. Sourness will not injure the butter: on the contrary, it greatly facilitates churning; and, to obtain this in winter, when cream is slow to sour, it is necessary to place it, for twenty-four hours before churning, within the influence of a fire, and to stir it thoroughly two or three times during this period.

Cream ought never to remain on milk above thirty-six hours. This I consider to be a very important point; for if, by any omission, cream be suffered to remain for a longer time on milk, it is sure to contract an old bitter taint; and it would be more true economy

to pour such cream into the pig's trough than to introduce it into the churn, as it will spoil the whole. A properly leaded stone jar is better than a wooden vessel for keeping cream, because wood is more apt than stone-ware to get mouldy: a slight mould soon communicates itself to the cream, and of course to the butter.

A wooden rod must be continually kept in the jar, and every time cream is added, the contents must be stirred from top to bottom with the rod. This is very essential; for, if neglected, the cream first put in will gradually rise to the top, and so get tainted. Cream ought never to be kept above five days; but four is still safer for butter that is to be salted.

If the atmosphere at the time of churning be above fifty-four degrees, one quart of the coldest spring-water to every three gallons of cream, put into the churn at commencing, will be a great advantage, and will injure neither butter nor milk. If there be the slightest cause for suspecting that the butter has suffered from hasty churning in warm weather, it ought to be salted for present use, and not put into the kit with keeping butter.

Butter, on being taken out of the churn, ought to be instantly washed in spring-water until the water comes off colorless. After this, the sooner it is salted the better. In salting, use the best English salt,—such as is used in the curing of herrings. To three parts of salt add one part of loaf sugar, both finely pounded, and perfectly well mixed. One ounce of this to sixteen ounces of butter is the proper quantity. Let it be thoroughly incorporated with the butter. In cleaning and salting butter, a stout creaming dish is preferable to the hands.

Kits made of wood are much superior to stone-ware in keeping of butter. The top of the kit ought to be about one fourth narrower than the bottom, and the wood nearly one inch in thickness. A thin-wooded kit is not so favorable for preserving butter.

In the process of salting, a little salt and water ought to cover the butter from the first, and a piece of thin linen should also be spread over it. The sides of the kit must be daily wetted with thin salt and water, by which mould is prevented from forming on the empty part of the kit during the time of filling. The kit ought to be filled within one inch of the top, and kept constantly covered by linen, and a pickle of salt and water. Butter is apt to rise above the pickle. This is easily prevented by turning a dinner-plate over the butter. By placing a weight on the lid, the plate will be kept down. The kits must be kept on a cool, airy shelf of the dairy — not on the floor — and occasionally moved around a little. Butter for keeping may with safety be salted during all the time the cows are on pasture. It is a most useful thing to have a slate in the dairy, whereon to note down the date and produce of every churning; also what is salted or otherwise; and these notes to be set down occasionally in a book. A jar of ready-made pickle, just strong enough to move an egg, but not so strong as to cause it to swim to the top, ought always to be kept in the dairy. Have also at hand a can of prepared salt and sugar, to be kept in a dry place, as the dairy will be too damp. The kits ought to be all numbered, and those first salted should be first used.

I have still to beg your indulgence for a few thoughts suggested by the above observations. In this enlightened age, when each class of the community is vying with the rest in improving the commodity which comes under their immediate care, it is surprising that public attention has been so little turned to the improvement of the mode of salting butter. The same complaints from the same cause are constantly to be heard, and there the matter rests, and so it will rest, unless general attention be directed to it, and a decided effort be made. Nothing is wanting to remove this grievance but a few slight attentions. There is no additional toil, no

additional expense. What a pity, then, it is, that those to whose care the preparing of this article is entrusted cannot bethink themselves to bestow these slight attentions. They should take into consideration the comfort of thousands of decent householders, who are both able and willing to pay for a wholesome article, but who have no alternative, but either to use the butter that is offered for sale, or to want it altogether. There is another consideration which ought to have its own weight, namely, the honor of their country; and none, however humble, should think themselves too insignificant to contribute to this. It is the many that make a whole; and, if we always throw our influence on the right side, we have the satisfaction at least of having done what we can to create the happiness of our fellow-creatures.

We approve of the above mode of making butter. An idea has prevailed to some extent that it was injurious to wash butter after churning; and it is contended that the goodness is thus washed out; but we are satisfied by experience that washing in water assists to expel the buttermilk and prepare the butter for the tub. The hand should never touch the butter — provided the dairy-woman can cleanse her hands well without it — for every particle of butter that is melted by any means serves to injure the mass. Small wooden spades should invariably be used for working over the butter. — ED.

 WHEELS.

By placing wheels perfectly upright, we have the plainest rule for making the axle; we have the least

possible friction ; the carriage is less liable to be over-set ; and the tire runs square on the road, — a matter of no small importance where the felloe is four or five inches wide.

If the axle of a chaise is made to revolve with the wheel like the axle on railroad cars, there would be no need of boxes in the wheel. The axle would then be framed fast into the hub, and the boxes for the axle to turn in would be on the frame or shaft of the chaise, and the boxes might then resemble staples with nuts to screw on to their points so as to draw them up closer as the axle by friction became less.

In this mode the friction would be less ; for a less surface would be exposed to friction : oil or grease could be more easily applied, and the wheel need never be taken off unless you break it, as Tom said of his dinner-plate when the waiter offered to change it. Wheels made thus need not be so stout at the hub, and would be much lighter. Little or no noise would be heard ; for, if the boxes were not screwed tight, there would be no tendency, as in case of a loose axle in a hub, to rock to and fro : the pressure of the load would prevent it. The only objection we know of to this mode of hanging chaise-wheels is the difficulty of turning, as both wheels must move together ; but, where a carriage is loaded no heavier than a chaise, it is easily turned, though one wheel may slide.

Thus we should gain in several points : in a saving of expense, in lightness, in oiling, and in a perfectly quiet movement. This last advantage, a quiet movement, is seldom attained in the first run of a chaise, and it is never long kept. When the wheels have worn loose on the common axle, they rattle like a cart, and no bells are wanted to warn the public to clear the way.

ON MANURES.

WE wish often to invite the attention of our farmers to this subject, that they may reflect upon it, and suggest improvements on our plans. We belong not to that class of farmers who think we can make no farther advances in the science; neither would we be classed with that great farmer spoken of by Sir Walter Scott, who had made such wonderful improvements on his estate, and pulverized it so much, that it all slipped through his fingers.

The man who thinks he has arrived at perfection in farming, will be no more likely to make improvements therein, than he who fancies that his own morals and religious creed are the purest the world has seen. He is surely an unprofitable Christian who makes no advances in piety; and he is no commendable farmer who refuses to attempt improvements.

While chemists are investigating the causes of sterility of certain soils, and suggesting the proper remedies, let us, who are practically engaged in the labors of the field, contribute our mite of theory, and prove it by actual experiments.

We sincerely believe that, by a proper management of our common manures, we might avail ourselves of double the profit we now derive from them, without any additional expense. In the common mode of wintering cattle, the liquid portion of the manure is usually lost: people rarely attempt to save that portion, which is quite as valuable as all the residue. We would give thrice as much for the manure made by a horse that shall stand on his own litter through the winter, or summer, as we would for that which is daily thrown out into a heap beside the barn, to freeze through in the coldest weather, and to heat and turn white as soon as warm weather approaches.

Pull away, then, at once your stable floors, all who

have stables in the country, and let your horse stand several feet below the barn floor. He will be warmer in winter, and cooler in summer, than he will be perched up on a plank floor; he will be out of the way of both flies and frost; he will keep your manure from burning and from freezing; you will save all the liquid; and your horse will stand vastly more at ease than he can on any plank floor.

And what does all this cost you? A barn thus built will cost you less; you save the expense of a floor that is always wanting repairs; you save the trouble of daily cleaning out your stable; you save your horse's feet, the hoofs of which will grow all winter, and be in good order for shoeing; you treble the value of your manure, for you save every gill of the liquid, and you keep it in the most perfect manner without heating or wasting, till the very moment you want it for your compost heap, or for your field; for as soon as you fork it out from under your horse — and not before, though you delay it till June — fermentation commences, and you can have the whole advantage of this fermentation.

This new process costs you the labor of throwing under your horse any rubbish whatever that may lie in your way, — loam, weeds, scrapings of the door-yard, leaves, poor hay, straw, — every thing that will absorb the liquids is thus turned to manure; and if you keep your horse the whole year in the stable — as you should do if you intend he should be handy and useful to you — his manure will amount to fifteen loads, and will prove more durable in your soil than any you shall make from neat cattle or from hogs.

The liquid part of horse-manure is found to contain great quantities of ammonia, which is well known as one of the best articles for vegetation. The whole philosophy of thus preserving your manure from overheating consists in its being excluded from the air by the firm beating which the horse's feet give to it.

Your horse's cellar should be about ten feet square, that the manure may not rise too high before you are ready to remove it; but you can occasionally tie a friend's horse beside him when you have not other room, and they will never kick each other *if their heads are tied apart*; for HORSES never suffer their heels to make war until some notes have passed at headquarters.*

SOILS.

It is agreed by chemists that most of the soils with which we are acquainted consist of sand, clay, and lime: we beg the reader's pardon for using these plain, simple terms, and fear we shall not be understood by some who have become used to silicious, aluminous, and calcareous soils so long that they may have forgotten their mother tongue; but as it is our object to treat of things rather than of words, we intend, at the risk of our reputation as a Latin scholar, to make use of the English language in all cases where that is capable of conveying our meaning.

Sand, clay, and lime, then, are the principal constituents of most of our soils, though magnesia is often found in small quantities: iron ore and other minerals are occasionally found intermixed, but they are not considered as forming a portion of the soil. Lime is found in but very small quantity in any New England soil, and Professor Hitchcock is surprised to find so little in the soils of Berkshire county which are founded on limestone.

He says that some of the soils in Europe contain fifty per cent. of lime, or calcareous matter, and that

* Written when Maine was going to war with the British without leave of congress.

only one in thirty of our soils contains any. That the lack of this matter is not confined to Massachusetts, but that similar statements are made by Edmund Ruffin, Esq. of Virginia, of the soils of that State, and of some of the Western States, even in limestone regions. He states, further, that he has recently examined five of the richest soils of Ohio and Illinois, and that though he found calcareous matter in all but one of them, yet that the average quantity is not over two per cent.

It seems, therefore, that if our soils are wholly destitute of lime, but little would be wanted yearly for any kind of grain. But why so much lime should be used in Europe on soils that seem to abound in that article is wholly inexplicable. We have some of the richest soils on the globe in Ohio and Illinois, and these contain not more than two per cent. of lime; while some European soils contain fifty per cent. of lime, on which more is artificially spread, to make them fertile! We are much inclined to think that something besides lime is wanted on our New England soils.

Iron ore is found often in our low intervals: you detect it on the surface of little puddles of water in your low grounds: it sometimes shines like silver. Lime would be beneficial in all such places to neutralize the acids. Spots abounding in iron ore are among the most barren in our country; and yet their location is often favorable for the largest crops of grass, were it not for the presence of this mineral.

The principal constituents of soils, then, are sand and clay; and the proportions of these in Massachusetts in many fields would be found to be ninety of sand, to ten of clay, while, in many districts in England, we shall find these proportions reversed. Clay is the article most wanted to improve the texture of the soils of Essex, Middlesex, Norfolk, Plymouth, Bristol and Worcester counties. And clay is sometimes found so near the surface, that a good plough will bring it up and mix it with the sandy surface soil. When this

can be done, it is the cheapest mode of correcting a soil and making it permanently better. When the surface soil is too clayey or heavy, it may sometimes be corrected by ploughing so deep as to mix up with it a lighter and more sandy soil. This process is attended with very little expense, compared with that of carting one kind of soil upon another from a distance. It is believed that all mixtures of soils are beneficial — unless, perhaps, you have already a perfect mixture — and the new compound is generally put into a partial state of fermentation, which is always promotive of vegetable growth.

PEAT LANDS.

WHENEVER you find a peat bottom that can be drained, you may be sure of a good bottom for grass as you would be after travelling and pitching your tent in Michigan or Illinois. If the meadow is not abundant in springs, your ditches may be two rods apart, and in some cases more. It is not advisable to make them nearer than is necessary, for we occasionally want to plough these meadows, and frequent ditches are in our way.

In a dry summer, the cheapest mode of bringing to fertility these lands is to pare and burn them ; and when you have a good burn, the ashes will be a sufficient manure for years. Paring is sometimes performed with a paring plough — the share having two wings, one branching to the right like a common plough-share, and the other to the left — the coulter in the centre, and no mould-board to your plough.

When this is in good order, one yoke of cattle will draw it through large hassocks where three yoke would

not drag a plough. The object of paring in this mode is to furnish or to leave a good footing for the oxen, for they can seldom walk in the furrow. After thus paring, hoes and forks must be used to turn it up dry; and it will frequently burn well within two weeks of paring. Sometimes you need be at no trouble in piling up the sods, and in that case your ashes are ready spread, and you have nothing more to do than with a harrow or a rake, where it is miry, to mix well the ashes with the surface that is unburnt, and sow a peck of herdsgrass and a bushel of red-top to the acre. September is the best month for sowing: then we are sure of a crop for the scythe the next season.

[From the Maine Farmer.]

GRAIN WORM.

MR. EDITOR, — It is a matter of regret that the wheat-raising business, in at least some parts of our State, is likely to meet with a serious check from the ravages of the *grain worm*. When the attention of farmers was beginning to be turned to this business, when encouraged by the munificence of the legislature, and when from practice they were fast gaining a better understanding of the business, we would all have hoped that the production of wheat would have increased, till our State had become independent of other countries for this article of sustenance. But this "little rascal" is a *great enemy*; and how successfully to repel his attacks, I confess I do not know. Perhaps it would be the part of *prudence* not to risk too much in his way; that is, not to depend *chiefly* on wheat, but raise more corn and other grain; and, on the other hand, it would be the part of *valor* not to give up the

field and abandon raising wheat altogether, but try and see if we cannot by some means prevent the destruction which is made.

In order to prepare to guard against injury from this insect, it appears to me that it is important that we ascertain the *time* when the mischief is done, or the stage in the growth of wheat when the fly deposits its eggs. I find that the *general* opinion is, that this time is when the wheat is in blossom. But from some observations of my own, and of others, I am inclined to think this is not the time in question, but that the fly deposits its eggs before the wheat heads out. I have noticed little flies that appeared to come out from the sockets of wheat before it headed, and it has been observed by others, that they have discovered eggs and small worms, by stripping the leaves off the wheat before the head had grown out. It appears more reasonable to me that the fly deposits its egg *at once* in the socket of wheat before it heads, and that the worms attach themselves to the heads as they grow out, and find their way into the kernels, than to suppose that the fly crawls round the head and lays its eggs *singly* in each kernel, at the time of blossoming. I think we should examine into this thing; for, if we apply a *good* remedy at the *wrong* time, it will be unavailing.

B. R.

Winthrop.

ON CUTTING FORESTS.

It is now generally admitted that the best mode of procuring wood from the forest is to cut clean as you go. Public sentiment in this respect has undergone a total change; and, since our remembrance, the practice

of going into the midst of a lot and singling out the oldest trees for fuel was very general.

A forest thus thinned would not afford half the wood in a century that you may obtain from one managed in a different mode. By cutting off the large trees only, we not only destroy much underwood, but we leave no stumps that may send up sprouts for another cutting. And by leaving one fourth of a thick lot standing, we effectually prevent the shooting up of a new progeny. For wood merely, lots may be cut once in fifteen or twenty years ; that is, if they have grown from stumps not more than twenty years old ; and ten acres of good wood-land, with one fourth of an acre of good peat-land, are abundantly sufficient to supply the fuel of any private family in Massachusetts.

Cut off half an acre clear each winter, and by the time you have gone through your lot you may begin again ; and here is a rotation of crops as durable as the rotation of the seasons. You may generally obtain, from good land, ten to fifteen cords on the acre, and one square rod of peat will give you four cords of fuel that will answer for back-logs and for mixing with lighter inflammable matter, that will not preserve your fire through the night with half the certainty of a log of peat.

RAISING ROOTS.

THE cultivation of roots is becoming a very important branch of husbandry among the farmers of the New England States. It is now rendered certain that, with good cultivation, five or six hundred bushels of ruta бага can be raised to the acre at a cost not exceeding four or five cents per bushel. The value of

this crop in supplying neat stock, sheep, and swine, with food through our long winters is just beginning to be appreciated. Its value is differently estimated by persons who have used it. Some think that forty bushels are equal to a ton of hay; others consider them as good as oats, pound for pound. A gentleman who made some very accurate experiments in feeding them to his team of four oxen, found it to be equal to half its weight in corn-meal. There is one fact in which all agree; that is, cattle that are fed plentifully on roots during the winter are not so liable to have those diseases which are generally prevalent among cattle in the spring.

The only opportunity we ever had of witnessing the advantages of feeding roots was with a cow, which resulted in a firm conviction of their utility. Instead of becoming poor in the spring, she left the barn in excellent condition; gave a much larger mess of milk through the winter than usual; and, instead of going dry six or eight weeks before calving, as she always had done before, she gave milk to the very day she calved, and during the next summer she gave nearly a third more than she had ever given before in the same time on equally as good keeping.—*Maine Farmer.*

FARM-CARTS.

THE rims of the wheels of farm-carts should be about four inches wide. We have had them one third wider, but such are not so durable or so useful. A six-inch felloe is much more liable to rot than a four-inch felloe; it is also heavier and more unwieldy; and a rim of iron, or the tire, on such a wide felloe, must be put on in pieces, or in narrow strips. This mode of tiring

leaves the extremities of the spokes exposed, and they soon rot, for the wet that enters here is not soon dried up.

A four-inch felloe may have a whole hoop-tire put on it, and it answers all the purposes of a wider rim, besides being cheaper. The rim should never be much narrower than four inches, for otherwise it cuts into soft ground and runs harder through a field than a wide one, and does much more damage.

The end of the cart-tongue should never be plated with iron. It wears out your staple and ring on the yoke too fast, and the plating itself is not of long duration. Cut a gain in the under side of the tongue eight inches from the end of it, and wide enough to admit the ring, and sink it about three fourths of an inch deep. When you have put your oxen on, in case the tongue nearly fills the ring, the gain will be sufficient to carry your load; but to make all safe, take a strip of board one foot long, as wide as the tongue, and as thick as the ring will easily admit. Let it come forward flush with the end of the tongue, and pin it on to your tongue back of the ring of the yoke; this pin need be no tighter than the pin you usually draw by, so you may easily ungear your team. This board will prevent the wearing of the staple on the end of the tongue, and, when worn out, is easily replaced. Indeed, the whole may be made new in less time than it takes to describe the process, and your tongue will last much longer, geared in this way, than with iron plates, unless those are made quite too heavy for convenient use.

ON PLOUGHING.

THE season now approaches when we must begin to think of ploughing. We hope our brother farmers

have not all been so much troubled as we have been to find a cast-iron plough that would do the whole work of cutting and turning the sod without the aid of the foot of a wrestler. This amusement of wrestling is now out of date, and the young may not take our meaning; but, in ancient times, the best wrestler was always selected to hold the plough, because he could actively handle his feet to aid the imperfect machinery bearing that appellation.

Now we have grown lazier or wiser, and are desirous of throwing all the hard work on to our hired men or our machines, that we may not become too tired at noon or at night to read our long-expected Cultivator.

Ploughs for our plain lands require more length of body than most of our cast-iron ploughs possess; and we believe one reason for making them so short was a fear that long cast-iron mould-boards, or rather moulders, would be too liable to be broken; but, since they are made of better metal than formerly, there is little risk of breaking a long moulder with careful usage.

Our lands that were in corn or potatoes last year will this spring be laid to grass, for we need not, in tolerably plain land, plant more than one year before seeding down with broad-cast grain, not choosing to disturb the buried sod: that is wanted at bottom to keep the land light. Now how many times must we plough to prepare our lands for spring grain and grass-seed? Shall we turn under all the corn-stalks, the sorrel, the grass, and the weeds that lie on the surface; then, by a second, or cross-ploughing, turn all this matter up again, for fear it might rot and turn to manure? This is what we all formerly practised, but can any one justify the practice?

We must not take the plough to the field in spring till the ground is so dry as not to be made into bricks; yet we wish to begin as soon as it is fit, for the sooner we harrow in our spring grain on suitable land the better. Now we may begin to harrow our ground a

day or two sooner than we can begin to plough it. The harrow opens the ground, lets in the air, and fits the soil for the plough. Take the harrow, then, if you are impatient to begin spring work, level down hills, if you made any last year, with this or with your cultivator, and then *plough but once*, though you may take as fine a furrow as you please. Bury the stalks, the weeds, and all the rubbish underneath, and there let it lie till it becomes manure. It is all wanted below, but none above. As a general rule, no land should be ploughed twice in the same month. Very rough land must be treated differently. It must be cross-ploughed, to take advantage of the stones and the fixed stumps. But it is very absurd, in plane fields, after we have laid the soil right side up, to disturb it again before we take a crop.

No unrotted manures should be used for spring grain. Old and rotten manure, in proper quantity, will do no harm; for it works immediately, brings your grain forward early, and it often ripens before the sultry weather comes on; or it is so far spent before that time, it does no injury: whereas, green manure *begins* to operate at the very time when there is most danger from the rapid growth of the grain — that is, in July — and if it is very hot and sultry — such weather as Indian corn delights in — the grain grows so rapidly as to burst the stalk open and let out its juices. They flow down the outside of the stalk and form what we call rust upon it.

In confirmation of this doctrine, we understand that this rust does not make its appearance in England. That is a colder climate, and grain is much longer in coming to perfection than in our country. Hence, also, we raise better English grain in cool summers than in warm ones; and few summers yield, at the same time, our greatest crops of corn and of English grain.

Though we much prefer seeding down to grass in September, yet lands planted last year, and prepared

for spring grain this spring, may better be sown with grass-seed also in spring. If we delay this till fall, and plough in the stubble of the grain, the seed is not sure to vegetate from the want of moisture in the furrow, and we lose our labor and our next summer's crop. If the soil is dry and inclining to sand, a few bushels of ashes spread on an acre after the grain is up, or before, will often prevent the summer killing of the grass among the grain, and will prove beneficial to the whole crop.

BUCKWHEAT.

EVERY farmer must cultivate some kind of grain, and, by the help of the refuse from his dairy, must fatten some pork. Present prices would justify his feeding his swine largely on grain; but we cannot expect such prices to continue, and must be cautious of founding our calculations on the price current of one month or one year. But pork must be produced, and we must endeavor to make it as economically as possible.

We want grain of some kind to mix with our refuse matter earlier in the season than we can harvest our Indian corn. Barley in many places succeeds well, and comes in a d of our early vegetables and of our skimmed milk in August and in September. But barley in many places is an uncertain crop: it requires as rich land as wheat, and is probably as great an exhauster of the soil. It sometimes gives us an abundant harvest; but we cannot depend upon it.

Buckwheat will grow on almost any dry soil; and, although it produces a less quantity than barley, the

crop is a sure one : you obtain it without manure. As we never sow this before the middle of June, we have a fine opportunity to plough in all the green growth of that season ; and this is probably one reason why we can raise buckwheat year after year on the same plat without a diminished crop, and without exhausting the soil.

Another reason is, this plant receives more nutriment from the atmosphere than any other grain we have sown. Its leaves are broad, and its roots are small in proportion to its top, so that ten crops in succession are often taken with one ploughing a year, and without manure. At the time of sowing the wheat — from the 15th to the 30th of June — throw on, also, to an acre, one bushel of winter rye. It will not interfere with the wheat, and will give you some feed in autumn : then, at the next ploughing in June, you have a coat of manure to plough under that has cost you only the price of one bushel of rye, all on the ground and ready spread.

Buckwheat straw should not be burnt on the field as it formerly was. It is quite valuable when cut in season for young cattle and for sheep.

[From the Farmers' Cabinet.]

EARTHS AND SOILS.

IN the investigation of agricultural subjects, it is necessary that we should as correctly as possible distinguish earths and soils, and their varieties. The earths important to agriculture, and which form nearly the whole surface of the globe, capable of producing vegetation, are only four, viz. silicious, aluminous, calcareous, and magnesia.

As a full description of all the distinctive characters of these earths could not be embraced within the compass of my contemplated communication, I shall merely mention a few, by which may be understood the effects they necessarily produce in forming a compound best calculated to produce vegetation.

Silicious earth exists in the state of sand. It is composed of very hard particles, which cannot be made coherent by mixing with water. The solidity of the particles of sand renders them impenetrable to water, and their loose arrangement makes sand incapable of retaining water. It is also quickly heated by the sun, which adds to the rapidity with which it loses moisture.

Aluminous earth, when dry, adheres to the tongue, absorbs water rapidly and abundantly, and, when wet, forms a tough paste, smooth and soapy to the touch. By burning, it becomes very hard: when drying, aluminous earth shrinks greatly; it becomes a mass of hard lumps, separated by cracks and fissures, which become so many little reservoirs of standing water when filled by rains, and remain so when the lumps, by slowly imbibing the water, are distended enough to fill the space occupied before.

Calcareous earth, or carbonate of lime, is calcareous earth combined with carbonic acid, and may be converted into quicklime by heat. Lime is soluble in acids: during the solution, the carbonic acid escapes with effervescence. In this manner, the carbonic of lime, or calcareous earth, may not be easily distinguished from silicious and aluminous earths, but from all other combinations of lime. Magnesia earth, like lime, is usually found in combination with carbonic acid; but even in this, its natural state, it exists in such very small quantities in soils, and is found so rarely, that its name is a useless addition to the lists of the earths of agriculture.

All the earths individually, when as pure as they

are ever furnished by nature, are entirely barren, nor would any addition of putrescent manures enable either of the earths to support healthy vegetable life. The mixture of the three earths, in due proportion, will correct the defects of all ; and, with a sufficiency of animal or vegetable matter, a soil is formed. Such is the natural surface of almost all the habitable world ; and though the qualities and value of soils are as various as the proportion of their ingredients, yet they are mostly so constituted, that no one earthy ingredient is so abundant but that the texture of the soil is mechanically suited to the production of some valuable crop. Some plants require a degree of closeness, and others of openness, in the soil, which would cause other plants to decline or perish. As the qualities and value of soils depend on the proportions of their ingredients, and the grand desideratum in agriculture is to obtain a mixture of the earths best calculated to produce the greatest variety of the most valuable crops, we can satisfactorily comprehend in what manner that object may be obtained. Silicious and aluminous earths, by their mixture, serve to cure the defects of each other. The open, loose, thirsty and hot nature of sand being corrected by and correcting in, turn the close, adhesive, and wet qualities of aluminous earth. This curative operation, however, is merely mechanical, and it seems probable that calcareous earth, when in large proportion, also aids the corrective power of other earths. In addition, also, to the mechanical effects of calcareous earth, it possesses chemical powers more effectual in altering the texture of soils, and for which a comparatively small quantity is sufficient. The chemical action of calcareous earth, as an ingredient of soils, will be particularly noticed hereafter, when we come to the consideration of the food of plants. From what has been said, it would appear reasonable to class and name soils according to their predominant earthy ingredients which exert the greatest power, and most

strongly mark the character of the soil. The predominant ingredient is not always the most abundant. If the most abundant was considered the predominant ingredient, and gave its name to the soil, then almost every one should be called silicious, as that earth is seldom equaled in quantity by all the others united. If the earthy parts of a soil were two thirds silicious and one third aluminous earth, the peculiar qualities of the smaller ingredient would predominate over the opposing qualities of the sand, and the mixture would be a tenacious clay. If the same soil had contained only one twentieth part of calcareous earth, that ingredient would have had more marked effects on the soil than could have been produced by either doubling or diminishing to half their quantity the silicious and aluminous earths which formed the great bulk of the soil. But every farmer can readily discover what are the most marked good or bad qualities of his soil, as evinced under tillage; and those qualities can be easily traced to their predominant ingredients. A silicious or sandy soil has such a proportion of silicious earth as to show more of its peculiar properties than of any other ingredient. It would be more or less objectionable for its looseness, heat, or want of power to retain moisture, and not for toughness, liability to become hard after wet ploughing, or any other quality of aluminous earth. In like manner, an aluminous or clayey soil would show strongly the faults of aluminous earth, though more than half its bulk might be of silicious earth. Hence every farmer can readily judge of the perfection and of the defects of his soil, which, from a knowledge of the distinctive properties of the earths, he will be enabled to correct by the addition and mechanical mixture of such earth as may appear to be deficient, thereby produce a soil the best calculated to promote the growth and perfection of vegetation.

JOSEPH CLOUD.

PRODUCTION AND CONSUMPTION.

CONSIDERABLE surprise has been manifested in various quarters, at the continued high prices of grain and other articles of food ; and much ingenuity has been displayed in tracing the effect of prices to their probable causes. With some the cause is a failure of crops ; others will have the high prices originate in monopoly and speculation ; they have been charged upon the banks or the government ; or, in short, there is scarcely a cause capable, or any effect in producing such a result, which has not been brought forward to account for present prices. While all these have had their weight in producing the effect we witness, we think the most important of the whole — the relation existing between production and consumption — has been comparatively overlooked.

Agriculture lies at the basis of all interests, the production of food being of paramount importance ; but the relative prosperity of that interest, or rather the price of agricultural productions, is depending on the demand for them among other classes of the community, such as the mechanic, commercial, or manufacturing interests. The price of provisions will usually, therefore, correspond to the relative numbers employed in these grand divisions ; the first, or the farmers, being the producers ; the latter, or the several classes enumerated, being the consumers. If, in any community, all were producers, it is clear the demand would be only that of the individual producers. If in a community all were manufacturers or mechanics — all consumers and none producers — the result may be easily imagined. If, in this community, the producing class exceeded the others, provisions would be low, as the demand must of course be limited ; if the consuming class preponderated, the price of provisions must rise. Partial failures in the crop, fluctuations in the money market,

and other causes may aid in influencing or in increasing the operation of this cause, but their effect can be but temporary, as they never exist for any length of time. On the contrary, inequality between the production and consumption is, from the nature of the cause, more permanent, as the business and habits of large masses of men are changed slowly and at long intervals.

The prices of agricultural produce which have existed for a year or two in this country, and which appear to have excited so much surprise, we consider the natural result of a disparity between the production and the consumption, the latter exceeding the former. The producers of food, or in other words the farmers, have not increased in a ratio corresponding to that of the consumers, or the other classes above enumerated. The professional classes in our country have increased in a greater proportion than that of the farmers, and, taken with the other non-producers but consumers of food, no other results than what we witness could have been anticipated. A large proportion of the sons of farmers have chosen other kinds of business or professions named than that of their parents, — manufactures, commerce, mechanics, the professions, and, in too many instances, living by “hook or by crook,” have been preferred to the honorable occupation of the farmer; and, as a necessary consequence, the producers find themselves more and more masters of the field, and able to fix their own prices.

Farmers can never rely on themselves for support: they may from their farms produce what is absolutely necessary to eat, drink, and wear; but for many of the articles that the conventional codes of society have rendered necessary to appearance and comfort, and all the principal luxuries of life, they must depend on others; and on these consumers they must rely for the sale of their surplus produce. It is the real interest of the farmer, therefore, to be satisfied with good profits on his labor, and not, by charging exorbitant rates,

drive so great a proportion of the other classes from their pursuits, and compel them to become farmers, as to materially change the ratio now existing between producer and consumer. Consumers are the source of prosperity to the farmer: they are the life of agriculture. In the demand consequent on general prosperity, agriculture always expands and flourishes: without such demand, it is, and must be, contracted, its operations inactive, and its returns profitless. Of all classes, farmers are the most truly independent; but perfect independence is a truly Utopian dream. Dependence is a primary condition or element of society, and the last could not exist without the first. The dependence between the producer and consumer is mutual so far as profit is concerned; and it is idle for the latter to blame the former for prices, when the remedy, that alone can correct the inequality when it exists, is in his own hands: he, too, must become a producer. If the population engaged in commerce, in manufactures, mechanics, or the professions, could not live without the farmer, we, too, should remember that without their aid our business would be of little value in the production of wealth, and that their mouths are as essential an item in agricultural prosperity, as fields covered with crops, or barns bursting with plenty.—*Genesee Farmer*.

BURNT CLAY.

THE English have been much in the habit of using burnt clay and burnt loam on their lands. We hear but little about any experiment of the kind in our country. If we have not lime in abundance, we have loam, and we have wood so cheap in some places that the expense of burning would be small. It is said to operate very powerfully when mixed in a loamy soil, or when spread on grass-lands.

LIME.

It will be perceived by our readers that we have been backward in recommending the use of lime in agriculture. It is a part of our system to recommend to our brother farmers nothing but what we are fully satisfied will prove useful. We have often expressed an opinion that lime, in some cases, is beneficial, and that one of those cases is when it is applied to a soil tinctured with iron ore. Lime is also useful to break asunder clayey, tenacious soils, of which we have a very small portion in all New England; and here the question arises,—will not sand answer the same purpose, and at a much cheaper rate? Lime, too, forms a component part of the straw and of the grain of wheat; and, as we can raise this grain on any soil, it would seem that all soils contain *some lime*, else the plant must draw the whole from the manure; and, to supply the deficiency occasioned by this draft, it would seem proper to scatter lime, in small quantities, on all lands that produce this grain.

Lime is found also to be beneficial when mixed with peat, and it is probably owing to the iron ore, or some other acid contained in peat, for it is also useful for soils filled with plants of an acid nature, as sorrel, &c. Quicklime may be very useful when applied to any heap of clay, or of loam, for it operates like fire on those articles; and burnt clay, as well as burnt loam, are known valuable manures, or ingredients, in European soils.

These are all cases in which we agree that lime may aid us; but this is not sufficient to justify us in advising farmers to purchase lime freely to improve their soils. The cases in which lime aids us in New England are only exceptions to our general rules of husbandry; for we can adduce fifty instances of loss from the use of lime, where one can be shown of its beneficial effects.

We are daily more satisfied with these conclusions as we converse with practical men on the subject. We have discussed the subject this winter repeatedly at our agricultural meetings in the state-house, where numerous farmers were present, and the testimony of these is nearly unanimous, that lime, on our sandy loams, is not in general useful; and when any member has attempted to prove the case to be other than as above stated, he has admitted that he used lime by casting it first on a manure-heap!

At our public meeting in the state-house on Thursday evening, the 7th instant, Mr. Chase Pease, a member of the house from Martha's Vineyard, gave an account of a piece of low, interval land, on which he had strewed a quantity of effete lime. He said it had a wonderful effect; that it was sown on without any mixture of manure, or other substance, and that, instead of a very poor crop of sour grass, he for several years after the application of the lime cut a large swath of excellent sweet grass for hay.

Suspecting at once the reason of this wonder-working power in lime, we asked Mr. P. if the land was not full of iron ore? He replied that it was. That you could see the ore clearly in every part of the lot, and particularly where little puddles of water stood.

We think from these premises we have a right to conclude that in general we cannot become richer by purchasing lime for our sandy loams; that the instances proved of its good effects were such only as we have stated, and that we can be much better employed than in purchasing lime in large quantities to enrich or correct our soil. We have all unlimited means, if we will use them, of rendering our lands fertile, and without purchasing one load of manure.

We have only to fill our soils with vegetable matter, and especially those abounding in clay, to render them mellow and pliable. There is no mistake in this

matter ; every particle of vegetable growth, ploughed under the sod, turns to the very right kind of manure for that sod. And nothing is more powerful to break in pieces a hard clayey soil than a good quantity of green vegetable growth, ploughed in when such land is suitable for the plough.

Lighter soils may be mixed with clay ; and one load of sandy loam will prove as beneficial as one load of slaked lime, so far as that lime acts mechanically, and will not cost you one tenth as much. When there is in the soil an acid that needs correction, apply lime to neutralize it, but do not depend upon lime to enrich your soils.

ONE EXTRA HEN.

WE wish to inquire of our subscribers what will be the expense of keeping one additional hen ; for we well know that the profits of a single fowl will pay the whole annual expense of a good agricultural newspaper !

Now if we can possibly contrive to give to our brethren useful hints enough, in the course of a whole year, to enable them and each of them to feed, and support, and protect, so much additional stock on their premises, they could not feel that they are losing money by our acquaintance.

An interesting article on keeping hens has been the rounds of the papers, and we are inclined to think that great improvement may be made on the common mode of keeping this useful kind of stock. We know they are sometimes troublesome in the garden, as two-legged animals often are ; and we doubt whether they ever ought to run at large, though they certainly labor advantageously in the garden at certain seasons of the year, and help us to destroy enemies that the useful toad seems to overlook.

We hope a few more friends of the hen will try experiments on shutting the animal up and letting her have abundance of food, and of gravel, and lime, that they may be able to report the net profits of the process.

As to other two-footed animals, there may be some doubt about the propriety of putting them in fetters before they have committed any crime, lest they might enter into temptation; but hens have not wit enough to resist or to evade your barricades, though not erected more than four feet high, provided pickets are ranged on the top to make it an uneasy place for them to rest on; for fowls never fly over a fence without an attempt to rest on it, unless they are excessively frightened.

ROOTS.

THE importance of raising roots to be used as food for cattle, horses, and swine, during our long winters, cannot be too often nor too strongly impressed upon the farmers of Maine, at least until more of them enter somewhat more largely into the business than they do at present.

Potatoes are planted by every one as a matter of course. Next to potatoes, perhaps the ruta бага crop commands the most attention. The sugar-beet is next in order, though of but recent introduction. Mangel-wurtzels have not generally found so much favor with the farmers of Maine as they ought to; nor has the carrot; but the most neglected of all is the parsnip. We do not recollect ever having seen a field of parsnips growing in Maine, and yet we verily believe that, all things considered, they are the most profitable of either as an article of food for stock and swine. We have heretofore tried some experiments on a limit-

ed scale with them, and, Providence permitting, we shall go more extensively into it another season. They require a little more care when they first come up, and are smaller than ruta бага, but are not so difficult as the carrot. They seem to be more nourishing than any other root, and chemical analysis warrants this idea. They will keep in the ground during the winter, but must be dug before they vegetate much in the spring. They will not keep so well in the summer as the ruta бага. The farmers in the Island of Jersey, near England, are said to make their main dependence upon this root, and their cattle and swine are thereby rendered very profitable. The only objection that we know of to the carrot is the trouble it gives in weeding when it first comes up. Its small leaves so much resemble some of the weeds, that, if the ground is very foul, it requires careful management to avoid hoeing it up with them. We have seen the good effects of these upon a horse to which they were given during the winter season. They certainly are preferable to oats, or, at any rate, were for that horse. The animal was a very fleet one, and belonged to a neighboring physician who had a great deal for him to do; and yet he kept in perfect condition with no other food than good hay, and from a peck to a half bushel of carrots per day.

The mangel-wurtzel will yield, when put in a favorable situation, as much per acre, perhaps, as any other root. John Hare Powell once raised sixteen hundred and thirty-four bushels to the acre and fourteen rods; and Messrs. H. & T. Little, of Newbury, raised thirty-three tons, ten hundred and fourteen pounds to the acre. But English writers have told us of sixty tons to the acre. We believe that it requires a richer soil than ruta бага, and more of a clayey loam. Hogs are very fond of them. We saw Mr. Hains, of Hallowell, feeding his swine with them last fall, raw; and the manner in which they took hold of them, and the good condition which they exhibited, convinced us

that they were very profitable and nutritious to them. See his communication in the last number of the *Maine Farmer*. The more we see and learn of the value of the several root crops in Maine, the more convinced are we that it is the true policy of our farmers to cultivate them extensively ; and we hope that many who never have yet paid particular attention to this business, will begin this year. Manure high, and plant close, and we will insure you a good and a profitable crop. — *Maine Farmer*.

LIVE HEDGES.

WE some time since received a letter from a gentleman in or near Portland, inquiring of us for the best material for a hedge. He wished for the best kind of thorn, and wanted we should direct him where to procure it, if we approved of that kind of fence.

We think thorns are not the article for a Yankee fence. In the first place, it is difficult to make them grow in our dry climate ; then it is too much labor to keep them well trimmed ; thirdly, the cuttings repay you no part of the expense : that operation is worse than shaving a pig for his wool.

When rocks are plenty, they are decidedly the best fence ; and when they are near the line of your fence, the first cost of building is less than that of a wooden fence.

In the absence of rocks, we can make a better fence than thorns will make. Chestnut or cedar rails will last from fifty to seventy-five years in a fence. We know a farmer, Col. Edgell, of Framingham, who has rails in his fences more than seventy-five years old. The great trouble with us is to procure *posts* that will last a tenth part as long in our dry loams. These will sometimes become so rotten as to break down at the

ground in three or four years. In clay, or in a moist loam, they sometimes last twelve years; and in a meadow they will last as long as the rail, and the part that is entirely under ground much longer.

Now, as the expense of rails that last so long is trifling, let us have some permanent posts for our high lands. Let us plant an apple-tree every twelve feet on the line of the fence. Let there be one or two sprouts growing from the ground, or procure crotched trees from the nursery, that will support three rails: this may be very easily done, and within three years from the setting, they will be so strong that you may interweave the rails among these sprouts and branches in such a manner as to support them firmly.

By placing your trees twelve feet apart, the roots have room to grow: not so when you place thorn or other shrubs within two feet of each other. But your apple-trees will in a short time make good posts that will last as long as the rails; and, when you trim, you get something to pay you for trimming. When you do not trim, you get something, too, besides a post for your fence; for you may have as good fruit here as in your garden, if you will turn over a furrow or two every three years near the row of trees.

The apples from the trees will not hurt your cattle on either side of the fence; but if you wish to secure all the fruit to yourself, ingraft the trees with winter fruit, and pick it in September. If you ever become tired of this kind of fence, which cannot cost you much money, the wood of the trees will pay you for cutting; but you would better let them stand, and you may place posts in such a position that they will be supported by the trees. Such posts will stand much longer than posts unsupported.

Natural hedges of oak, maple, birch, &c. are a very cheap fence, and easily kept in repair: they are too much in the way for cross-fences, but when their line is beside a wood-lot, by lopping down some of the

standards on this line early in spring, they will continue to grow in this horizontal position, and make you a most durable fence.

People are apt to lop these standards at a wrong time of year, and they lop them too high. If the standard is four inches in diameter, it should be cut within one foot of the ground, and then upwards, so that the whole cutting may extend one foot in length: cut the standard thus half off, and bend it down in an opposite direction from the cutting, carefully, so that it may resemble an ox-bow half bent: then it will grow, and make you a living fence.

FIR BALSAM.

THE fir is not only a fine ornamental tree about our dwellings and by the road-side, but its gum, or balsam, is exceedingly useful when applied to fresh wounds caused by bruises or cuts. It is readily gathered from the tree at all times in the year, by simply making a puncture in the body wherever you find a little blistering under the bark. These blisters are numerous, and are of the size of a large drop of water: take a sharp penknife and tap them, and you may readily press out the balsam into a cup, or spoon, and it is fit for use. Apply this to the wound, and bind on a rag: you will learn its virtues in your relief from pain, and by the speedy healing of your wound.

Trees of this kind, planted out about our dwellings, should never stand so as to keep the sun from the house in winter. We then want the whole force of his rays to assist in warming our sitting parlor at the south or southeast corner of the house. These trees, bearing their leaves through the winter, are a nuisance when placed between us and the sun. Their place is at the north and west side of our houses, where, if we

place them properly, they afford us great protection against the rude blasts from these points of the compass. How easily all this is accomplished! and yet how few have a single evergreen nearer their houses than the forests!

When we ride or walk, in cold weather, on the southern side of a natural evergreen wood-lot, how balmy the air, and how agreeable the scene, compared with that of a northern exposure!

Dwelling-houses, in our chill climate, should ever be placed in such position that they may be easily protected from the cold blasts of winter; but nothing should obstruct the free passage of the southwest, or summer breezes; and the barns, and yards, and hog-stye should never be built on the southwest or west side of the dwelling-house.

ASPARAGUS.

HE who has a good bed of asparagus has his peas ready sown, and may pluck an earlier mess than he who sows in spring.

This plant is the best substitute for green peas, which it much resembles in taste, and great quantities are easily raised at small expense. As soon as the frost is out, some of our richest manure should be hoed in upon the beds, chopping all the ground over two or three inches deep. Then the soil may be stirred every day or two to keep the weeds down until the plant comes up; for you cannot well hoe it afterwards: if your manure was laid on the beds last fall, your asparagus will be the earlier this spring. When you crop the tops, cut down even with the surface of the soil, or lower; for you want nothing but a tender stalk to boil.

SILK.

OUR readers will observe we have yet said but little on the subject of silk, or of the mulberry. We think it best not to hurry too fast into this branch of business before our country can supply itself with bread and potatoes, with milk and butter, with hay and beef.

The silk business must be gradually introduced: trees or shrubs must be reared before we can feed the worms, and people who are acquainted with the business of setting trees, and with the soils most suitable for them, must be employed in the business. We have already seen too much capital sunk in attempting to introduce this business on a large scale by persons and corporations, who have not skill enough to set out an apple-tree or a currant-bush; and what else can we expect but failure from such efforts?

In our humble opinion, the introduction of the *Morus Multicaulis* has been injurious in the Northern States. Since the wonderful accounts published concerning that species, most of the white mulberry-trees have been abandoned as useless. But it now appears, from a statement made by a silk grower, in Hampshire county, that the white mulberry leaf is much to be preferred for feeding to the *Morus Multicaulis*; and especially in the last stages of feeding, that these leaves were not so watery, and contained more nutriment than the large leaf.

One standing argument in favor of the large leaf is the ease and rapidity with which it is gathered from the bush. Now these leaves should never be stripped from the twigs: the small twigs should be cut off, and new shoots will start out immediately, and these may be cut off the same season. These twigs are laid on the worm-shelf; and the worms seem much pleased with the task of climbing on to them for their food out of their nest below.

Within a few years, a company purchased a very valuable farm within thirty miles of Boston, with a view of raising the mulberry, and of growing silk. The land was a heavy loam, and excellent for grass, but wholly unfit for the mulberry. Several thousands of the mulberry were imported from France, and men were hired to set them out, and were required to set 1000 each for a day's work! The consequence was, that nineteen out of twenty died, and five thousand dollars worth of trees were sacrificed for want of skill in selecting the land and in setting the trees. More than one thousand dollars were also sacrificed on the sale of the farm.

Now, brother farmers, if a company of you, who are not acquainted with trade, should go into a city, hire a store, and set up on a large scale, we will be bound — not to pay your debts — but that you will fail in your speculation, as surely as this silk company did, — fail as the man did who set up to live by his wit. He failed for want of stock.

We should not think of plunging headlong into the silk business, or into any other business, without some experience. The white mulberry is easily cultivated: there is no difficulty in it more than in cultivating the apple-tree; and we strongly suspect that this kind is valuable as any. It may be sown in hedge-rows; or, what is better, planted in hills not less than six feet apart: then the roots have some chance to extend, and the leaves will be thrifty and large enough, provided we cultivate the ground. In a few years, by lopping the side branches from these hills, we make a complete fence for cattle.

TALL MEADOW OAT-GRASS.

THIS grass has good qualities, and may sometimes supersede some kinds now more common. It starts

much earlier than the herds-grass, (timothy,) grows taller than that in very rich ground, and is ready for the scythe, in the neighborhood of Boston, by the middle of June. Unlike the herds-grass, it yields a good after-crop for cattle, and retains its hold in a dry soil for a long time.

The objections to its cultivation are, 1st, the expense of the seed, four or five bushels being necessary for an acre; 2d, its early maturity, before we are ready to take the scythe. It may also be objected to as a kind not generally known in the market; and, though it may be a better kind than any before exhibited, the marketer would not meet with so ready a sale as he would of a kind better known.

The introducer of new articles always labors under the disadvantage of proving their utility. This is one cause of the slow progress of improvement in agricultural productions.

This grass is fit for cutting at the same time with the southern clover, and should be sown with it. If these two grasses ripened only one week sooner than the herds-grass and the northern clover, it would be rather a convenience to the hay-maker, as his labors would not be so much crowded.

WASHING TREES.

LIE from wood-ashes, or from potash, makes the best wash for trees. It should not be applied until May or June, when it will kill the moss and all the insects that adhere to the bark. There is a small animal resembling a louse to be found on most young trees. They never appear to move excepting in the month of June, and then they are not great travellers. The lie above named, if put on in June, effectually clears the tree of this insect.

BONE MANURE.

AGREEABLY to our promise, we now proceed to lay before the readers of the Cultivator the results of our reading, coupled with our experience, in regard to bone manure.

The bones of domestic animals are found to contain about equal portions of phosphate of lime and gelatine ; those of young animals containing more of the latter, and the bones of old animals more of the former. The gelatine is highly nutritive to plants, and phosphate of lime enters largely into the structure of many species. To bring on a decomposition of bones, and render their fertilizing properties available to the wants of growing crops, it is necessary to crush or grind them ; and their immediate benefit is in proportion to their fineness and rapid decomposition in the soil, though ultimately they impart to the soil all their fertilizing properties if they are broken to the size of one, two, or three inches. In powder or dust their effect is at first more powerful, but less abiding. So, too, the like happens if the bones are brought into a state of partial fermentation, so as to give off a strong odor by mixing them with lime or ashes, or manure and moisture, before they are applied to the soil, and thereby hastening decomposition ; and, indeed, this is the common practice, when it is desired to have them produce an immediate effect. To reduce bones to a proper size for agricultural purposes, bone-mills have been erected, consisting of a series of cast-iron rollers, formed with deeply indented rims, and teeth progressively more closely fixed. Many British farmers have erected small machines, with two cylinders of cast-iron, with teeth, which lock into each other, by which they are broken into small pieces. We have had more than sixty horse cart-loads of bones, which cost us half a dollar a load, crushed in a plaster-mill, though

not made very fine, for which we paid $12\frac{1}{2}$ cents per bushel as toll. The value of bone dust as a manure, in Great Britain, may be judged of from the following rates of prices, which we quote from one of the most recent agricultural publications: — “The price commonly averages, for the dust, from 2s. 6d. to 3s. and in some late instances even 3s. 6d. have been paid for pieces of [inch, three quarter inch and half inch] from 2s. to 3s. 6d. according to size; and 1s. 10d. for rough bones per imperial bushel.” — *Br. Husb.* The reader will bear in mind that the English shilling is a fraction over 22 cents. Prices have not attained this high pitch with us. The English dealers make no allowance on bones which have gone through the process of boiling, though this process evidently deprives them of a portion of their oil, and consequently diminishes, in a measure, their enriching properties. — *Albany Cultivator.*

SUNFLOWER OIL.

Few individuals of the country are aware of the quantities of olive and almond oils, usually called sweet oils, imported annually into this country from abroad; and the number is perhaps still less who know that in the oil of the common sunflower seed is found a substitute equal in every respect to the oils of France and Italy. Like all plants of such large and rapid growth that mature their seeds the first year, the sunflower exhausts soils rapidly; but where its cultivation has been attempted, it has paid large profits. The oil is extracted as from linseed, and the cake or residuum is, like that, excellent for feeding cattle. The following extract is from a letter of J. Smith, Esq. of Maryland, to H. E. Ellsworth, of Washington city:

“I planted about an acre of ground a few years since

with sunflower, and obtained sufficient seed for nearly a barrel of oil. The oil was extracted by Mr. Barnett. We made use of it for the table, and found it kept well, and was esteemed equal to the best imported sweet oil for every domestic purpose. I have a little of this making (1833) yet remaining, and will send you a bottle by the first opportunity. I found the substance of the sunflower too exhausting for the light soil we have on our hills in this neighborhood, (Maryland,) but have no doubt it will be found profitable in other sections of our country, and particularly in the rich prairies of the west."

We should be pleased to learn that some enterprising farmer had commenced experimenting on this plant. Its yield of seed is abundant in this region, and could scarcely fail, where the means of converting it into oil are at hand, of yielding a handsome profit.—*Maine Temperance Gazette.*

 AGRICULTURE.

SCIENCE has within a few years done much in aid of agriculture; not that many positive discoveries have in the first place been made by the sciences, of which the agriculturalist has availed himself; but the cause of certain results before known to the farmer have been revealed by chemical, or other researches, and thus the means of more certainty and in many more cases of producing the same results has been obtained. On this is based the improved system of agriculture. Where the earths are not in due proportion, it is impossible to make or keep the soil in a productive state. The nature of the earths is now inquired into, and their balance maintained by a rotation of crops, or by other means.—*Genesee Farmer.*

EXHAUSTION OF SOILS.

Is it not worth the while for our farmers to inquire, very particularly, what crops are most exhausting? In some of the new soils of the west, hemp, flax, wheat, potatoes, may be cultivated for years without any sensible deterioration; but we have a soil to be managed which has already had its turn of bearing these exhausting crops, until a great portion of it scarcely bears enough to pay the fencing and the taxes.

What is the cause that so much of our plain and easily-tilled lands is reduced so low? We have cropped and cropped, without manuring, until we get no pay for cropping. And the farmers of Maryland, Virginia, and Delaware, have done the same thing. We have lately seen a letter from a gentleman in Virginia to Judge Buel, inquiring what he would best do with his 490 acres of land, and but very few hands to cultivate it. The gentleman states that his crop of corn averages from *one* to *seven* barrels to the acre. Another, an agricultural writer of Virginia, stated, last season, that Virginia planters usually planted their plains till they would produce only from *five* to *ten bushels* to the acre; and then they suffered them to lie and recruit.

Our plains, too, have been run; and now, in the sportsman's phrase, "we must try back." Our hilly, and rocky, and rough lands are often observed to possess a strong soil still; and the reason is obvious. We doubt whether these rough lands were made better by nature than our smooth lands were; for, on clearing up a new field of plain land, we obtain as large crops, at first, as we do on the hills and among the rocks.

It was a fashion, in former days, to reap fields annually, and take off a white crop, without applying any manure; and we too plainly see the consequences: these fields are now barren, while our rough, and rocky, and hilly lands, which have borne nothing but

grass or wood for a couple of centuries, are not impoverished.

It is certain that some plants take more of the *geine*, the *sugar*, the *pabulum*, or *food*, from the soil than other plants do; and if we can accurately ascertain the degrees of exhaustion, and the comparative value of the crops taken off, we can determine with more certainty which are most profitable.

The various species of pine, and particularly the white pine, will flourish and grow as fast on a sandy plain, that will produce nothing else, as it will on a rich soil. We may not know the reason of all this, but it is of some importance to ascertain the fact. For, if one of our most stately and valuable forest-trees soars aloft without apparent aid from a hungry soil, and gets but little nourishment excepting through its leaf, other plants may do the same; and, by making proper inquiry, we may arrive at very important results.

One of the positions which we have endeavored to maintain in our paper is, that potatoes of all kinds are an exhausting crop—the *Solanum tuberosum*—the poisonous plant; more so than Indian corn. We are quite aware that the position is new; but, as truth is our object, we shall insist on the correctness of this position, which we are forced to take after long experience on the subject, until we are satisfied, from facts and from experiments, of our error.

We well know the common notion is, that potatoes enrich the soil. If this were so, our New England would now be the richest country in the world; for no people have raised more potatoes. We have not eat so many for the last fifty years as the Irish have done, for we have had other food to eat with them; but we have cultivated them not only for the parlor and the kitchen, but for the hen, the pig, the milch cow, the fattening ox, and last, but not least—*horribile dictu*—we have cultivated large fields of them for the mere purpose of procuring a *vegetable extract*, so poi-

sonous that some who have partaken of it are supposed not to have lived out half the days allotted them by Providence.

The English are not now so fond of the potato culture as formerly, and they are turning their attention to other roots. The carrot and the parsnip culture are not new to them; but the ruta бага, and the sugar-beet, and the mangel-wurtzel, introduce a new era into their system. They have learned that the various species of turnip exhaust less than the potato. Indeed, we have understood that this last cannot be raised in some districts in England where formerly it was the most popular crop. The rust of the vines on fields long planted with them has proved very injurious. And even on the strong, clayey soils of the Kennebec, where excellent potatoes are usually grown, they are very liable to rust when planted on the same field two years in succession.

From our own experience, we are satisfied that, on sandy loams at least, potatoes are more exhausting than Indian corn, and that better crops of grass are obtained after corn, with the same manuring, than after potatoes.

We wish to have a greater number of our readers make trial, or examine their fields more closely. If we are in an error, the sooner we correct our error the better. We need no chemical apparatus for this purpose: we have only to watch closely the succeeding crops.

POTATOES.

MANY kinds of early potatoes produce but a small quantity, scarcely enough to pay the labor of raising. The chenango is a good potato, and will yield a good supply of early ones fit for any table.

FARM-BUILDINGS.

THOSE who are planning new buildings for agricultural purposes will do well to consider the subject in all its bearings; the first outlay, the comfort of their cattle, the capacity of the buildings, the facilities for filling them, and the conveniences for feeding out to the stock.

The first outlay should be in proportion to the size of the farm, and the probable amount of its productions; but, let its size be great or small, never fail to have a cellar under the whole. If possible, set your barn on a side hill. If none is near you, make one, so that you may drive in a loaded cart many feet higher than the bottom of your bay. This will enable you to unload your hay with half the labor which is often employed for the purpose, and allow you to keep most of your hands in the field, while one only drives up to the barn and unloads, in that most important portion of the day, — from 1 to 5 P. M. One hour's labor at this time of day is often worth a dollar, when a shower is coming: it is therefore worth your while so to contrive your barns as to save many of these hours. Further, by having a large bay below your barn-floors, and no one to beat down the hay when pitched off, you may cart it in at least one hour sooner than you can when you are obliged to stow it close. This is often of great importance; and, if you have not saved a sprinkling by it, you have probably saved the labor of another opening of the hay to the sun.

The second point is the comfort of your cattle. By comfort, we do not mean lying all night and half the day-time on a plank floor, in a barn so tight as to suffocate them. Cattle need fresh air for breathing; but, if you match the boards tight on your barn, you are obliged to keep the doors or windows open on them; and this partial exposure is much more injurious to

them than full exposure, or lying under an open shed.

If you would suffer your cattle to choose for themselves, you would find them, nine times in ten, preferring an open shed to a close barn. Cattle should be protected from the *winds* and from the *wet*: they are not in fear of cold weather; and, if your barn faces south or east, you need not board up the south side below the floor, but let your cattle lie loose under that part of the barn where there is no hay. If you have two barns, these will protect the cattle from the north and the west winds. If you have but one, a slight shed may be built, of the length of your cow-yard, as a protection and shelter. When building, the cost of a cellar that shall be walled up on two sides will be but trifling to a farmer who hires by the month, and has rocks and a team of his own. Cattle kept in this way can lie down with ease; their manure does not adhere to their sides, for they choose the cleanest places; they rise with ease; they relish their food much better, eating in the yard what they had already blown upon when in the barn; their manure is worth a vast deal more, for much of it is trodden down out of the way of daily freezing and thawing, and all the liquid part is preserved; then, if you have proper racks, it is not half the labor to tend them; and the milk is much cleaner.

Tight-boarded barns require you to dry your hay much longer than barns covered with boards not jointed; otherwise it will grow musty. The difference, we think, may be one whole hour in the drying; and one additional hour's drying will often cost you one more opening of your hay, and sometimes a dripping to boot.

Board your barns, therefore, with square-edged boards, and neither joint nor match them. Hay wants a little crevice to let off the steam, as well as corn in the crib, and will be as much sweeter in spring as the

breath of a lady who has slept in an open chamber. In this way, the boarding of your barn will cost you, at least, one quarter less. We venture to assert, from actual experiment, that hay put in such a barn — and not beaten down, but having a peck of salt thrown on to a ton — will not need so much sunning by two whole hours as hay stowed into a tight barn and without salt. This is often a great saving of labor; for you are enabled often to house it one day sooner than you otherwise could.

Racks should be placed under shelter, but not at the *side* of the barn or yard. A rack twelve feet long will seldom accommodate more than one animal, if placed at the side; but a rack six feet long, and away from the side, so that the cattle may move around it, will accommodate three or four: they approach it as they would a stack of hay; and, being outside of the circle, they are not in fear of being cornered and hooked.

A manger should be fixed under each rack, to catch the hay-seeds and the broken leaves, and to hold the grain, or the turnips, or other vegetables, given to the cattle.

If there is not room for your racks under your barns or your sheds, it is a very easy matter to place a couple of boards over the rack, to keep the rains from the hay: a little moisture or snow will not hurt the hay, and the cattle relish it better.

We have tried this mode of keeping cattle of all sorts for years, and have sometimes kept forty head. We are well satisfied the cattle are more comfortable, the manure is much better, and the labor much less.

If any prefer tying up by the head, let the leanto be filled in the fall with loam or litter, for the cattle to stand upon; but by no means have a floor, unless it be a partial one behind them, of one plank's width, to facilitate the clearing off the manure.

CORRESPONDENCE.

MR. EDITOR, — I intend to sow one acre with wheat this spring, and I want to know if it is necessary to wash it, or soak it, or do any thing more to the seed than I should to spring rye?

I also wish to know how much seed you sow to the acre, and whether any manure should be put on this spring. Z.

Marlborough, March 20.

We advise our correspondent to wash his wheat perfectly clean, by taking half a bushel at a time, and stirring it about in a large tub full of water; change the water several times till it looks perfectly clean; then turn the wheat into a bushel-basket to be drained; then turn it from the basket into a dry lime-cask, or tub, and mix thoroughly with the wheat two quarts of slaked lime, and stir the whole well until every kernel of wheat is limed. When this is done take another half bushel of wheat, and go through with the same process until all is prepared. This may now stand several days without injury, if the ground is not ready for sowing.

Good wheat is sometimes raised without this cleansing, but you run a risk of smut. On the Kennebec river, where they now raise excellent wheat, they were much troubled with smut in their wheat until they prepared it in this way. Their land is more clayey than ours and much better calculated for wheat. Other preparations, such as strong urine, or salt water, may answer the purpose, but lime is effectual, and is as easily applied as any thing.

As to the quantity of seed, we commonly sow one bushel and a half to the acre. Old or rotten manure may be used, but you must by no means put on green manure. It will not work soon enough: it will be fit

for action about the time when your wheat is most in danger of growing too fast and bursting open the stalk, letting out the sap and forming rust, so as to prevent the proper juices from passing into the head of the grain. — ED.

MR. BUCKMINSTER, — I have a heifer calf from a very good cow of the native breed. At eight weeks old this calf will bring me ten dollars; shall I sell it and trust to luck for getting one from New Hampshire, or Vermont, at one year and a half old, for eight or ten dollars, or shall I rear it?

I set the whole cost of keeping the calf this summer against the value of the milk that is required to fatten it; then my calf stands at ten dollars in the fall. It will eat five hundred weight of good hay the first winter, equal to four dollars. It may be kept twenty-six weeks the next summer for about two dollars. Then I have a calf of my own raising at ten, and four, and two, equal to sixteen dollars, one and a half years old. I can usually buy from the country at that age for eight or ten dollars. They are now higher, but not so high as sixteen dollars. I hesitate, and want advice.

F.

Southborough, March 21.

If cattle from the country should continue to be held as high as they have been, we may as well rear our own stock, for we have some advantage in knowing the race from which we breed. As times have been in years past, we could usually buy, at one year and a half old, a likely calf for the same money that we obtained for one at eight weeks old, well fattened. In Vermont, a calf eight weeks old is not worth three dollars, and hay in many places not more than four or five dollars the ton, and pasturing in proportion. It would seem proper, in such a state of things, to purchase, rather than to raise from calves our ordinary stock; but there are,

and ever have been, exceptions to such a rule: when we have an extraordinary cow for the dairy, we should by all means rear her calf: such calves will bring an extra price at two years old, and will then become breeders themselves, if we take good care of them. They will also well pay the cost of rearing: if they are kept properly the first winter, they will be quite large enough for breeders at two years of age; and they make much better cows than if suffered to go longer without calves, *for the younger the animal is when its lacteals or milk-vessels are first distended, the greater will be the produce of milk.* It is therefore an important object to take such care of calves that they may be large enough for breeders at two years old. Two weeks ago we sold two heifers, that were not over ten months old, for thirty dollars. We suffered them to take about half the milk for three months—the first half—saving the richest part for butter. Since they were put up to hay they have daily had two quarts each of ruta бага, cut fine with a spade on the barn floor. They have been gaining flesh ever since they were put up.

STOCK FARMS. As prices are, stock farms must be encouraged. We have found this the most profitable branch of husbandry. But instead of purchasing large pampered animals from abroad, we would be ambitious of selecting the best-shaped animals for breeders, and from these select those giving the richest milk, or those best calculated for draft. We think it possible to select and rear a breed that shall prove excellent for both milk and draft.

One good cow may have a bad calf—she *may* have come from a bad cow—but, by continuing to breed from good ones, there can be no doubt of succeeding in the improvement of the breed, so as to come near perfection. This has been done in other countries, and may be done here. Still it must be considered, if the

practice should become general, in the neighborhood of the great markets, to rear our own neat stock, that the price of veal would rise ; and the temptation would then be stronger than ever to supply the markets with veal, and replenish our stock from the country droves. — ED.

[From the Genesee Farmer.]

SILK.

As I am fully convinced, by the knowledge furnished by those who have made experiments, and by the little experience I have had, that the raising of silk will ere long become one of the most important branches of American industry, I feel it a satisfaction as well as duty in “furnishing my quota of knowledge,” although it may be but a *drop to the bucket* furnished by others.

Last spring I procured between five and six thousand eggs, which hatched about five thousand worms. Four thousand were of the two-crop kind, and the remaining one thousand the sulphur-colored six-weeks worm. The two-crop worms, which hatched first, began to wind in twenty-four days. They wound hard and valuable cocoons. And here I would mention, that no worms should be saved after twenty-four hours from the time they commence hatching, — a fact which I was not apprised of at the time mine were hatched. I saved *all*, and commenced feeding them, but soon ascertained that the later ones would accomplish but little. Some of them continued eating until the sixth week, and then died, while others wound thin and worthless cocoons. All of the six-weeks worms did well, and wound the best of cocoons.

I am not fully satisfied as yet which are the more

profitable, the six-weeks worms, or the two-crop: the former consume more leaves, are two weeks longer arriving to maturity, and produce more silk. The cocoons of the latter reel stronger, (at least mine did,) and the quality of the silk, in my judgment, is equally as good. Mr. Danforth, however, states, in his communication "to the committee on silk, American Institute," that, "the large six-weeks worm, either white or sulphur-colored, is altogether preferable to the two-crop; for, not only are they more productive of silk, but, from their superior length of thread, the reeler is able to produce silk of better quality, and with less labor."

I fed the white and native mulberry leaves alternately, as I could most conveniently gather them. The worms seem to prefer the white, but were not at all backward in eating the native; for, when in health, they are rather the most swine-like insects I ever became acquainted with. I had about one bushel of cocoons, and should think, from what I had reeled, they would produce one pound of silk. The silk that I have reeled is of an excellent quality, strong, soft, and has a beautiful lustre. It was reeled on the *common* reel, and twisted on the *common* wheel, which are rather heavy and awkward apparatus for the business, however. I am fully satisfied with the result of the experiment, and am confident that the whole process of raising silk, from the rearing of the mulberry to the manufacturing of the cloth, can be done with ease and safety, and if carried on judiciously, will afford abundant profit to warrant any one in engaging in the business.

I am much pleased with the "Apparatus for feeding Silk-Worms," likewise the "Apparatus for the Worms to wind their Cocoons on," recommended on the 44th page of the current vol. of the Farmer. This apparatus for winding, of Mr. Harvey Hammond, is unquestionably an excellent one, as the worms seem to prefer

paper to almost any thing else. I have taken worms that have travelled about half a day on brush and other apparatus made for them to wind on, and put them in a piece of paper rolled in the shape of a cone, and they would commence winding immediately. At first, I had considerable difficulty in suiting the worms with places to wind on; so I went to work and made an apparatus somewhat similar to Mr. Hammond's, and found it answered the *very* purpose, with this exception: many of the vacancies were altogether too large; the worms wound too much floss, and too many dupions, or double cocoons. I have of late noticed a "new cocoon frame," described on the 15th page of the 7th volume of Genesee Farmer, which I consider an excellent plan.

Perhaps it may not be out of place to mention, in conclusion, that I have two trees of the *Morus Multi-caulis* inoculated into the white, that have thus far withstood the severity of the winter, and, at the present time, (March 9,) but three or four inches of the tops have been injured by the frost. My thanks to W. W. B. for *so much* in this particular, and *much more* in many others.

 ORCHARDS.

WE are often inquired of as to the best time of trimming apple-trees. Old dry limbs may be cut away whenever you have leisure; but green limbs would better be taken off later than this in the season. When trimmed as late as May, the wounds are sooner healed than when trimmed in winter. Large green limbs should never be cut from the tree: they are better there than on the fire. If trees are annually trimmed of the small interfering limbs, there will be no large ones in the way.

[From the Albany Cultivator.]

REPORT OF THE COMMITTEE ON ROOT CULTURE.

THE committee appointed at the last meeting of the society, to "Report on the best vegetable or root crops for feeding cattle, and the best means of cultivating the same," report as follows:

The culture of roots, as farm crops, for feeding and fattening domestic animals, is of such recent introduction, and so limited, among us, and the few experiments that have been made to ascertain the relative value of these roots have been so loosely managed, that the committee do not possess the data that they could desire, to make a satisfactory report, adapted exactly to our practice. But they are nevertheless satisfied, from the numerous experiments which have been made in Europe, in a climate very similar to our own, and from the partial ones which have been made among us, that the culture of roots is destined to effect here, what it has effected elsewhere, a great and salutary change in husbandry; not only as furnishing the easiest and cheapest means of feeding and fattening domestic animals, but as an important source of fertility to the farm, and of securing the main point, ultimate profit, to the owner or cultivator.

Under these strong impressions of the advantages of encouraging and extending root culture, your committee proceed, with the limited means at their command, to fulfil the duties assigned to them by the society.

The Highland Agricultural Society of Scotland have recently awarded liberal premiums for experiments in fattening neat cattle; *first*, upon different kinds of roots, as the potato, turnip, and mangold-wurtzel; *second*, upon raw and cooked food; and, *third*, upon roots entirely, and a mixture of roots, grain, pulse, and oil-cake. These experiments have been made with a

view of accurately ascertaining the comparative value of each kind of root and other food, and the economy of each mode of feeding it. The experiments have been numerous. They have been made on from ten to thirty head of cattle at a time; and they have been continued from three to six months. The animals were weighed or measured at the time of starting the experiment, at the close of it, and generally at intermediate periods, particularly when the food was varied; and the quantity of roots and other food given was accurately noted, so that the result has indicated the relative value of each kind of food in the fattening process, and the best mode of feeding it. The committee proceed to state, in a summary way, the results of some of these experiments.

1. *The relative Value of different Roots.*

Mr. Howden, with a view to the experiment, set apart the product of two acres of mangold-wurtzel, amounting to fifty tons, five acres of Swedish turnips, being one hundred and forty tons, and two acres of potatoes, weighing twenty-nine tons, four cwt. The experiment was made with twenty-one head of cattle, which received, in addition to the roots, a few distiller's grains, and a little straw. The following table shows the roots appropriated to each lot, and the monthly increase of animals in the girth. The abstract is made from the prize essays of the society, which cannot now be referred to; but the impression is, that in all the experiments which we quote, the roots fed to each lot was precisely the same in weight. Lot No. 1 was fed from the product of one acre of potatoes, one acre of mangold-wurtzel, and one acre of Swedish turnips; No. 2 from one acre of potatoes, and two acres of Swedish turnips; and No. 3 from one acre of mangold-wurtzel, and two acres of Swedish turnips.

Date.	Lot No. 1.	Lot No. 2.	Lot No. 3.
1831, Nov. 30,	35 feet 8 inches.	35 feet 9 inches.	35 feet 8 inches.
Dec. 30,	36 " 6 "	36 " 7 "	36 " 6 "
1832, Jan. 30,	38 " 2 "	38 " 4 "	38 " 2 "
Mch. 1,	39 " 7 "	39 " 8 "	39 " 6 "
" 30,	40 " 8 "	40 " 10 "	40 " 6 "
April 30,	41 " 4 "	41 " 7 "	31 " 3 "

Twenty-eight tons of mangold-wurtzel and Swedish turnips were withdrawn to feed other stock.

On the 30th January, Mr. Howden took a pair of cattle out of each lot, and fed No. 1 with potatoes and water, No. 2 with Swedish turnips, and No. 3 with mangold-wurtzel. The following shows their relative increase in three months:

Date.	Lot 1. Potatoes.	Lot 2. Swedish Turnips.	Lot 3. Mangold-Wurtzel.
1832, Jan. 30,	10 feet 8 inches.	10 feet 5 inches.	10 feet 4 inches.
Ap. 30,	11 " 6 "	11 " 3 "	11 " 2 "

When the cattle were sold, the purchasers agreed that the lot fed on Swedish turnips were from 7s. to 10s. (\$1 54 to \$2 22) a head better than the other lots. The average advance upon the original value of each was £6 12s. and, the cost of the grains being deducted, there remained £129 (\$532 80) in return for the eight acres of produce consumed, or \$66 60 for each acre.

From the above statement it would seem that there is no great difference in the fattening properties of the three kinds of roots; and that, so far as measure or weight is concerned, it matters little which are employed in feeding. We will note here, for future reference, the product per acre of each kind of roots upon Mr. Howden's ground, adding the product in bushels of fifty-six pounds:

The potatoes gave	12 tons 4 cwt. equal to	483 bushels.
The mangold-wurtzel	25 " " "	1000 "
The ruta baga	28 " " "	1120 "

2. *The comparative Economy of feeding raw or prepared Food.*

In 1833, the society offered a premium of thirty sovereigns for the best report, founded on actual exper-

iment made for that purpose, on a number of oxen or heifers, not fewer than six; the animals to be of the same breed, age, and sex, and the term of feeding not less than three months. Several reports were received and published in 1834. From these we abstract the following:

Mr. Walker made his experiment with six two year old heifers, and four two year old steers. Each parcel was divided into two lots, and fed on like food, except that one half received their food raw, and the other half in a steamed or cooked state. The food consisted of Swedish turnips, potatoes, and crushed beans, with a little salt and straw. At the end of three months, it was found that the three heifers fed on steamed food had gained $48\frac{1}{2}$ stone, or 679 lbs.; and the three heifers fed upon raw food had gained $45\frac{1}{2}$ stone; but the quantity consumed by the first lot exceeded that of the latter.

Cost of feeding on steamed food,	£14	1	3
“ “ on raw food,	10	8	$7\frac{1}{2}$
The first cost more than the last,	£3	14	$8\frac{1}{2}$

Deducting the first cost and the price of fattening from the price paid by the butcher, there remained a profit on the three heifers fed with steamed food of 9s.; while the profit on the three fattened with raw food amounted to £3 10s. 6d. By a like estimate, the loss on the steers fed with steamed food was 3s. 8d. and the profit on those fed with raw food, 10s. 6d.

Andrew Howden made a like experiment with eighteen cattle, in six lots. Their increase and expense of keeping for three months, from the 20th March to the 20th June, were as follows:

	Incr. in lbs.	Expense.
Three heifers on raw turnips,	392	£6 18 0
“ “ on steamed turnips,	532	8 18 0
“ “ on raw potatoes,	600	10 7 0
“ “ on steamed potatoes,	572	10 7 0
“ steers on raw potatoes and corn,	722	9 4 0
“ “ on boiled “ “	689	9 5 $\frac{3}{4}$

John Baswell fed ten horned cattle. The expense of keeping the five cattle on raw food was £32 2s. 1d. while that of the cattle on prepared food was £34 5s. 10d. On being slaughtered, the two lots appeared to be very similar, but the particular weight is not mentioned.

3. *Relative Economy of feeding with Turnips alone, or with Turnips and other more expensive Food.*

Robert Stevenson was the successful competitor for the society's premium. He took eighteen oxen; their live weight was ascertained at the beginning, at the end, and at intermediate periods of the experiment, which continued 119 days. The cattle were divided into three lots of six beasts each, and a correct account was kept of the weight of food consumed by each lot. Lot 1 was allowed linseed cake, bruised beans, and bruised oats, in addition to turnips, and, during the last twenty-four days of the experiment, twenty pounds of potatoes were given per day to each; lot 2 received the same allowance, except the linseed cake, and half the potatoes, and lot 3 was fed upon turnips alone. The cost of the keep of each animal, during the 119 days, was as follows:

Total cost of feeding one beast of lot 1, . . .	£5 2 7
“ “ “ of lot 2, . . .	3 17 0
“ “ “ of lot 3, . . .	1 18 7½

The improvement in live weight was as follows:

First lot increased in weight	108 stone.
Second “ “	101 “
Third “ “	49 “

Abstracting the cost of feeding from the value of the increased weight, the loss and profit would stand as below:

Loss on feeding lot 1,	£3 15 8½
Profit on feeding lot 2,	119 3½
Profit on feeding lot 3,	2 11 1

“Thus, when turnips alone were used, a profit of twenty-two per cent. was realized; where beans and

oats were used along with the turnips, the profit was diminished to eight and a half per cent.; but when still more expensive food was tried — that is, grain and linseed cake, along with turnips and potatoes — a loss was sustained of no less than 12 3.16 per cent.”

Lot 1 were the largest oxen. They were fed each with 132 lbs. per day of Swedish turnips. Lot 2 were fed each with 120 lbs. of the same per day; and lot 3, being the smallest, received but 115 lbs. per day; and, for twenty-four days, but ninety-two pounds.

Lot 1	cost	4.484	pence	for	every	lb.	of	increased	live	weight.
Lot 2	“	3.92	“	“	“	“	“	“	“	“
Lot 3	“	3.39	“	“	“	“	“	“	“	“

The turnips were estimated at four pence per cwt.; the potatoes at 1s. 6d. per cwt.; oats and beans at 3s. 6d. per bushel; and linseed cake at three fourths of a penny per pound.

“In conclusion,” says Mr. Stevenson, on this part of the subject, “we give it as our opinion, that whoever feeds cattle on *turnips alone*, will have no reason, on the score of profit, to regret their not having employed more expensive auxiliaries to hasten the fattening process.”

It would seem pretty evident, from the foregoing experiments, that ruta бага and mangold-wurtzel are the best root crops for feeding cattle. The profit of cultivating and feeding these roots will be more manifest if we compare their acreable product with that of hay, potatoes, and the coarse grains which we feed to fattening animals. To enable the committee to make this comparison, they assume the following as the average products of crops, and attach to each of these an estimate of their marketable value. Both the product and the prices will greatly vary; but those assumed are deemed sufficiently correct for comparison.

An acre of grass,	2 tons,	at \$10,	. . . . .	\$20 00
“ corn,	40 bushels,	at 75 cents,	. . . . .	30 00
“ oats,	30 “	at 37½ cents,	. . . . .	11 20
“ buckwheat,	30 “	at 50 cents,	. . . . .	15 00
“ potatoes,	150 “	at 25 cents,	. . . . .	37 50
“ ruta бага,	600 “	at 25 cents,	. . . . .	150 00
“ mangold-wurtzel,	600 “	at 25 cents,	. . . . .	150 00

Estimating the cost of the roots, in labor, at twenty dollars an acre more than that of the hay, oats, and buckwheat, it still leaves a great disparity in the profits; and, considering the cost of culture equal to that of Indian corn, there is a manifest advantage in the turnips and mangold-wurtzel over the corn crop as a material for cattle food. Good beef cannot be made on hay alone, in winter; and those who do not feed roots, must resort to some more expensive food, as the meal of Indian corn, oats, buckwheat, &c. The turnips and mangold-wurtzel, on the contrary, with the aid of perhaps a little straw, will serve of themselves to feed and fatten animals. In this matter, the chairman can speak from experience. He purchased four oxen, a little before Christmas, and kept them till some time in April: after a short time, they ate each two bushels a day of ruta бага: they would eat very little else, though laid before them, not even linseed cake. They made good beef, and afforded a handsome profit on the turnips consumed.

If we now assume that an ox will require a quarter of a hundred of hay per diem to keep in good condition, and that it will require an addition of four quarts of corn-meal, or eight quarts of crushed oats or buckwheat, per diem, to fatten him; and if we consider 112 pounds or two bushels of roots equivalent to a ration of hay and grain, then the several crops will feed an animal, as below:

One acre of grass and half an acre of corn will feed	160 days.
One and a half acre of mangold-wurtzel, or Swedish turnips, will feed	450 "
One acre of grass and one acre of oats or buckwheat will feed	160 "
Two acres of Swedish turnips or mangold-wurtzel will feed	600 "
One acre of potatoes will feed	75 "
One acre of Swedish turnips or mangold-wurtzel will feed	300 "

Making very liberal allowance for the difference in the expense of raising these crops, and for any error the committee may have made in fixing the daily rations, or in the acreable produce of each, they think that no doubt can for a moment be entertained that

the Swedish turnip and the mangold-wurtzel are decidedly the best crops that can be raised for feeding and fattening cattle.

The committee have no doubt that the sugar-beet and the carrot offer advantages nearly or quite equal to the roots above recommended. Their product and nutrient properties are very similar, and the expense of culture is not very dissimilar. The sugar-beet is probably richer in nutriment than the mangold-wurtzel, though its product is ordinarily less. The carrot may require more labor in the culture, but is superior as food, particularly for horses.

Arthur Young highly extols the carrot. Upon the product of three acres of this root he assures us he kept, for more than five months, twenty work horses, four bullocks, and six milch cows; nor did the animals, during that period, he adds, taste any food, except a little hay. Our enterprising fellow-citizen, Col. Meacham, of Oswego, has gone largely into the culture of carrots, as cattle-feed, as well as many of his neighbors; and they speak highly of the profits of the culture.

Some highly satisfactory experiments have also been made among us, on a limited scale, in cultivating and feeding the sugar-beet. There seems to be but little doubt, from the high state of perfection and of profit which the business has arrived at in France and Germany, that the culture of this beet will soon be extensively gone into in this country, for the purpose of making sugar; and if so, the residuum of the beet will form an important item in the material for fattening cattle.

There are other advantages resulting from root culture which should not be overlooked. It tends greatly to increase the quantity of manure on the farm, to meliorate the texture of the soil, and to furnish excellent alternate crops in convertible husbandry. In selecting for culture, the farmer should choose the roots

that are best adapted to his soil. The turnips prefer a dry, sandy soil; the beet, a clay loam.

As to the best means of cultivating these crops, the committee summarily remark that the product and profit will materially depend upon the following contingencies, viz. that the soil be dry, that it be rich, that it be deeply worked, that it be well pulverized, and that the after-culture be well managed. The implements necessary to cultivate them advantageously, in addition to the plough and harrow, are the drillbarrow and cultivator. The season for sowing the beet is from the 10th to the 20th May; of sowing the Swedish turnip, from the 10th to the 25th June. The drill or row culture is decidedly the best. A detail of the whole process of culture would occupy too much space for this report, and is unnecessary, as these processes are already understood by many, and have been minutely described in the agricultural periodicals of the day. The committee will merely recommend, in conclusion, that the roots be always cut previously to being fed to cattle, for which machines may be procured, at a moderate charge, which will cut a bushel in from one to three minutes. If cut, the roots are eaten entirely; if not cut, a portion is apt to be rejected and wasted.

The chairman has received a communication from Col. Meacham, stating his mode of cultivating the carrot, the product and manner of using the crop. He cultivates them in drills, from twenty to twenty-four inches apart; he gets one thousand bushels an acre, at an expense of \$25 to \$30: he kept six work horses on them from November, 1836, to June, 1837, without grain, and they remained in good plight, and performed as well as he ever had horses perform, and he thinks they are worth double as much for stock as ruta бага.

Upon the subject of the carrot culture, which is perhaps less understood among us than that of the beet and turnip, the committee will add that this root

thrives best in a sandy loam, light, moist, but not wet, and of great depth ; in which the plough, going to the beam, brings to the surface nothing that is not fit for vegetation. The ground should be ploughed immediately preceding the sowing. In Suffolk, England, they sow eight pounds seed, broad-cast, to the acre ; and the crop is from four hundred to five hundred bushels. For horses they are considered superior to any other food. Two bushels of carrots and one of chaff is the per diem allowance to a horse ; or seven bushels of carrots and one bushel of oats is the allowance for a week. They are also profitably fed to all other farm stock. They are raised in Suffolk without dung, at an expense of 9d. (16 cents) per bushel. The yield of the carrot is often seven hundred to one thousand bushels the acre. The crop is gathered by making a deep furrow near to the drill, when a man seizes, draws the top to the furrow, and pulls them up with great facility.

Another root, the parsnip, is deserving of notice, though its partial culture hitherto will hardly entitle it to be classed among field-crops. It is believed to be the most nutritious root of any that have been named, is as easily cultivated as the carrot or the beet, and has this advantage over all the others, that its value is not impaired by frost.

From the preceding views, the committee do not hesitate to recommend the extension of root culture, as the most ready means of keeping up the fertility of our farms, and of increasing the profits of their cultivation.

J. BUEL, *Chairman.*

FARM TOOLS.

LET us consider, a few moments, brother farmers, whether all the fuss we make about improvements is mere moonshine, or whether we have really gained a

point or two within the last twenty years. Let us fix one or two landmarks, and then determine whether any wind of doctrine has drove us ahead, put us back, or left us stationary.

About twenty years back, while farming on the banks of the rich-soiled Kennebec, we heard that an iron plough had been constructed in the neighborhood of Boston, which would run with so little friction that one yoke of oxen could easily draw it in greensward land. We thought this impossible, for we had generally been obliged to use three yoke of cattle for this service instead of one. Now we often see one yoke performing this labor, and at less than half the former expense.

We think this is pretty well for the improvement in one article, the most important instrument in the hands of the farmer.

The manure-fork, the hay-fork, and the shovel, are much improved within a few years. We can well remember when but few iron shovels were used. Wooden shovels with iron plates, or iron shod, were the tools for the farmer to remove his gravel, his loam, or his manure.

His manure-forks were made of such poor iron that it was necessary to use large bars for the tines: these could never be made to penetrate the heaps or the soil with ease; and we think we can with safety assert that, with a modern iron shovel, and a modern manure-fork, one third part of the former labor of forking and of shoveling is saved.

Shall we stop at this point, and conclude that no farther improvements are to be made in tools? or shall we rather take courage from what we have seen, and attempt a little farther improvement? Let us enter into no wild speculations—we cannot afford it—but let us not for a moment suppose we can make no farther advances. We cannot stop; the spirit of improvement is up, and we must partake of it, if all other kinds are forbidden.

If some substantial mechanic should furnish you with a simple instrument by which you will plant as much corn, in any prepared field, as twenty men will do, is it not worth your while to try it? If he warrants the performance of the instrument, you run but little risk, and you stand the chance of taking the lead in an easier and a better mode of planting.

If it should be objected that we plant but little in New England, let two or three neighboring farmers join and own one. Where six acres of corn are planted, if the instrument will in all probability pay its cost the first season, is it not worth your time to attempt, at least, a better system of planting?

Boys and hired men often bury seed too deep: they often cover it with sods and with sorrel. The greatest crops of corn have been grown by those who have taken the trouble to make about eight thousand hills to the acre, instead of four thousand, making the hills about two feet apart in the row.

In this mode, if your rows are perfectly strait — as they will be, thus planted — you will tend the crop with more ease than you will where you plant by hand.

You should procure one instrument that will answer for all kinds of seeds, and save the expense of two.

[From the Albany Centinel.]

ON FARM-YARD MANAGEMENT.

IN the business of saving manures farmers are equally remiss: the forming of composts, and manufacturing large quantities of manure by mixing the various vegetable matters with top soils, with lime, and with mud, is seldom or ever thought of.

To save the greatest quantity of manure, and to preserve it from losing its strength, it should be protected

from the weather. If this cannot be done under cover, it is advisable to stack it, so that it will shed rain, and escape the dissipating effects of the sun and the wind. During frosty weather it will lose none of its virtue; but, in the spring, the stacks must be attended to; and, as the bed of the farm-yard feels the influence of the sun and begins to thaw, the manure should be scraped up and added to the stacks: this should never be omitted; otherwise the strength of it runs off or is dissipated, leaving nothing but the unfermented straw behind. Any means that will save it from being leached by rain should be adopted, and, in addition, and to prevent the yards being flooded by heavy rains, the buildings adjacent to it should be furnished with gutters and drains to lead off the water: without these precautions a great share of the manure in every barn-yard will be exhausted of its best properties before it is applied to the land. It is not uncommon to hear farmers complain that manure has little or no effect on their land. And such manure as some of them make, which has lain for months exposed to all the vicissitudes of the weather, can have no effect. Perhaps it is drawn out in the winter, spread abroad in small heaps, and not turned under till nearly all its useful properties are extracted by frequent washings. Now notwithstanding the great value of manures to the farmer, the increasing, preserving, and judicious employment of them seems to be a secondary object: considerable quantities are daily lost about every farm, and what is collected is of little value, owing to the manner in which it is treated. No farmer can expect to succeed in his agricultural operations without the aid of good manure and plenty of it; still its augmentation and preservation seems to be little cared for: provided his barn-yard is cleaned out once a year, he thinks he has done enough.

It is feared that advances in this branch of farming, in common with others, will not be very rapid until

our rulers, influenced by the true principles of a wise political economy, shall see fit to do something for the cause. The rage for speculation, and the desire to gather riches too fast, which but lately filled the whole community with golden dreams, has in a measure subsided, and people's minds now being sobered down to realities of life, they are willing to go to work for a living. It seems, then, there never was a time when the fostering care of the government might be extended to the farming part of the community with a better prospect of advancing the permanent good of the whole than the present.

The art of farming, in all its various details, is an employment requiring constant care and attention, as well as judgment in bringing its operations to a successful issue.

It is the great employment of the rank and file of the country, and, as such, deserves to be considered by our rulers; and, were they seriously to entertain the purpose of encouraging it, the zeal of its followers would be sharpened, and their efforts redoubled, to place this science, to which our country owes so much of its prosperity, upon a proper footing. Committees of agriculture, it is true, are appointed, year after year, in our national and state legislatures, to watch over its interests; but what have they done for the cause which feeds and clothes them? The silk business may have been talked over in the former, and the Canada thistle choked in the latter, but no important measure for its encouragement has been passed, at least of late years. Every other great interest of the country seems to have been cared for but the one under consideration: commerce, manufactures, education, civil and military, the fisheries, &c. are all bountifully endowed by government, while, for the benefit of the profession to which the great mass of the people belong, there is no board formed, no school-house raised, nor bounty for its amelioration or encouragement offered. Is it neglected by our rulers because it is less useful, or needs

less help than others? It has, to be sure, by its own life-supporting power, felled the forest of the west, and converted the howling wilderness into fertile fields; but it has not yet succeeded in rendering us independent of other nations for the very staff of life. The fact alone that bread stuffs to a large amount were lately imported from Nova Scotia and elsewhere, would seem to call upon the government in the loudest terms to embrace the patriotic and popular measure of encouraging agriculture. Individual enterprise has done much for the cause, by disseminating among us, by means of periodicals, the results of experiments and good advice in every department of farming. But these means of information are very limited in their circulation. The attachment to old habits, the dislike to book-farming, and the utter ignorance of what is going on in the agricultural world, are also serious drawbacks to improvement, which it is feared nothing can remedy but the formation of agricultural societies in every county of the state, under the patronage of the government.

Under such a system, the results of good farming and an improved state of culture would be brought home to every man. Knowledge would be more generally diffused, and great improvements consequently made in every branch of rural economy. Discoveries in agriculture are continually making, and must continue to be made ad infinitum, for no limits can be assigned to the capabilities of the earth in producing the necessaries as well as the luxuries of life. There seems no end to the improvement of the qualities and perfections of domestic animals, yet how few of our common farmers are aware of these facts! They know little or nothing of the principles of vegetation, or of the management and effect of the different kinds of manure; nor have they any very clear ideas on the subject of breeding the different kinds of domestic animals.

Until a spirit of emulation is aroused, by means of

agricultural societies, this state of things must continue. To get up such a spirit has been and is the aim of the agricultural society of this state. It has thus far struggled through a feeble existence, upheld alone by the exertions of a few spirited individuals, headed by the patriotic and intelligent editor of the Cultivator. Under better auspices than we have yet had cause to boast of, the society might flourish and be productive of incalculable good; but unless a favorable ear is turned to our petitions for aid to the cause, there is reason to fear that, after this meeting, it will be adjourned to meet no more.

W. AUG. S. NORTH, *Chairman.*

[From Hitchcock's Geology.]

SOILS, THEIR ORIGIN AND NATURE.

BEFORE proceeding to exhibit details respecting the soils of Massachusetts, it will be necessary to state my views respecting the origin and nature of soils in general, and the principles on which they may be classified.

All geologists and chemists agree in regarding soils as the result of the abrasion, disintegration, and decomposition of rocks, with the addition of certain saline, vegetable, and animal substances. Ever since the deposition of rocks, various agents have been operating upon them to wear them down, to cause them to crumble or disintegrate, and often to decompose them into their proximate or ultimate principles, while they have been constantly receiving vegetable and animal substances with soluble salts. The earthy portions, however, always constitute by far the largest part; and hence, if we know the composition of the rocks whence they were derived, we shall know the earthy

and metallic constituents of the soil. Now we find that nearly all the rocks which exist in large quantity are composed chiefly of silica,* alumina,† lime, and oxide of iron; and these are the ingredients that are found almost invariably in soils. Magnesia is also usually present in small quantity; as is also manganese in the soils of New England. Silica is in the largest quantity, both in the rocks and the soils; alumina next; while the other ingredients are in much smaller proportion. I ought also to add potassa and soda, which are very widely diffused, though not usually in large quantity. To give a numerical statement, derived from numerous analyses, such rocks as most of those in New England contain sixty-six per cent. of silica, sixteen per cent. of alumina, six or seven per cent. of potassa, five per cent. of oxide of iron, and of lime and magnesia a much less quantity; and the composition of our soils will probably be found to correspond very nearly with these numbers, with the exception, perhaps, of the potassa, which may have in a good measure disappeared by the operation of vegetation.

CLASSIFICATION OF SOILS. The above ingredients are combined in different proportions in the different rocks, so as to constitute several sorts. Hence we should expect, and in fact find, a corresponding difference in the soils resulting from their decomposition. Indeed, with some exceptions, the geologist is able to ascertain the nature of the rock from the character of the soil that covers it. And I apprehend that it will not be difficult to point out the characteristics of the soils derived from the different rock formations of Massachusetts, so that they can be distinguished by those not familiar with practical geology. This geological classification is the only one which I shall attempt to give of our soils; and this seems to me all that is necessary or useful in addition to the common

* Sandy.

† Clayey.

division into sandy, clayey, loamy, calcareous, &c. The following list embraces, it appears to me, all the important varieties of soil in Massachusetts :

1. Alluvium, from rivers.
 " peaty.
2. Tertiary soil, argillaceous.
 " " sandy.
3. Sandstone soil, red.
 " " gray.
4. Graywacke soil, conglomerate.
 " " slaty, gray.
 " " slaty, red.
5. Clay slate soil.
6. Limestone soil, magnesian.
 " " common.
7. Mica slate soil.
8. Talcose slate soil.
9. Gneiss soil, common.
 " " ferruginous.
10. Granite soil.
11. Sienite soil.
12. Porphyry soil.
13. Greenstone soil.

A few paragraphs of explanation will, I trust, render these varieties of soil recognizable.

In general, if any one wishes to know where to find them, let him look at the geological map that accompanied my former report, and he may conclude that the different soils cover those portions of the surface that are represented as occupied by the rocks from which they are derived. There is one circumstance, however, that prevents us from considering the boundaries of the rock formations as perfectly coincident with those of the soils. Diluvial action has removed nearly all the loose covering of our rocks in a southerly direction, often several miles, and more or less mingled the soils from different formations. Hence,

where one formation lies north or south of another on the map, we may conclude that the detritus of the most northerly one has been swept southerly, or south-easterly, for several miles beyond the boundaries of the rock ; and in few cases does the dividing line between two formations so exactly coincide with the direction of the diluvial current, that there is no overlapping and intermingling of the soil. Where the formations are limited and irregular, the soil of whole townships is of so mixed and uncertain a character, that it is hardly possible to refer it to any of the above divisions ; as, for example, in Amherst, Ludlow, and several of the towns in Plymouth county. In such cases, it might perhaps be convenient to call the soil *diluvial* ; but I have not thought it important to introduce such a variety, since it can have no constant characters, and since this difficulty is of so limited a nature. In all such cases it is better to regard the soil as a compound of detritus, from the rocks lying in the vicinity to the northward.

ON MANURES, AND THEIR APPLICATION TO THE SOIL.

THERE is much difference of opinion among our farmers as to the best mode of applying their manures, and this arises in some degree from the difference in their soil, and the difference in seasons.

In wet seasons we lose but little by placing them near the surface and covering them with the harrow : in dry seasons we wish them buried deeper ; but, as we cannot possibly tell what the season will be, we must use our best skill and judgment.

A writer in a late paper commends the practice of placing manures on the surface in all cases. Another writer, last week, strenuously insisted on ploughing them in at least one foot deep. He says, make one acre rich first, then take another, until you go through the whole.

To us both these rules "smell" more of the study than of the stercoraceous pile. Believe not every tale. If one farmer happens to obtain a good crop from surface manuring in a wet season, we should not deduce from this a general rule.

We have sometimes thought we could not lose much by ploughing in deep, under the grass sod, fresh or long manures, as we are persuaded that, generally, the valuable salts do not descend out of the reach of the plant. It is true, there are instances in which liquids, in cow-yards, descend so deep as to impregnate and injure the water in wells by their side; but all these are cases where the strong puddle has stood, occasionally, for years: the whole subsoil has become porous, and the waters of the yard and of the well naturally mingled together and became similar.

We once had a well in porous loam, within sixteen feet of the cow-yard fence: the water stood in the yard more than half the year, but the well at first was not injured. In a few years, however, the water in the well was affected by the puddle. We removed the fence of the yard so as to keep the cattle four rods from it, and the water of the well again became good.

Now we are far from thinking this good proof that we lose by the descent of the salts where there is vegetable life to absorb or to partake of them, or to be stimulated by them. If we fill a barrel half full of loam, and turn on this gradually a pailful of liquid from the barn-yard, the liquor leaking out at the bottom of the barrel will be pure and limpid.

Were it not for this wise provision in nature, most of our wells would be worthless. The rain-water from the surface is usually well strained before it arrives at the bottom of the well. Now if you put eight or ten pails of water into the barrel of loam, the last pailful will not come out pure. It will resemble the water that spoiled our well.

Apply these experiments to our fields: we have, on

the average, forty inches of rain or moisture annually from the clouds, say twenty during the season of vegetation. This falls on to a coating of manure, not exceeding half an inch thick, in any case; and generally not exceeding one fourth of an inch in thickness; for you will find by calculation that twenty loads, or six hundred bushels of loam, sand, or manure, will not cover your acre one fourth of an inch in thickness.

Then consider your ground is to be filled with living roots, seizing and absorbing every particle that is digestible, and what chance is there for an escape downwards of these salts? If our cup was placed one foot below the surface of a field thus manured, its contents, after a shower, could not be affected by the manure of the field.

Still we have not proved that manure cannot be placed too deep in the soil. We are satisfied that it may be. Manures of all kinds must be well mingled with the soil. If we spread it green, and plough it under a greensward, it must lie there in some degree dormant during the summer. And we think we cannot keep manures a long time dormant without loss. There may not be much loss if it is fine and is well buried under a greensward as late as the middle of May, for the growing roots and the green grass become immediately active manures, and these assist to hasten the decomposition of that which was spread on.

On heaps of manure, placed under corn or potato hills, there is nothing but worms to operate — unless, may be, the crows should be kind enough to lend a hand — and of all practices this is the most difficult of advocacy. We cannot hope to enrich our grounds and prepare them for future crops, without spreading our manures through the field. The labor is surely less, the crops are *generally* better, and the after-crops are always larger.

On the whole, when we conveniently can, we should enlarge the quantity by adding loam, peat, muck, or

any vegetable matter to the heap: let this be large enough to engender proper heat, and not lie in the mass after it becomes so hot as to burn a boy's foot. It should be overhauled until it becomes fine enough to be spread and mingled with the soil.

In light loams we run less risk by covering it deep: in heavy loams, and in clay, we run a greater risk, and there is less need of burying it deep.

ON SOAKING SEED-CORN.

MANY make a practice of soaking or steeping their seed-corn before planting.

Some do this to make it vegetate sooner, some to infuse a tincture of nourishment to the plant, some to keep it from the crows, and some to drive away the worms. Some planters wrap the kernel in tar and gunpowder, of which latter article it is said the crow well knows the use, and of which the mere smell is sufficient, and satisfies without tasting. Saltpetre is used for the double purpose of terrifying the crow — as he knows we make gunpowder of it — and of stimulating or nourishing the plant; and, finally, a steep in copperas has been recommended, long since, as a cure-all, to drive away birds, and worms, and to hasten vegetation.

We have known some sensible farmers, who, after they had tried those several arts, dropped their seed-corn dry in the earth, and, trusting very much to providence to bring up a live stalk from a dying kernel, have realized most excellent crops of corn.

As to steeping the seed, we think the practice quite pernicious. Seeds that have been steeped often fail to vegetate. If they once become dry after swelling, they are not likely to start again. Seed coated in tar often fails; and as to the virtue communicated to the kernel

from the saltpetre, it must, in any event, be very trifling, not half sufficient to balance the risk of losing the seed by steeping.

We much doubt the propriety of using any infusion or coating for seed-corn. If your ground be full of worms, put ashes or lime on the corn-hill, *as soon as it is planted*, instead of increasing the number of worms by putting manure in the hill. If your ground is suitable, you may have a good crop without any of this quackery of steeping.

None but warm lands should ever be planted with corn. Let the cold lands go to grass, or to potatoes, that like a cold bed. We shall not calculate on such seasons as 1816 and 1836. They are exceptions to the general rule, and we should not be governed by the exception.

Crows may be kept from the field by *suitable* scare-crows; not by such things as boys usually rear, that will frighten ten horses to one crow. They should be made in the image of a man, which animal the crow abhors as his greatest enemy, and always wishes to avoid. If the image is partially covered with brush, the crow will be still more shy, and will never meddle with your corn, when he thinks he is running great risk of his life.

LIGHT AND LOOSE MOULD UNDER STONE WALLS.

At one of our meetings in the state-house, last winter, we stated, as a fact well known to farmers, that the soil which lay beneath stone walls was much lighter, generally, than any other. This statement occasioned some surprise, not, however, in the minds of experienced farmers: they knew it was fact.

We did not attempt to give a reason for this phenomenon; but, as the statement caused some discussion

at the time, we have since thought more of the causes that produce this singular state of the soil in such situations.

It is ascertained if lime be spread on the surface in pasture grounds, it gradually sinks down beneath the surface, so that in a dozen years it may be found buried in the soil several inches deep. A correspondent of the N. E. Farmer ascribes this to the labors of insects in the ground. Ants and other animals innumerable are constantly digging in the earth, and it is natural for them to bring to the surface their little burdens, as we may daily notice among the tribes of ants.

Millions of these animals are destroyed in the open fields, and it is reasonable to suppose that when they obtain a shelter under flat rocks, or stone walls, they labor in greater security and accomplish more. By constantly turning over the particles they seek, the lime and other materials not relished by them are naturally sunk deeper into the soil; and under walls, being more protected from the inclemency of the weather, they may be supposed to multiply faster, and to be continually undermining and rendering lighter the mould under the centre of these shelters, making these places more accessible than others to the roots of the trees and other plants.

LUCERNE, OR FRENCH CLOVER.

WE have found this grass difficult of cultivation. It requires a rich soil, and in that the weeds usually get the start the first season and choke the grass. It is said to be necessary to weed it by hand the first season, and afterwards it will take care of itself. We once cultivated a small patch of it, which grew and yielded as abundantly as we had expected from the usual descriptions given of it; but we have had no success when

we sowed it with spring grain. We were lately told, by an Englishman, that it was common, in his country, to sow beds of it quite thick, and to transplant the roots, when grown large, into larger spaces. We should probably think this too much trouble in our country.

For soiling cattle that are kept constantly up, this plant yields a most abundant and nutritious crop. It may be mown four or five times in the season; and we have had patches that grew more than two feet in height in a single month after cutting. If we could contrive some cheap mode of seeding with it we might find our account in its cultivation.

ROOTS.

THOSE who plant carrots, parsnips, or mangel-wurtzel for cattle, should do it in May, or by the first of June.

Ruta бага may be sown as late as the twentieth of June, and they are more tender than when sowed early.

Some prefer one kind and some another; but much must depend on the soil and the preparation. Ruta бага will grow any where, if the surface is made rich; and they may be sown where other seeds, that should be sowed earlier, have failed.

Carrots and parsnips require more care. To obtain large crops, the soil should be deep and thoroughly dug up or ploughed up. For field culture, the plough must be used; but it is not good to plough deep very early in the season. In much of our soil, if we plough when the ground is too wet, it becomes lumps, that remain hard nearly the whole summer. The plough should not be used until we are ready to sow the seed, or until the latter part of May: then the manure may be spread on and immediately ploughed in. When

we have not a great supply of manure, it is well to save some of the finest to be spread on after ploughing, and let it be incorporated with the soil by means of the harrow.

As carrot and parsnip seeds are very light, and not easily sown, they may be mixed with sand or ashes, and be made moist with water some days before sowing. If the quantity of sand or ashes be considerable, there will not be much hazard in wetting the seed; but, in such cases, it should be covered as soon as it is sown. One advantage derived from wetting the seed is, it will start up sooner, and be more above the weeds at the first hoeing. Great care should be taken that the rows be perfectly straight, and then we are not so liable to cut up the small plants that cannot so easily be seen.

As the ruta бага, or yellow turnip, may be sown much later than these, the ground may be differently prepared. The manure may be spread and ploughed in, or harrowed in, two or three weeks before the time for sowing the seeds: then let the ground be harrowed every four or five days until sowing time. Many of the weeds will now vegetate and be destroyed by the harrow, and much hand labor in weeding will be saved.

The sugar-beet wants a deep, rich soil, and for stock may be sown any time in the month of May.

It is hoped that many experiments will be tried on the raising of these roots this season, and on their comparative value.

If we can make our own sugar from the beet by as simple a process as the rock-maple sugar is made, we can easily supply ourselves; but, if other articles of subsistence continue as high as they have done, we must calculate what we can raise to most advantage.

We want more experiments on making sugar from the sliced and dried beet before we can enter largely into the manufacture.

GREEN CROPS.

To the Editor of the Cultivator :

SIR, — I have a field that lies distant from my barn, and it has never had a share of my manure, though it has often contributed to supply my granary. As you have practised ploughing in green crops to enrich your land, I should like to know, through the medium of your useful paper, your opinion as to the best and cheapest mode of enriching it without manure.

Respectfully yours, S. D.

Wayland, April 29, 1839.

If our correspondent wishes to devote his field for one whole season to green crops in order to raise his land, and the same is not tough swarded — not half seeded, as we see many of our fields that have been run too hard with grain without manure — the quickest way to bring up such land without manure, and without much cost, is to plough it about the twelfth of May, turning in nicely all the grass and stubble: sow on one bushel of buckwheat to an acre, and cover it with a harrow. In six weeks the wheat will be in full bloom: roll it down flat, plough it in, and sow on another bushel of buckwheat as before. In the latter part of August roll this down as before, cover it completely with the plough, harrow it, then sow your grass-seeds while the furrow is fresh, and cover that with a brush-harrow.

Sow no clover till snow comes: then, if you intend the land for pasture, sow southern clover and Dutch honeysuckle; if for mowing, sow northern clover. This will not come to head much until after haying is over; but it will furnish fall feed, and will assist much in keeping out from your new-sown land weeds and noxious plants, that will intrude where nothing but herds-grass and red-top grass are sown. Clover serves

to enrich, as it has a broad top, also a tap-root, that dies in two years, and rots in the ground and turns to manure.

The expense of preparing an acre of plain light land thus may be, —

Three ploughings,	\$6 00
Two bushels buckwheat,	2 00
Sowing and harrowing in twice,	1 00
Rolling down,	50
	<u>\$9 50</u>

Nine dollars and a half will, in many cases, cover the whole expense of preparing the land for the grass-seed.

Now you have turned in three green crops, and your land, if it was suitable for buckwheat, will be richer than if coated with five cords, or twenty loads, of manure. The cost of twenty loads of manure, in your town, would not be less than \$20, and the hauling and spreading would be \$5 more = \$25. Then you must plough once, \$2 = \$27. To the \$9 50 we must add the charge of the loss of the use of the land one summer; but, as four or five acres of such reduced land would be required to pasture one cow, we cannot call this loss more than \$2. Then our account stands \$11 50 for green-crop manuring, and \$27 for barnyard manuring.

If the green crops should prove one half as beneficial to your land as the purchased manure, you will thus be a gainer by preferring these crops; but we think we are warranted; from our own experience on many acres, in repeating that the three green crops, well ploughed in, will prove fully equal to twenty loads of manure on an acre.

If your land be distant from the barn, or from the purchased manure, the difference of the expense will be still greater. But you cannot often purchase manure at any price, and you must resort to some kinds of green crops, or suffer your distant lands to lie sterile.

Other green crops are often recommended, as clover,

or oats; but on your soil clover will not grow without first manuring, and oats will not give you so much as buckwheat; then oats are a greater exhauster, as their tops are small in proportion to their roots.

If yours be pasture land, and you cannot well spare it a whole summer, and do not wish to fence it off, you can plough up any part of it about the first of September, and seed down immediately. In this way you will gradually raise your land every time you plough in the growing grass. — ED.

THE HORSE.

THOUGH we have now machinery that surpasses this animal in speed, we are not yet ready to abandon him and set him adrift. Other people may prefer the camel, or the mule, but New England farmers know of no servant to be compared with the horse.

For the heavy draught, or for the race, for a ride of pleasure, or for a tour into the rough interior of our country, the horse is our best companion and helper. We could hardly estimate his worth but by his loss.

This animal is often abused through wantonness, or carelessness; but still more often injured for want of due consideration of the proper mode of treating him.

Within a few years it has been customary for drivers of stages in our neighborhood to give their horses meal in their water when they only stopped for a short time in the middle of the day. It was then not uncommon for horses, when driven no faster than at present, to fall suddenly dead in the harness. On opening the animal, the meal would be found undigested, and formed into a hard cake in the stomach.

We believe this practice is now wholly abandoned. There is a very prevalent idea that it is injurious to give grain to the animal when he is warm. Now we

have never known any injury to arise from this practice. There is no more danger of injury to the horse than to ourselves by eating a hearty meal when warm. And who ever heard of a man killing himself with a hearty dinner, because he eat it when he was fatigued or heated?

It is hard driving, violent exercise, *after eating* hearty food, that causes pain, and often death.

Let a man but reflect on what has proved injurious to himself, and he will rationally conclude what treatment is most likely to injure his beast. Let him eat a hearty meal, then run, or use any violent exercise immediately after, and he will be at no loss in conjecturing what must be the danger of furiously driving a beast after a hearty dinner.

It is hard driving immediately after eating grain that kills the horse; and we venture to assert that not an instance can be shown in which he has sustained injury from eating grain merely because he was warm. People should reflect and reason more on this subject.

Horses that travel and labor violently, as in stages and fast chaises, should eat their grain at night. When laboring moderately on a farm, it is not so material when their heartiest food is given; for horses are not liable to be injured in any gear, when they are only driven on the walk.

But we have known many men, prudent in most matters, yet guilty of stuffing their horses with grain in the morning, just before starting on a journey! They gave no grain the night before, reserving for the starting hour the heartiest food for the beast!

On a journey we have long been in the habit of giving our horse his grain at night. We give it as soon as he is rubbed down and put to the stable, and we have never found it injured him.

How absurd to let your horse stand for hours, after a day of violent exercise, to chop up his own fodder, and attempt to appease his hunger on hay, often poor hay, not fit to be fed out to young cattle.

Give the horse half a bushel of oats, or one peck of corn — if he has been used to grain — as soon as you lead him into the stable, and he will fill himself in one hour or two, and be willing to lie down and enjoy a nap, even before you retire to rest yourself.

In any part of the country, if you see the grain put into the manger, you may be pretty sure the hostler has not forgotten his duty.

THE GARDEN AN INDEX OF THE MIND.

SOME old sage writer has said, if you desire to judge correctly of the character of a man's mind, *go into his garden*, and observe how much order or disorder, how much neatness or negligence, appears there. We suspect there is more in this, as a test of a man's mental character, than there is in phrenology or physiognomy. Solomon has said, "I went by the field of the *slothful*, and by the vineyard of the man *void of understanding*; and, lo, it was all grown over with thorns, and nettles had covered the face thereof; and the stone wall thereof was broken down." Such was the phrenology of Solomon's time. He considered a slovenly vineyard or garden good evidence of a slovenly mind, or a mind void of understanding.

You may depend upon it, when you see a man's fields and gardens laid out with good order and taste, and notice the neatness of its cultivation, that *that* man's mind is like a well-arranged library: every class of books has its general department, and every book its appropriate place within that department. So with that mental library-room, the brain. A good garden is an evidence that all his knowledge is reduced to system, and is readily at command. His head is not full of cobwebs, but is as neat as a parlor swept and garnished. The external will generally correspond with the internal. A man's plans will appear in his opera-

tions. His theory may be judged by his practice. The tree is known by its fruits. It is on these universally conceded principles that the order and taste which prevail in a garden are to be regarded as an evidence of the condition of the *garden of the mind*. He who contrives to produce much fruit by cultivating the earth, may be expected to be a valuable man in the community by the fruits of his judgment, counsel, and philanthropy. If he allows no noxious weeds to choke the valuable plants, equally careful may he be presumed to be that no bad principles are allowed to obtain an ascendancy over the virtuous sentiments of his soul. Such men may generally be trusted ; and, if the test we have suggested were adopted as a rule for selecting citizens as magistrates and rulers, there can be little doubt that we should have better *order* in government, and less of the confusion of party strife than we now have. Too many of our moral and political vineyards are grown over to thorns, and the defences of virtue and patriotism are, like stone walls, broken down. In the general rush and scramble for the fruits of office, the plants and trees which produce them are too often ill-treated, bruised, trodden down, and well nigh destroyed. A good cultivator does not cultivate any thing in this slovenly style.—*Maine Cultivator*.

MARL : ITS NATURE AND EFFECTS.

THE following extract from Professor Rogers' late Geographical Report will give our agricultural readers some more distinct idea of this remarkable and recently talked of manure, which abounds in Monmouth and other counties of New Jersey.

Marl, or green mineral, loses nothing of its potency by a long exposure, even of years, to water and the

atmosphere ; in other words, it is not dissolved, or decomposed, or changed, by the ordinary atmospheric agents which react so powerfully upon many other minerals ; and consequently we are to regard it as nearly impossible to effect its decomposition by the vital power of their organs, and imbibe a portion of its constituents.

“ Mr. Wooley manured a piece of land in the proportion of two hundred loads of good stable-manure to the acre, applying upon an adjacent tract of the same soil his marl, in the ratio of about twenty loads per acre. The crops, which were clover and timothy, were much the heaviest upon the section which had received the marl ; and there was this additional fact greatly in favor of the fossil manure over the putrescent one, that the soil enriched by it was entirely free of weeds, while the stable-manure rendered its own crop very foul.

“ This being an experiment, an extravagantly large dressing of manure was employed, but not exceeding the usual average application : more than twenty loads of marl surpassed what was necessary for it.

“ Experience has already shown that land, once amply marled, retains its fertility, with little diminution, for at least ten or twelve years, if care be had not to crop it too severely ; while, with all practical precautions, the stable-manure must be renewed at least three times in that interval, to maintain in the soil a corresponding degree of vigor.

“ A specimen of the marl from Thorp's lowest layer yielded me, after reiterated trials, uniformly about the following for its composition :

	In 100 Grains.
Silica,	43.40
Protoxide of iron,	21.60
Alumini,	6.40
Lime,	10.40
Potash,	14.48
Water,	4.40
	<hr/> 99.68

In connection with the foregoing extracts we add a few facts and experiments, collected from the gentlemen whose names are used :

Messrs. Tunis and John B. Forman say that they have used Squancum marl at the rate of one hundred bushels to the acre, on very poor, worn out, cold clay land : the product of the first year was thirty bushels of buckwheat to the acre ; and the second year (it being sowed the year before with clover and herd) it cut a ton or more of good hay per acre, after which about one hundred bushels of marl per acre were scattered over the seed, and it now yields two tons of good hay to the acre.

They have also resuscitated mowing-ground after it had become too poor to produce a crop, by spreading one hundred bushels of marl per acre over the sod, and the effect was to mellow the soil, and produce two tons of hay to the acre : the hay produced was of a superior quality, and free from weeds. One hundred bushels of marl to the acre of land, so poor as to have been considered useless, will raise a crop of from twelve to twenty bushels of rye per acre, and leave a fine sod of white clover. From three pints to two quarts of marl per hill of potatoes (the hills three feet apart on poor ground) has produced from two hundred to two hundred and fifty bushels per acre.

They have found the marl a superior manure for turnips and garden truck in general. The effect of marling lands planted with apple-trees is astonishing in improving the trees and fruit. They have known marl to be spread on a bog-meadow, and to cause double the quantity of superior hay to be produced. A neighbor of theirs, a few years since, sowed out of a basket about one hundred bushels of buckwheat.

Dr. Forman states that, two or three years ago, he broke up a small piece of land, which he for forty years had considered too poor to plough, and applied

one hundred bushels of marl per acre: the land produced a good crop of rye, and has cut a ton of clover hay per acre every year since. He also states that Squancum marl was first used about thirty years ago, by Derick Chamberlain, under the name of *creek mud*: it caused the piece of land thus manured to produce double the quantity it had done before, and the effect on the land is still visible. — *Franklin Mercury*.

CORRESPONDENCE.

To the Editor of the Cultivator:

SIR, — I have more than fifty acres of tillage and mowing lands, and have as yet been unable to make the whole as productive as I could wish. I keep, on the average, twenty-five head of cattle, including one horse and one yoke of oxen.

Some of my neighbors advise me to purchase manure, and raise grain and fatten pork for the market; other tell me to raise little grain, and depend on roots for fattening; some advise me to make one acre rich this year, and plough in my manure one foot deep; then take another acre next year. At this rate, I must be fifty years in going through the whole, and I fear my first acre would again become poor before I got through with the process.

I have several acres of sandy loam land, and such will not hold its richness long without a new application of something or other, and I have not much manure to spare after planting my best land with corn and potatoes. In truth, before I can half go through with manuring and enriching, my first piece suffers for the want of another dressing.

I must have grain and potatoes, or go without pork;

and then I have but very little manure for my grasslands, the most profitable lands that I possess. Can you tell me how I can manage to make the whole farm profitable? I cannot buy manure; there is none here for sale. Yours respectfully, D. H.

Medfield, May 20, 1839.

We advise our Medfield correspondent not to till too much land in a season. If all the manure is applied yearly to exhausting crops, there is not much prospect of rendering the farm richer.

It seems to us ridiculous to make one acre of land rich a foot in depth, and suffer most of the farm to go without dressing. It is also wrong to spend the months of April, May, and June in tending numerous acres for small crops. There is some limit to making manures on any farm; though no doubt most farmers may double its quantity and value by proper attention and labor. Now, instead of tilling ten acres in a year — as most farmers do who have fifty acres of tillage-land — we would not till more than five: then nearly half the months of May and June may be employed in enriching the farm for future use. Half the months of May and June! What a chance for making improvement! Had we Mr. H's farm, we would sow three or four acres in buckwheat, and reap sixty bushels the present season for fattening pork or beef. It would take five days to do this well. If there was much sorrel on the ground, we should like to plough before the seed was ripe. The buckwheat may be sown about the 20th of June, one bushel to the acre; sow also with it one bushel of winter rye: mow the buckwheat about September 1st, and thresh it out immediately before it gathers moisture, and we have food to commence the fattening of our pork early. Next year, on the 20th of June, the rye will be two feet high: roll it down flat, and with a plough — a real plough, that will turn the sod and cover all up — bury this rye, and

sow half a bushel more of rye: the plough may go a little deeper than on the first ploughing, say one inch deeper each year, until we get a soil seven inches in depth. Thus we would spend five days for sixty bushels of wheat, instead of twenty-five days for sixty bushels of corn.

Then, instead of putting all our green manure on corn and potato land, we would save the coarsest of it, and, with that mixed with peat muck, soil from the roadside, soil in the fieldside, where it had accumulated, and with any other vegetable or animal matter, make a compost heap, to be ready for use by the last of August. By the aid of this heap we would renovate not less than half a dozen acres of this grass-land, which has lain too long without ploughing, and prepare it for the next year for grass.

The process is simple and easy: plough well, lay the furrow flat, roll down close, so that the harrow shall not tear it up, put a dozen loads of this compost to the acre, harrow lengthwise of the furrow, then a little diagonally, so as to mix the manure in thoroughly, and seed down with one peck of herds-grass and one bushel of red-top to the acre. In the winter, some clover-seed may be sown on the snow.

In this manner we would proceed until we had gone over all the plough-land, and got it into good grass; and thus we would have, with that which was in hoed crops, nine or ten acres of new-sowed mow-land each year; and, when we had been through the lots, we would begin again, and one half the manure at first used would be sufficient for this second course; for the old sods would be rotten, and aid the new appliance: thus twice the number of acres may be renovated each year in this second course. Or, if only six acres were taken in hand each year, they may be made twice as rich as in the first course; and every renewal of this process will make the land richer, *because grass is not an exhauster.*

Thus, wherever the plough can go, as on these plains, there is no difficulty in enriching the whole farm, and that without purchasing any manure, or laying out so much labor as is common in planting to excess.

It is presumed we need not remind our friend H. that, as he advances in this process, his means are constantly increasing; he is doubling the amount of his hay, and of course of his stock and of his manure. Hay produces manure, and manure produces hay. Julius Cæsar could less happily say, "Money procured him soldiers, and soldiers procured him money."

We know that plough-lands may cheaply be enriched in this mode, and we are still continuing the process. — ED.

PEAT-MEADOWS.

As planting is now over, some farmers will begin to think of their peat-swamps. We have tried various modes to bring these into English grass, and have never failed to do it when we persevered.

On commencing our editorial course, last January, we resolved not to attempt to lead our brother farmers into any expensive process of farming which might never yield an adequate return.

We well know it is quite easy to recommend the purchase of manures, the making of compost heaps, the raising of grain to supply the whole State, &c. &c. It is always much easier to show us how to lay out ten dollars on a farm, than to show us how to get a return of ten for an outlay of five.

As our search is after truth, we shall ever admit into our columns the opinions and the statements of others who may think differently from us; for these opinions thus admitted we are not accountable; and

we wish our patrons to take them for just what they are worth. But there is another class of opinions for which we feel ourselves responsible ; and we must beg our readers to distinguish our own recommendations from the theories of others which are admitted into our columns.

On the subject of reclaiming peat-land, and bog-meadows, we have had many years of personal experience, and it is our wish that our readers may avail themselves of the advantages to be derived both from our failures and from our success.

Our first attempt to raise English grass on a low peat-meadow was in 1826. Three of us joined together in the purchase of eight acres of peat-land lying in the centre of the town of Framingham. Major B. Wheeler and John Ballard, 2d, were our partners in the purchase.

When we first made known our purchase and our object, we were laughed to scorn by many of the inhabitants. We forgive every one of them, for they have since confessed their error, and are ever ready to applaud the advances we have made in cultivation. They were not then aware of the mischiefs they caused us by their want of faith : it was almost impossible to procure help to labor on this meadow : people required extra wages while laboring here, and, when inquired of where they had been at work, they were studious to conceal the scene of their operations. Fortunately the purchasers were all skilled in the use of the bog-hoe, and of the paring-plough ; and, by taking hold and setting the example, others were at length induced to join them and "to dig on Old Centre meadow," because much less unpopular, after one summer's trial, than at first.

We well remember an expression of one of the oldest inhabitants, J. Maynard, Esq. on this subject. He said he did not wish to live any longer after he should see one ton of good English hay grow on Old Centre

meadow. He did live many years after. At a meeting of the trustees of Framingham Academy, which stood on the border of this meadow, Dr. D. Kellogg, Rev. Mr. Packard, and J. Maynard, Esq. were present. Dr. Packard looked out on the old meadow, and, seeing it flooded, inquired if it was *dammed*. "Yes," said Maynard, "and it always has been ever since I knew it."

This meadow was so miry in the centre, that we could easily sink a rail eleven feet long endwise out of sight. Our first business was to drain off the water. We drained it off one foot and a half below the surface. We then commenced the paring and burning system. This paring is performed by hoes, sometimes assisted by a paring-plough. When the meadow will bear up oxen, a paring-plough facilitates the operation. Such a plough has a wide share, say one foot and a half, which branches out in a wing on each side. It has no mould-plate, and does not turn the furrow over. It only cuts the turf in slips, and suffers it to lie to bear the team up; then with the hoes the sods are easily turned over to dry. When the paring-plough is in good order, one yoke of oxen will draw it through a strong hassock. The plough has a sharp coulter, like that of an old-fashioned wooden plough, and much resembles one, except in the want of a mould-plate, and in the addition of a second wing to the sharp, branching out to the left or land side.

In a dry summer the turf thus turned over will soon burn if fire is applied. It burns much better the first summer than if allowed to lie a year on the ground. It is well to commence paring and burning in June, for then we have the summer before us, and can choose the dryest time for burning. When some of the sods are well on fire, they may be heaped together, and others not so dry may be piled on, till the heap becomes as large as a hundred of hay. When thus piled, no small rains will quench the fires, and they will often burn for days of rainy weather.

Sometimes we are enabled to burn the sods as they lie when no rain comes for ten days in succession. Then all the labor of piling and of spreading about the ashes is saved. This is the easiest mode of preparing for the grass-seed, but we are not always able to burn the sods thus.

When the heaps are burnt, nothing remains to be done but to spread the ashes, sow the seed, and rake it in with a common hand-rake. This should be done early in September, if we expect a good swath of grass the next summer; but any time in September will answer for sowing these low meadows with herds-grass and with red-top. We have seldom seen these grasses winter-killed on these peat bottoms.

When we are unable to burn all the turf by the middle of September, we spread the ashes over the whole surface, after having repiled the unburnt sods in a new place, and we let these piles stand in shape of haycocks until another summer. Then they will sometimes burn wholly down without any trouble, and their ashes should be spread on to the grass-ground, and a little seed should be sown on the ground where the heaps stood.

In this mode, meadows may sometimes be prepared for the seed for ten or fifteen dollars to the acre. It sometimes costs thirty dollars. One advantage in this mode of reclaiming meadows is, we have manure enough in the peat-ashes for two or three years, and we sometimes cut two tons to the acre without any other dressing. It cost us more than twenty dollars to subdue an acre of this meadow, for we were beginners, and had no instruction. We sold about four acres of this reclaimed meadow to Dr. O. Dean, at two hundred dollars an acre. Such lands must have a new dressing once in a few years; and, if compost manure is carried on, it should consist in part of gravel, this being far preferable to sand. Not more than one peck of herds-grass (timothy) should be sown on an acre,

for the seed will all grow, and when it is sown thicker it sometimes comes up and mats together so close as to check a thrifty growth. These bottoms become harder as the grass grows, and we are often able in a few years to plough them, and turn the wild grass under, and seed them down anew, as we do higher lands. We intend, in a future number, to show how we have subdued peat-meadows by different processes.

In general, when gravel, or loam, or both are not nigh by, paring and burning are cheaper than any other mode.

INDIAN CORN.

THIS indispensable grain is now come up, and will soon require our attention. It was formerly an universal custom to scrape away all the loose dirt from the intervals and draw it up around these plants, making a high piked hill.

The curious may inquire, whence arose this custom? It could not have arisen from reasoning and reflection; for now, as soon as men venture to reason and reflect upon the practice, they abandon it. They now begin to think we should not bury the roots deeper than nature intended them to penetrate.

England has a climate more moist than ours, and is not often troubled with a drought. Their practice of ridging and draining is not so necessary here. Did not our fathers, without reflecting on the difference of climate, pursue the English mode of ridging and of tilling, lest the ground should suffer from too much moisture?

At the first hoeing it is more convenient to draw up a little earth towards the hills, and cover up the weeds, than to hoe them up or pull them out with the fingers; and, in this way, the weeds, too, are more

effectually checked. If they are buried, they rot immediately; if they are hoed up, they sometimes grow again.

A small, flat hill will not injure the corn, but we think no earth should be drawn up to the plants at a second hoeing.

CERTAINTY OF THE CORN CROP. It is said by some that this crop does not fail more than one year in ten. We think it does not more than one in twenty. For the last fifty years we have not failed of raising a tolerable crop of this grain, where the land was in suitable order, excepting only in the years 1816 and 1836. We can assert this of no other grain that we raise.

Rye is subject to blast and to the winter frosts; wheat is subject to the same; oats often yield a very slender crop on a large straw; barley is by no means a certain crop in New England; and we know of no grain to be compared with Indian corn, as to the certainty of a middling crop. We should think there was much less risk in warranting this grain than in warranting a crop of potatoes. It is not half so liable to suffer in dry weather as they are.

These are great advantages in favor of the Indian corn, or maize, of which our ancestors were totally ignorant before the settlement of this country; and, although William Cobbett undertook to prove that it was a known grain in the days of the apostles, from the circumstance of their rubbing the ears of corn in their hands on the Sabbath, as they passed through the fields, we think he may be said to "lie under a mistake," and that green maize, uncooked, is not so palatable food as green wheat would be.

PROFITS OF THE CORN CROP. Now, although the corn crop is thus valuable, and one with which we cannot dispense, still it will not follow that it is profitable to raise large quantities of it in New England. It is a costly business to rear and prepare for market an acre of corn. We have made as accurate calculations

on it as we had power to make, and we think it not easy to raise an acre of good corn and prepare it for market for a less sum than forty dollars, calling the manure that the corn crop takes fifteen dollars, or one half the whole manure put on. We will call a good crop worth forty dollars — and this is surely more than it will average — then the stover may be worth one ton of stock hay — not merchantable hay — say eight or ten dollars; and this will be our net profit. Now an acre of land, within twenty miles of Boston, that will produce one ton of hay, will give us more net profit than the corn; for hay has averaged fifteen dollars per ton at the barn for thirty years past, and the after-feed will often pay for the getting.

As the expense of raising an acre of corn is so considerable, we should never plant more land than we can put in high order. If we should average fifty or sixty bushels per acre, we should be well paid for our trouble; but how often we see less than thirty on an acre!

But we must have some grain to mix with our vegetables, &c. for fattening pork, beef, &c. And for this, we advise to the raising of buckwheat on farms that have fields suitable for that grain. Sandy loams, that often produce nothing worth gathering, will yield fifteen bushels to the acre with very little labor.

CORRESPONDENCE.

To the Editor of the Cultivator:

DEAR SIR, — Last August, after I finished my haying, I undertook to plough some low land, which was too wet to be touched in the spring. There was only one acre of it, and we succeeded in ploughing it in one day, and laid it quite flat. I intended to plant it

this season, but we have had so much wet weather did not like to meddle with it.

The weeds and coarse grass are now coming up, and I fear I shall have trouble in subduing them, and in rotting the whole sufficiently to seed the land to grass. A potato crop in that ground will not repay my seed and labor, and I am at a loss to know how to manage it this season. Have you any experience in cases of this kind? If so, I should be pleased to see the results in your useful paper.

N. P.

Newton, June 6, 1839.

Our friend at Newton should have rolled his furrows down close as soon as he made them last August; then put on a little fine manure, and harrowed and mixed it thoroughly with the soil. He should then have sown his herds-grass and his red-top immediately, while the ground was fresh. The grass would then have got a start last fall, the winter would have killed the weeds, and this spring the grass would have had all the advantage, and would have given a good swath in July.

As the case now is, we would not advise the planting of it. The owner seems to think it necessary to subdue and rot the greensward before he should seed it to grass. This is not so. The sod underneath keeps the land light much longer than if it had been completely pulverized, and reliance should be placed on the surface manuring to give the new grass a start while the old sod was rotting.

We have for some time practised this mode of turning low lands, with sour and worthless grass, into good English mowing. Our friend would now do well to harrow his low ground repeatedly this summer, and, in the latter part of August, put on his manure and sow his seed. He must be content to lose a ton or two of hay by not seeding his ground last summer.

PEAT-MEADOWS.

OTHER methods are adopted to convert peat-meadows into English grass beside the one described in a late number of our paper. Mr. Fay, of Marlborough — we have not now his Christian name — has converted one of his peat-meadows into mowing at very little expense. When on a committee last fall to view the farms offered for premium by the Middlesex society, we visited Mr. Fay's farm. He merely turned over the turf on the surface, and in a few days set fire to it. All the surface turf was turned to ashes without any piling up of the sods, and the ashes were of course ready spread. Nothing more was done than to rake in the seed. The grass looked finely when we saw it, and he may get three or four crops of hay without any manure.

The whole labor of turning over these sods may sometimes be performed by a man in ten days. The first crop of hay, therefore, one ton and a half, was more than equal to the whole expense of preparing the land!

Another mode of preparing these lands for grass is to turn the sods over either with bog-hoes, or with a plough, then cover them with loam carted on from the sides of the meadow, and put compost manure on the surface. This method has been practised in the town of Lexington and the adjoining towns.

A third mode is to cart on gravel, sand, or loam, sufficient to cover up the wild growth, then apply the compost. Gravel, or loam, is much better than sand, as this last lies too compact and heavy when put on a low meadow. Care should be taken in either case not to cart on too much. It is not prudent to carry on enough to cover completely all the old matter. We should always calculate on ploughing these meadows as soon as they become hard enough, and if five or six inches of gravel covers the rich peat, the plough will hardly reach it and bring it to the surface.

CORRESPONDENCE.

To the Editor of the Cultivator :

SIR, — I have a couple of acres of high gravelly land in the midst of a good mowing-field : it bears but little, and is not worth the mowing. If I plant it, I can get a small crop of corn, and a crop of rye with much manuring ; but when I seed it down, the seed usually is summer-killed ; and if it lives one year, it soon runs out, and leaves the land again barren. I make much more profit of my manure on other ground, but I hate to see this knoll lie so barren. If it was in my cow-pasture, it would afford some feed, and would not look so bad as now in the midst of a fertile field. One objection to planting it with beans, or any other crop is, I cannot make use of my fall feed on any of the field of twenty acres until quite late, after this crop is off. What shall I do with such land ? Yours respectfully, W. D.

Franklin, June 15, 1839.

Our friend of Franklin is not alone in trouble with such land. Much of the land in that town is gravelly and sandy, and not suitable for mowing ; but we think nothing was made in vain. Such land is easily ploughed ; but if heavily manured it will not hold the manure ; it is not sufficiently tenacious. When such land lies well, and near a mine of peat, or pond-muck, or clay, it may pay the way to cart on forty loads to the acre of this more tenacious soil ; but it is not good to expend much on such soils, when they are remote and out of the way, until we have brought our better lands to a higher state of cultivation ; for one load of manure on lower or more clayey lands will produce more in a course of years than three loads will on such land as this. Let our manures, then, be applied where they will do most good, and if we can get any thing from these light soils beyond the expense, they are

worth something. Now there are hundreds of acres in the town of Franklin that would annually yield from ten to twenty bushels of buckwheat with only one ploughing, and without any manure excepting the green crop, which may be turned in from the 15th to the 30th of June, and we may always have this green crop if we will sow one bushel of rye on the acre, with the buckwheat. The wheat will be mowed off by the first of September, and then the rye will appear and give some fall feed. The wheat will not be in the way of fall feeding, and we need not fence off, as in case of planting beans, corn, or potatoes. — ED.

HINTS TO FARMERS.

JUNE is the proper month for preparing composts for August, or fall sowing; and, if we have not too many acres in tillage, we have ample time for ploughing by the roadside, and securing the rank growth of grass and weeds that we often find there. If we take care of this wash in season, we sometimes prevent its being put into the middle of the road by the highway surveyors, some of whom are fond of taking such materials in preference to gravel *to mend the road*. They find it easier to fill a cart with this stuff than with gravel, the only material that should be put on a country road. They make a great show by putting such manure in the road, and make some people believe they have been doing some public service. In autumn, when the rains come, they wonder to see such deep ruts cut in the road; and they and a majority of travellers begin to think, if this muck had been put on to the farms, the roads would have been better.

CORRESPONDENCE.

To the Editor of the Cultivator :

DEAR SIR,—I have lately seen in some of the agricultural papers some extravagant calculations as to the profits of lands planted with roots, compared with lands in grass. I like root crops, and think every farmer ought to raise a good supply of them ; but when I see stories, told in print, that no man of reflection will believe, I feel hurt that the cause of farming must thereby suffer through its professed friends ; and I wish that such statements may be kept apart from others of a better character, and labeled “Book-farming,” in which I, for one, have not much confidence.

I feel confident, from some little experience in the business for thirty years past, that grass-lands, in the neighborhood or within twenty miles of Boston, have also some value, and that few crops give us a better net income. I have one acre of land in this town which never fails to give me one ton of good merchantable hay annually, and this without manuring, and without any labor save that of getting the hay. As it lies near my barn, the cost of getting this hay does not often exceed two dollars ; though, to take my farm together, the cost averages three dollars per ton. Hay, for the last twenty years, has been worth fifteen dollars the ton on the average in winter and spring. Now what is this land worth per acre ? It must be worth more than two hundred dollars, for it gives me the interest of two hundred dollars, besides the labor of getting ; and then we have the fall feed.

Now to say that land in turnips, or in any other roots, will give three times the net profit of land in grass is rather extravagant : six hundred dollars is a great sum for an acre of tillage-land, and thirty-six dollars annual net income from such land is more than most men will expect ; but we are told an acre in tur-

nips will keep about ten times as much stock as an acre in grass, and we are urged on this basis to calculate our profits!

Is there not some delusion here? Ten times the profit of my grass-land would be one hundred and twenty dollars profit from a single acre. If it is meant that so much net profit can be realized, it is not true. If the meaning is, that by laying out enough we may make one acre produce ten times what it would in grass, this may be true, but we must always count the cost. The expense of manuring, and of cultivating, and of harvesting, and storing one acre of turnips, is not to be compared with the expense of haying one acre of grass-land.

But I have set my acre of grass at only one ton. With a *little* expense, we often get two. It will not be extravagant to set the crop, on good land, at two tons. Twenty-four dollars will pay the interest of four hundred dollars: if your roots will do ten times as much, they will give a net income of two hundred and forty dollars per acre. Good turnip land, at this rate, should be set high; not less than two thousand dollars the acre!

Such calculations as these are injurious to the farming interest. They are deceptive.

I have forty acres of highland mowing and twelve acres of coarse meadow: I find it very difficult to go over these acres fast enough; that is, some acres lie ten years in grass, and they yield but a small crop. I use most of my manure on my corn and potato land, having about four acres to hoe in a year, and four of course to seed down each year. If I go over the whole in rotation, I am ten years in my progress through or around. I understand you are taking a shorter cut, and get through sooner. I should like to have you a little more particular in describing your process of renovating grass-lands that are bound out and do not give half a crop. Truly yours, L—d.

Sherburne, June 21, 1839.

We well know the difficulty of keeping all parts of the farm in good heart, so as to yield as we might wish while we continue to plant so many acres. Our plan is to plant but half as many as we used to do — getting nearly as much produce — and to save a large portion of our manure for seeding down our fields in the last part of summer.

If we plough in a rowen crop one month after haying, we can seed it down immediately to grass, and have a good swath for the scythe the next season, by applying less than half the manure that we put on for corn or for potatoes. If our friend L. should not use any manure for planting, therefore, he would be able to renovate all his forty acres once in five years instead of once in ten, and he would probably cut double, and more than double the quantity of English hay which he now cuts. Indeed, a field that has been mown ten years, will not commonly yield one fourth as much as after two years' mowing.

But what shall we do for grain? Raise one acre of corn instead of three; sixty bushels instead of ninety, and make up the balance in buckwheat, which needs no manure. Thus, by saving half his manure for seeding down, in the last of summer he will go over his fields and give each a turn of manure much oftener than by planting. Besides, he has many acres rather too low, too wet, and too cold for planting. Why should such land ever be planted? Our process is peculiarly applicable to such lands.

Then we would remind Mr. L. that, on going through with our process a second time, less manure will be required on seeding down; for he will turn up the old sod that he turned down but three or four years before, and that will aid him in the process; and we can assure him that the oftener he turns in a crop of rowen, without taking a crop of grain, the better he is making his lands; and he will soon be able to put the whole in such order as to give him a swath worth cutting on

each acre of his mowing-lands. Then, if he tills but half as much as he has done, how much time he will have for making manure,—half the month of May and half the month of June! — ED.

FEEDING CATTLE.

To the Editor of the Cultivator :

I PRESUME that I shall express the feeling of many farmers when I say that the conflicting statements of different agriculturists often confuse me, and leave me in great doubt as to the proper course to pursue. Do you answer,—try for yourself? But recollect how little a man can accomplish in one short life, if you oblige him to act upon his own experience alone. In all things we constantly act upon an accumulated experience perhaps of ages. I turn, then, to you for advice, first upon cutting hay for cattle with a machine, recommended by every agricultural publication, extensively practised in England, and said to save an amount of food from fifty to twenty-five per cent. Upon what principle is it that this saving can be made? in waste? This a careful feeder never permits, but, by feeding a little, and often, causes every particle to be consumed in mastication and digestion. In the case of ruminating animals, is not every portion of long hay completely digested? and, if completely digested, is not the same nutriment obtained, whether, at the time of feeding, it be one inch or one foot in length? This experiment cannot be made without an outlay of from \$30 to \$50 for a good machine, which a farmer cannot afford, except for some positive advantage. It appears to me that, with your long experience and opportunities of obtaining the opinions of practical men, you may give valuable advice upon this point. It is either for the interest of the farmer to adopt the practice, or *de-*

cidedly for his interest to avoid useless trouble and expense.

The same remarks will apply to boiling or steaming food for cows, applied to roots or coarse hay and stalks. Is a turnip a natural and proper article of food for a cow, and can it be improved by steaming?

There ought to be no backwardness in adopting real improvements, however opposed to previous practice; but there should and must be great caution. I know farmers who will not read an agricultural journal because they have been led into so many errors.

A YOUNG FARMER.

Newton, June 25, 1839.

Our Newton correspondent has entered on a subject that requires much consideration. His inquiries are not to be answered in a moment. For ourselves we have to say we have not been much in the practice of cutting up fodder for cattle; and we shall answer him as well as we can from what we have seen in the practice of other farmers and feeders.

We think there cannot be a doubt that hay, &c. is better relished, and is eat up cleaner, when chopped and put in a clean manger, than when given whole. The great question therefore is, *shall we save enough by the process to pay the labor?* and the answer must depend on various circumstances.

Stage horses, or such as are driven constantly, have not so much time to masticate their food as others have, while their drivers have more leisure to tend them, and may just as well devote a portion of it to prepare this food for digestion as to let the team do the whole business. When teams are kept principally on grain, straw will answer well to be mixed with it; and this straw must be chopped up, or it cannot be mixed, and will not be eaten. At the south, therefore, where they cannot raise so good hay as we can, and where they raise grain with more ease, they make a great

business of cutting up straw and coarse hay to be mixed with their grain. With us the poorer kinds of hay should be cut, or horses will not relish the food. Our correspondent objects to the expense of a cutter. We have seen cutters sold in Baltimore at eighty dollars apiece, and have been told of some for which ninety dollars were demanded! We do not think many of our farmers could afford that sum for one; but this is not the only cost; the labor of working the machine for a stock of cattle of forty head, through the winter, would much exceed the interest of the capital laid out for it,—probably six to one.

But the more simple cutters may be had for a far less price, and we think the simplest ones best. We have never seen one that would feed itself well; and the best mode of cutting up fodder is to employ two workmen at a time,—one to feed and one to cut. Such men as we usually hire would be engaged not less than an hour each day in cutting up fodder for forty head of cattle. Then they must be fed, and must have tight mangers for their chopped fodder.

One hundred and eighty days — our foddering season — require three hundred and sixty hours extra labor for cutting up the fodder. Here are forty days extra labor; and we cannot count this less than thirty dollars in money. This sum will buy three or four tons of good stock hay; and the question is, have we saved enough by cutting to pay the labor?

Corn-stover ought to be cut up fine, for cattle can eat but a small part of it uncut. The top stalks and the husks are rich food when well secured, and ought not to be lost. When we have none but the poorer quality of hay, we may see our account in cutting it up for the cows in the spring, and mixing a little meal with it; but cows and horses will eat up clean our good hay without our chopping it, and we much doubt whether in such case we ever get pay for our labor of chopping.

On the subject of feeding we have intimated, in a

former number, that it is a good plan to mix up hay of different kinds, either at the time of stowing into the barn or at the time of feeding out. We do not find that our cows winter better on pure English hay than they do when fed a part of the time on that of a coarser quality. When kept through on the best of English hay, the food is so rich that cows become tired of it at the time when they need the most care; and it has often been noted that, when kept on hay of a poorer quality through the coldest weather, and then fed on good hay in the spring, they relish it better, and fatten their calves better, than when kept wholly on rich food.

But we often have hay too poor for cows; and, if we have no young stock, what shall we do with this? If some of the best hay should be thoroughly mixed up with this, it would sweeten the whole. Most people are extremely careful to keep the good hay separate from the poor; but, if it is all to be foddered out, what harm arises from the mixture? We have often mixed good hay with that of a poorer quality in the winter season. By letting both lie together over night, the poorer sort becomes, in some degree, impregnated with the flavor of the good, and the cattle will discover the improvement. If you doubt this, try an experiment. Set a plate of rich pound cake into a cupboard or chest with a lump of butter, and let them remain in the same apartment one night. You will find at breakfast what company your butter has had. It is powerfully impregnated with the flavor of the cake.

But a better time for mixing hay is when we stow it away in summer. If we have a supply of old meadow, or of straw, we can mix it with our new-mown clover, and the whole will be leavened. In such case we need not dry our clover so long by some hours, and this is often a great saving of labor and of leaves of the clover.

In a future number we shall say something on cooking food for brutes.

HAYING.

BEFORE the haying season is over, we may expect to see numerous directions, in the papers, as to the best mode of cutting and of curing the article ; but nothing that we have seen is equal to the sun for curing hay.

Clover should be moved as little as may be, but it must be dried before it is carted. We have known many book farmers to lose their clover and their confidence in new projects by attempting to cure it without the aid of the sun.

When the burthen is heavy it is good to spread it out in the forenoon, and not rake it the first day, if the weather looks well, but turn it bottom side up, — green side up just at night. The leaves will not then rattle off, and the dew will not injure the green side of the swath. When the weather is good, this clover may be carted the second day ; and, if we doubt of its keeping well, we throw on a peck of salt to the ton, and we avoid stowing it away close when we have room to let it lie untrodden. This often saves us an hour's drying, and sometimes we gain a day by it, and avoid a shower.

To guard against rain, hay should not be *rolled* up into cocks, but it should be pitched together by forksful : it will shed rain better.

Any farmer may make hay in good weather, but it requires management to avoid the rain. When a shower approaches, look at the main chance : get together the great body of the hay where it is thickest, and let the scattering alone till the last.

If your team is in the field, and you are partly loaded, let the loader jump down from the cart and help the carter to pitch on enough to make a piked stack on the cart, that will shed off the rain. Then what is on will be secure, and you have a dry place to lie in under the cart till the shower is over !

How often have we seen a cart, half loaded, stand, and with its wide spread load catch so much of the shower that portions of it would run in streams through the cart, *and wet the tenants beneath!*

[From the Genesee Farmer.]

STATE OF AGRICULTURE IN THE UNITED STATES.

THAT the agriculture of the United States does not, to use a commercial phrase, rank with that of the most favored nations, is perhaps generally admitted: that it might with proper care be made to do so, does not admit of controversy; and it may be well to inquire into some of the causes that lead to this state of things. With one of the most fertile countries, by nature, on the globe, we do not in the amount of products equal that of some countries much less favored, but which, by superior skill in cultivation, have attained a fertility unknown among us. As examples of this, we may name England, Belgium, and part of Germany; in which the average per acre of the crops is much greater than in the United States, if we except, perhaps, some few of the best cultivated districts.

In order to determine what *should be*, it is sometimes useful to ascertain what *actually is*. Estimates have been made, at different times, of the total of agricultural products in this country. Such estimates have no pretensions to exactness: they are only approximations to the precise quantity. Still, as similar estimates are made in other countries, they may afford the means of comparison, as showing the proportion of production to the population. The year 1838 was, on the whole, a favorable one for the farmer; and the crops undoubtedly, in the aggregate, exceeded those of any previous year. If we should estimate the wheat grown in the

country at sixty millions of bushels, corn at one hundred millions, and oats at one hundred and fifty millions of bushels, we should not probably be far from the truth. Barley does not rank high in amount, as a cultivated crop, though the quantity produced is annually increasing. The wheat is principally grown in the country north of the Potomac and Ohio, and south of the great lakes. The corn is produced chiefly in the south, and in the valleys of the Ohio and Mississippi. Oats are cultivated in all sections, unless the extreme south, and are every where the principal food of horses, while they are given to cattle, sheep, and swine, to a considerable extent. The average crop of wheat, on the whole, cannot be estimated, per acre, at more than eighteen bushels; corn, thirty-five bushels; oats, the same; and barley, about twenty bushels. This rate will, of course, vary greatly in different sections. In the States north of the Ohio, the average of corn would perhaps equal or exceed fifty bushels to the acre; while, in the States south of the Potomac, it has been estimated as low as fifteen bushels per acre. The difference in the other crops, in the several sections of our country, would be less; but still it is considerable.

That these average productions might be greatly increased, does not admit of a question: that the interests of agriculture demand that such should be the case, is equally clear. By attention to the selection of seeds, and the preparation of the soil, an addition of ten per cent. to these averages might be readily made. Experience shows that such is the fact; and multitudes of individual instances might be adduced, to prove that such has already been done by skilful and intelligent farmers.

The causes which, in our opinion, have tended more than any others to depress agriculture, and prevent its receiving the attention it demands, as well as to reduce the profits which should reward the laborer, are the

following: First, a want of respect in the agricultural interest for their own profession. There is a feeling in certain portions of the community—principally those who have done nothing to increase the productive capital of the country themselves, and who may be termed the drones of the social compact—that personal labor is disgraceful, and that the cultivator of the soil is little better than a slave. Strange as it may seem, this feeling may be said to be promoted and perpetuated by the conduct of farmers themselves. There are too many men among us—men who have good farms, and who might employ their sons upon them, with the certainty that honorable competence would be the result—who prefer to see them become poor miserable retailers of tape and sugar candy, or second or third-rate lawyers,—men fit for nothing only to promote litigation, and sow the seeds of strife, and bring into contempt the high principles of right which the law is intended to embody—rather than honest, high-minded, intelligent cultivators of the soil. For this evil—and it is a serious one—the remedy is with the farmer. His sons should be well educated; but they should be taught to feel—what in fact is the case—that, in the actual dignity and usefulness of their profession, the farmer has few equals, and no superior.

The second cause of the depressed state of agriculture in the United States is the inattention of farmers in selecting the best breeds of animals for their yards, and the best seeds for planting. In these two respects there is the greatest room for improvement; and the necessity of entering at once upon a course of reform cannot be too earnestly pressed upon our cultivators. Experience has shown that animals can be formed, in the hands of the scientific breeder, to meet the wants, or remedy the defects, of any existing race. Whether it be a beautiful form, weight of carcase, aptitude to fatten, or all these combined in cattle, or the same

qualities, with or without wool, in sheep, Bakewell, Cully, Berry, and Ellman have shown that domestic animals, in the hands of the farmer who understands the principles of breeding, are as clay in the hands of the potter, to be moulded and transformed at will. The records of Smithfield market—the most decisive evidence that can be produced—prove that the average weight of cattle and sheep has increased one third within less than half a century. Not less beneficial have been the results which have ensued from attention to improved or new varieties of seeds. The most valuable kinds of wheat, barley, oats, and other grain in Europe, and of maize or corn in this country, have been the result of careful selection and long-continued cultivation. Col. Le Conteur, of the Isle of Jersey, who has paid more attention to wheat, and instituted a greater number of experiments in regard to the plant, than any other man living—having devoted about twenty years and ample means to the pursuit—states “that the only chances of having pure sorts was to raise them from single grains, or single ears; and that the improvements he had made in this way had amply rewarded his labor, as the produce of his crops was increased from an average of about twenty-three to twenty-five bushels an acre to about thirty-four; and, since he had raised wheat from single ears, or carefully selected sorts, he has increased his crops to between forty and fifty bushels an acre.” Many of the best-known kinds of wheat, barley, and oats, now grown in Europe—and some of them have been successfully introduced into this country—have been produced from single ears or heads of grain, selected by observing men for some valuable qualities they appeared to possess. Such was the origin of the White Kent and Whittingham wheat, the Chevalier, Annat, and Stains Barley, and the Potato, Hopetown, and Dun oat. In this country, we need only to refer to the justly-celebrated Baden corn, which, by persevering selection,

has been brought to produce from four to ten ears on a stalk, and, where the climate and the soil are suitable, as in the Western States, has added at least fifty per cent. to the productiveness of the corn crop. This is a field of improvement in which every farmer may be a laborer, and with the happiest results. To improve his seeds requires no extra capital: a little care and attention to the qualities of his growing and ripened crops is all that is requisite; and, whether he avails himself of the opportunity for improvement or not, no good farmer can avoid having the feasibility of so doing repeatedly forced upon him by the difference in size and productiveness of the several plants.

Another and third cause of the low state of agriculture is a too general want of knowledge, among farmers, of the scientific principles which govern agriculture. That every farmer should be a thorough chemist, and be able to explain all the laws that govern matter, and, in doing so, trace to their source the elements of vegetable and animal nutrition, is not what is to be expected; and so with the kindred sciences of botany and entomology. Still he should be able, and with very little attention may be able, to go through a sufficiently accurate analysis of soils, and be familiar with many of the minute as well as important changes that matter undergoes in the transformation from inert atoms to organized life. Constantly among plants, and compelled to be familiar with insects, some of both of which he numbers among his worst enemies, he is in part a botanist and entomologist by necessity; and, were his observations properly directed, there is nothing to hinder, but much to render, farmers the most successful discoverers in these sciences. Works which would give a proper course to his inquiries may be found at almost every bookstore; and it is not too much to hope that volumes will be found in almost every common school and district library, which will awaken inquiry, and direct observers in the successful pursuit

of these and other sciences. We think that blame may be attributed, in a greater or less degree, to most of the agricultural publications and periodicals of the day, in not devoting more of their pages to the discussion and elucidation of these topics. It may, perhaps, be said, that but little is yet known with certainty on these subjects ; that chemical analysis, vegetable physiology, and the developement of the laws that govern the nutrition of plants and animals, are all as yet in their infancy ; still, it cannot but be useful to have what is known spread before the public mind, and if much that is supposed to be certain should hereafter prove merely theoretical, useful observations will be prompted, and truth eventually established. Agriculture is strictly a science, and should be considered as such. The principles that govern and control matter are, many of them, already understood, and no one has any pretensions to the title of a thorough farmer who is not able to apply such as are known to his course of practice in the field. We have many men who express surprise at the well-known fact, that the most skilful and successful farmers we have in this country are men who have been bred to other pursuits, and never had the management of a farm till they purchased for themselves, and assumed the farmer at once. We think there is nothing surprising in this result. These men brought to the business of agriculture that fund of knowledge they had already acquired, and which, unfettered by previous long-established modes and habits, they were at liberty to apply directly to their new pursuit. They had no long-cherished prejudices in favor of unscientific methods of farming to shake off — methods which too many farmers venerate simply because they were followed by their fathers — and hence they were prepared to adopt the best courses, and follow the paths that scientific research have demonstrated to lead to success.

Another and we are inclined to think more active

cause in retarding the progress of agriculture in this country than any we have hitherto mentioned, is to be found in the too great diffusion of agricultural capital and labor; or, in other words, we cultivate too much land to have what we pretend to do well done. The desire of great farms is a distinguishing trait of the American farmer. As fast as he acquires capital, he spends it in purchasing more land. When there is no longer any adjoining him to be purchased, he goes to the wide west, and expends his hundreds or thousands in buying prairie sections, or "corner lots" in some of the multitude of cities there are promised in that broad region: he may be making money by this process; he may be acquiring wealth for his children to differ about; but, nine times out of ten, his system of agriculture is barbarous, his method of living scandalous, and his farm is the very reverse of neatness and order. We cannot expect that a man will spend his capital in beautifying and putting his farm in order, — in planting, and draining, and repairing, — when such expenditures will not repay him more than seven per cent.; when, by purchasing more or new lands, there is a probability that thirty or fifty may be realized. It requires too great an effort of self-denial to see our neighbors enlarging their domains to the size of a German principality, while we are expected to be content with some two or four hundred acres. We have, as a body of farmers, yet to learn that the products of a small farm, in proportion to the capital invested, are usually greater than on large farms. We have yet to acquire a taste for small, neat, well-finished and well-furnished houses, in preference to the enormous "shingle palaces" which we take such a delight in erecting; and when shall we learn that a few acres, well fenced, kept clean of foul weeds, and growing richer and more productive yearly, is better than many acres with the fences rotted or thrown down, the fields and the crops choked with pernicious weeds, and the soil, from the

wretched course of cultivation, annually deteriorating in value and productiveness. It is a very poor plan in farmers to wear out and impoverish what land they have, because they can buy more: better raise a few acres to the height of fertility, place it in perfect order, and then, if there is any surplus capital, after attending to the moral and intellectual wants of the family, it may be expended in more lands to be gradually brought to the same state.

MILDEW ON GRAPES.

A. J. DOWNING, a good authority, states, in the Horticultural Magazine, that foreign grapes, as the Sweetwater, Chasselas, &c. may be preserved from mildew, by securing an annual succession of new plants, which is effected with very little trouble, by laying a thrifty shoot of the old vine in June, of some five to eight feet in length, which takes root and produces fruit for one or two seasons, not subject to mildew. The layer is separated the next season, and the old plant dug up and thrown away. It is a common remark, that the foreign grape will be free from mildew one or two seasons after it comes into bearing, but that it is afterwards subject to mildew. The cause has not been satisfactorily explained. The finest vine of a foreign grape which we ever saw grew in the garden of the late Judge Scott, of Catskill. We saw it, several successive years, when the fruit was at maturity, and it had no appearance of mildew. This exemption from mildew the judge ascribed to the circumstance of his having placed a large flat stone in the bottom of the hole before planting his vine, and which prevented the roots from penetrating the subsoil, the conjectural cause of the mildew.—*Albany Cultivator*.

CALCULATION : MANAGEMENT.

On passing by a hay-field the other day, we stopped to see the calculation of a couple of hired men who, with the aid of a boy, were attempting to load a cart with hay. They drove the cart midway between the two winrows which were more than twenty feet apart. One man was mounted on the cart, one used a pitchfork. This man was obliged to carry every forkful not less than eight feet to reach the cart, and when he had pitched a while on one side he was obliged to move round to the other for the hay of the other winrow. These movements gave opportunity to the man on the cart to stand still one half his time and more. But to balance this, the boy who was raking after the cart had twice as much labor before him as he could perform, for the cart was so distant from each winrow that the scatterings were strown nearly over the whole ground.

The boy fell in the rear, and the farther the team advanced the more hopeless was the case of the boy, for he was getting farther off from the place of deposit for his scatterings. We could not but inquire of the men why they did not drive *close* by one winrow, then *close* by the other; in which case they would make but little scattering for the boy, and would leave the man on the load no leisure to look up and see how high the sun was.

The pitchfork man asked us, with a smile, if we thought we could pitch better. We took the fork from his yielding hand, hawed the team close to the winrow, tossed on the hay in small forksful, "many and not far between," so as to allow the man on the load no leisure to be calling on the boy behind "to spring to." When this winrow was finished, we turned about and drove close to the next, *beginning to pitch from the head of the cattle*, and going back each time so

as to meet the boy at the tail of the cart with his scatterings, instead of keeping him constantly at a distance from the cart. We thus met him every time before we started the team.

Before we had finished loading, the owner came into the field, and he was so much pleased with our management he said we might put down his name for our paper for one year, though he already took four papers, and more by half than he could read.

EARLY CUT CLOVER.

IN 1818, when living on the banks of the Kennebec, in Maine, we had a fine piece of clover that we feared would grow too rank to be relished by our cattle. We therefore mowed it on the twenty-fifth of June when not one half the heads had blown fully out.

We suffered it to lie *in the sun* for three days, turning it over just at night, to bring the greenest side up to take the dews. On the third day it was raked and carted. We never had better hay. We cannot say we saved all the heads and the leaves, but we looked to the main chance; we saved the stalks — the substance — and our cattle would insist on eating them all.

In feeding out this hay, we could not but note the difference between a forkful of it and a forkful of hay cut late. It was apparently one third heavier. Our cattle never throve better on any hay, and their manure, not black as when their keeping is poor, on late cut hay, looked precisely as if they had been kept partially on Indian meal.

In 1807, when travelling in the State of New York, we paid the utmost attention to the keeping of our horse. We did not like the appearance of the hay at one of the inns where we stopped on the eastern banks of the Hudson. We called for some of their early cut

hay. "O bless ye," said the landlord, "the late cut hay is far the best." He could not make us believe it, however, and we insisted on some that was earliest mown. He, as well as many others in that part of our country, we afterwards learned, was seriously of the opinion that their late cut hay was best!

In our vicinity we usually choose to cut herds-grass (timothy) when full in the blow, and we have little doubt it is relished best when cut at that time. If suffered to stand longer, until the seeds are matured, it may have more heart in it, and answer a better purpose to be chopped up fine for mixing with grain. In such case it causes greater exhaustion of the soil.

[From the Genesee Farmer.]

INSECTS ON FRUIT-TREES — INQUIRY.

MR. TUCKER, — Not long since, I noticed on some of my fruit-trees some insects somewhat resembling lice. I did not pay much attention to them, thinking they could not do much injury if I let them remain. But I found they were going to injure my trees, if not remedied soon. I asked some of my brother farmers respecting these insects, but they were as ignorant as myself. Therefore I concluded I would send the above inquiries to you, and have some of your correspondents inform me of a sure remedy, that will destroy the insects, which are so prevalent at the present time upon our fruit-trees, and oblige your friend, &c.

South Venice, N. Y. June 6, 1839. W. S. T.

Strong lie is the best thing we ever tried to destroy lice on fruit-trees. It proves effectual if we use one pound of good potash for three quarts of water. — ED.

SUCKERING CORN.

WE hope more experiments will be made to try the effect of pulling off suckers from corn. For ourselves, we think it injurious, but we have made no great trial of it. A few years ago we had a fine looking field of corn, from which we hoped for nearly one hundred bushels to the acre. It was a large kind of eight-rowed corn.

It grew very rank, and we were satisfied that, in consequence, it was quite too thick: the hills were three feet apart each way; many suckers shot out from the bottom; and, when the corn was six to seven feet high, we pulled off every sucker, in order to admit the air and light more freely. These suckers were from two to three feet in length.

We have always *fancied* we hurt our corn by this process, but we left none unsuckered, and cannot be positive. Soon after, we learned that others had tried the experiment with a like result, and it was noted by them as well as by us that the corn eared out remarkably high. Whether this suckering could have this effect we cannot say, but we had a much less crop than the stalks gave promise of, and believe we injured it by pulling off the suckers, notwithstanding the corn was too thick.

In *reasoning* upon the practice, we are led to think it injurious to pluck off the suckers after they have grown large. When the ear is filling, a draft is made upon all the parts of the stalk for its surplus juices, and, as there is a free communication between all the branches of the stalk, we see not why it should not be as injurious to pluck off the full-grown suckers before the ear is filled, as to cut off the stalks above the ear while there are any juices in them that may be drafted to make the ear full.

Many experiments should be tried, at different sea-

sons, in the growth, before we shall be able to declare positively as to the effect of plucking off the suckers.

We think we often err in suffering too many stalks to stand in a hill. Of the middle-sized corn, two stalks in a hill are sufficient when the hills are two feet apart in the rows. If too many are allowed to stand, there will be many stalks without a single ear.

CATTLE.

IMPROVING the breed of live stock is as necessary for the farmer as the proper cultivation of a field for wheat, corn, or any other crop; for, according to the present improved system of farming, there is such a connection between the cultivation of ground and breeding, rearing, and fattening cattle, sheep, and other domestic animals, that a man will make but an indifferent figure in rural affairs, if he does not understand the latter as well as the former.

Our breeds of horned cattle, particularly, are too little attended to, yet they should receive the primary attention of our agriculturists. In the best cultivated countries of Europe, this subject receives that attention which its importance demands; and to such perfection have they brought their breeds of cattle, as to render them worthy to be sought after in the different parts of the world, and to insure for them enormous prices.

In our own country, particularly in the northern and eastern States, the raising and improving the breed of cattle is considered as a matter of the first importance with the farmer. The different agricultural societies established in those parts of the Union (which are doing great good) spare no exertions, by offering premiums, and the establishment of cattle-shows, to diffuse among the people a spirit of improving the breeds of their cattle.

In improving the breed of cattle, the objects had in view should be attended to, as there are different breeds adapted to different purposes.

A breed of cattle, equally well adapted to the butcher, to the dairy, and to the plough or cart, is nowhere to be met with; and, so far as experience enables us to judge, these properties are hardly consistent with each other, and belong to animals of different forms and proportions. It should be the object of farmers to have all their stocks of animals of the best breeds, and to study useful qualities more than showy figures. Yet well-proportioned and slightly animals are generally the most valuable, both as it regards usefulness and keep. There are exceptions, in dairy cows particularly. Hardihood and easiness of keep should always be prominent qualities in any breed of cattle.

The value of horned cattle will increase in proportion to the manner in which we manage them to secure their dung. During the spring and summer they should be regularly penned at night, on such parts of the farm as may need improvement; observing to plough up these pens immediately on the removal of the cattle, to secure their manure against loss from the evaporation of the sun and washing rains. The size of the pens, and the time they should stand in them before removed, will be regulated by the number of the cattle, and their condition; and, in hot weather, the pens should not stand longer than two weeks before ploughed up, at most. In winter, as has been before observed, they should have a comfortable shelter, closed at every point, except at the south, which should open into the farm-yard. Corn-stalks are the first food given to them; and the greatest diligence should be used in conveying them early to the farm-yard, because they lose more from evaporation, standing in the field, than the other articles of food, viz. the shucks tops, &c. which should be reserved for later periods.

The cattle should be employed in manuring the distant parts of the farm, while the horses and other domestic stock are manuring at home.

The farm-pens of the farmer should be situated with an eye to the convenience of the field from whence the stales are to be hauled, and that are to be manured and cultivated the ensuing year. It is better to make a lane of considerable length to conduct the cattle to water, than to omit this convenience.

Many farms, too, unfortunately abound with parcels of exhausted land, which are turned out, or are uninclosed, to recover what improvement they can: these lanes may be enclosed as pasturage for cattle; and, by taking in some woodland, they will afford the cattle, in the spring and summer, shrubs and coarse grass sufficient to constitute tolerable good pasture, and far better than that from arable or cultivated fields, which are generally scanty of grass until towards the fall; and if meadows have been provided for grazing in the fall, they will sustain the cattle until the period arrives for their being put up in their winter habitation. These hints for the management of cattle have been thrown out for the consideration of those who may hesitate to adopt the enclosing system, under the apprehension that, if their stock are excluded from grazing their arable fields, no other resource will be left for them.—*Franklin Farmer.*

SALT WATER FOR CLEANSING WOOL.

It has been found that salt water is very efficacious in cleansing fine wool from the gummy or glutinous matter which adheres to it. About a pint of salt dissolved in a common wash-tub of water is said to be sufficient.

CULTURE OF STRAWBERRIES.

MR. DILLE, editor of the *Farmer's Register* at Newark, Ohio, has kindly published his successful mode of strawberry culture. We copy it, trusting that some of our good friends may be benefited by his experience.

Mr. Dille says, — we have been requested by several of our friends to give our system of raising strawberries in detail. As we have been very successful in this culture, we at least feel a confidence in our mode of proceeding.

As a matter of course, the preparation of the soil must precede the planting. It is not the richest, but a proper soil that is required. New land is generally in a right condition. If it be old, to a bed of fifty feet long by twenty in breadth, give about four or five cart-loads of rotten wood or leaves and wood from the woods, six cart-loads of cow-yard or hog-pen manure, well rotted ; put this upon the soil, and spade it in deep, mixing in well from the surface down. In spading, see that the earth is all loose and mellow, so that the roots will have no difficulty in striking wide and deep. Instead of a high bed, which will be dry, make it low enough to receive and retain the rains which may fall, but not so low as to have standing water or pools. A dam is frequently raised around the beds of earth, which is broken down after the fruit begins to form, that the bed may be reasonably dry whilst it is ripening. A dry bed and dry weather give the sweetest and most fragrant fruit.

CHOICE OF KINDS. We have cultivated the common scarlet, the English scarlet, and the wood or field strawberry. The first bears best with us ; the last bears well, and is the most delicious.

TIME OF PLANTING. March, April, May, August, September, or October. We would advise, in this country, that plantations should be made in April or

September. Our planting in March has sometimes failed, and it is desirable that the plants should have extended their roots well in the earth before the frost comes on in the winter. Hence September would be preferable to October, for autumnal planting, and better than August, as there is a greater probability of the new plantation being well watered by the fall rains.

AFTER CULTURE. Keep the ground always loose or mellow, and free from weeds. Let nothing else, unless it be some shrubs, as roses, &c. be permitted to grow on the ground with the plants. After the runners have covered the bed with young plants, our method is, to go through the beds with a spade, and turn up the earth, plants and all, one spade width, burying the plants completely under, and then leaving a spade's width, and so on till we pass through the bed in one direction. This we do twice a year, in March and August; and the second time we pass through the bed the other way, so as to leave the plants in little squares in the bed, when there will be just about enough to cover the ground properly; and by this means the earth will always be kept mellow. The spade should be about seven inches wide. After this operation in March, let the bed be lightly covered with tan-bark, forest leaves, or short straw, for the fruit to rest upon and keep it clean. Oat straw should not be used, as it is apt to mildew the fruit. This covering should be spaded in as a manure in August.

When in blossom, you can easily determine what portion of your plants are bearers. Those which will not bear produce large flowers, with long, showy stamens, holding high their black anthers; whilst those which will bear have short stamens, and a great number of pistils, and flowers are every way less showy. If the non-bearers are very numerous, many, not all, should be pulled out. If the weather is dry during the flowering season, the beds should be slightly watered every evening, to set the fruit; but when it begins to ripen, keep them dry as possible.

The beds should be about three feet wide, for the convenience of gathering the fruit, without tramping down the soil. Never use stable or horse manure, unless it be well rotted. In spading, select the old plants to turn under, and keep a succession of new ones for bearers. — *Franklin Farmer.*

PRUNING.

A GREAT variety of experiments made in Europe by Knight, Van Mons, and Thær, and in this country by Buel, Kenrick, and others, have been made on the subject of pruning trees: though the results did not perfectly agree on all points, yet they seem to fully justify the general conclusion, that the best time for pruning trees is that period in midsummer in which there appears a cessation of the sap's ascent, and which lasts some three or four weeks. Those who have paid attention to the growth of trees must have remarked that the period of increase is divided into two seasons, during the first of which, or the one most active, the shoots that form fruit, flower, or seed-buds are formed; and the other, or later summer's growth, is confined to the shoots that produce wood-buds only. "After the second growth is completed, the effects of the descending sap, in the formation of new bark, is apparent in the healing up of new wounds in parts of the stem or branches, which now proceeds with more activity than during any other season of the year. Branches pruned off smooth at the stem, though the latter be young, healthy, and containing a perfect pitch, before or shortly after the completion of the midsummer's growth, do not produce shoots from the edge of the wounds caused by their removal, which always happens more or less when pruning is performed on free-growing trees after the fall of the leaf,

and before the full developement of the spring shoots and leaves. It is to be observed, however, that the reproduction of branches from the edge of the wound is greatly assisted by leaving a portion of the branch or shoot on the parent branch or stem."—*Treatise on Planting*.

The end desired to be attained by the operation of pruning must be kept steadily in view, or injury, instead of benefit, may be the result. If the tree is intended for timber, the leaves and buds that elaborate the sap, and increase the trunk by the formation of an annual circle of new wood, should be kept as far from the root as possible, as in this way only can the greatest quantity of timber be produced. In this case, the trunk should be kept free from branches, the leading shoots should carefully be preserved, and the top kept in a crown-like form. Nature must be followed in this respect, and the tall, beautiful trunks of our native forest trees will be the result. For fruit, a low, branching top, spread and exposed to the sun as widely as can be, is to be preferred; and hence the leading shoot, when the tree is at a proper height, must be carefully cut out, and the lateral branches cut and pruned with direct reference to this effect. Fruit-trees must be pruned frequently, or their tops become woody, close, and the fruit will necessarily prove inferior.—*Genesee Farmer*.

FACTS FOR FARMERS.

It is a fact that some cows will make three times as much butter as others of the same size, and with the same keeping. It is a fact that some breeds of swine will make a ton of pork out of half the keeping which is required for other breeds.

It is a fact that some ploughs require twice as much

team as others, and yet do not perform the work so well. It is a fact that some farms of fifty acres produce more than some others of one hundred acres.

Is it not worth our while to make inquiry into the causes of these differences, and to devise a mode of equalization? And, first, as to our breeds of cattle. We will make no over statements. We know there is abundance of testimony that we have native cows which will make more than fourteen pounds of butter per week each, and we all know we have a great number of cows that will not make five pounds each. With these facts staring us in the face, shall we not cast out those that will not pay the expense of keeping, and introduce better breeds?

We would not be understood as making comparisons with any foreign breeds of cattle. Those who prefer them may make the trial, and may improve by crossings; but we would improve our native breeds, and select the very best. There can be no doubt of the practicability of producing a herd from our native stock that shall, in a very few generations, be sure to prove of the true blood of the ancestors. We have yet made no trial in this country; but, knowing what has been done elsewhere, we can now proceed with confidence, having our path lighted by lamps that have gone before.

The course of commerce between Massachusetts and the interior has for many years been unfavorable to the improvement of our neat stock and of our swine. In the vicinity of our cities we have found it more profitable to slay all and eat all our young neats at an early age, than to rear them; while, in the interior, where keeping was cheap, and there was no market for veal, the whole progeny of the neat cattle has been reared, without the least regard to symmetry of form or promise of excellence. All must perceive that, by proceeding in this manner, we can make no improvement in our stock.

But a better era begins to dawn upon us ; for, since it is found that the most excellent of our own cows will command a price bearing some proportion to the good qualities of the animal, the best will be snatched from the butcher and reared, and inferior animals, from the interior, will bring only such prices as may justify their purchase for beef. The whole tendency of the operation will be in favor of selections, both here and in the interior, of the best animals for rearing.

But we hope and trust we shall not be content with this slow mode of approximating to a perfect breed of neat stock. Since farmers are becoming convinced of the superiority of the best of our native stock over the poorest, they will lend their aid to those who shall begin in earnest to rear only from the best animals.

We are fully satisfied that no branch of farming could be pursued to greater profit, even within a few miles of Boston, than that of rearing the best of neat stock that can be selected from our native breeds ; and we are pleased that one gentleman at least, in the neighborhood of Boston, is determined to prove what may be done by crosses of our very best native cows with an English bull, of the Ayreshire breed, which is of fine form, and was not selected for his great size, but for his good qualities.

We sincerely hope others will be induced to imitate his example, so far at least as a selection of our best native stock is concerned, and that not only the females but the best males will be selected and kept from other herds, until we can be supplied with an improved breed that shall rival the best that has ever been reared.

By breeding from the very best males and females only, we may be quite certain in a short time to raise up a perfect stock. We well know "a good cow may have a bad calf ;" but ten good cows, with a male of the right breed, will have eight or nine good calves, and the descendants of these will be more likely to be

of the true breed, and so on : the farther we progress the more sure we may be of a correct result.

And what an acquisition to the farmer and to the community to possess herds that will give us thrice the milk which our stock at present supplies !

The average expense of keeping a cow on hay and grass, in the vicinity of Boston, for a number of years past, may be stated at not less than thirty dollars each. The average value of her milk, made into butter, may be one hundred and forty weight, or seven pounds per week for twenty weeks ; or, at nine quarts per day, $9 \times 140 = 1260$ quarts, and this at four cents per quart = \$50 40. Thus the butter, to equal the milk, should bring thirty-six cents per pound.

We have yet counted but twenty weeks' milking ; but, with good keeping, cows should be milked not less than forty weeks, and, if turnips and grain are fed out the last twenty weeks, will give half as much as in the first twenty. The produce in milk might then be worth \$75 ; in butter, at the common market price, it would be one third less, though the nicest premium butter has often brought more than this milk would amount to.

We think it quite feasible to rear cows that will give double this quantity of milk or butter ; and how valuable must be such stock !

FLAT TURNIP.

To the Editor of the Cultivator :

DEAR SIR, — I have, for three or four years past, taken much pains to raise a crop of the flat turnip, but with no success. I have prepared my land early and late, have sowed my seed on land both wet and dry, in sunshine and shade, also in rainy weather ; have harrowed, raked, hoed, and rolled it in, but to *no pur-*

pose. I do not say that I got a poor crop, *but no crop at all.* I sowed, the last year, about two acres of land, from which I received *not one* turnip; nor am I alone in this great evil; my neighbors (and who, by the way, are good farmers) make the same complaint, and are unable to tell the cause. In most cases the seed has been selected as the best, but has hardly ever made its appearance in the shape of a turnip top. If you will give me any information on this subject, so that I may benefit myself as well as my neighbors, you shall, to say the least, receive the thanks of

Andover, July 25, 1839.

A SUBSCRIBER.

We are at a loss to account for the failure — a total failure it seems — of our correspondent's crop of turnips. We have often raised very good ones among corn by sowing the seed at hilling time; that is, the last hoeing. Among corn, flat turnips are quite an uncertain crop, as the dews seldom fall to the earth when corn is heavy, and turnip-seed must soon have moisture after it is sown, or it will not vegetate.

When showers come soon after sowing, we have never failed of a good harvest, even among corn.

The seed should never be buried deep: a shower upon it, when it is sown on fresh earth, makes a sufficient covering. We do not recollect that we ever failed of a crop when the seed was sown in an open field.

Flat turnip-seed should be of the same year's growth, for a fall harvest. Seeds one year old are not sure to vegetate. We think not one in four ever grows, and we commonly sow four times as much seed when it is one year old as when it is new. Whether any of it would vegetate at two years old we are not sure.

But the turnip fly is a rapid and sweeping destroyer in some fields, and we suspect our friend's turnips have had some company of this kind.

The English are much oftener troubled with this

insect, and their remedy is to sow the field again ; for they find that, by repeated sowings, they at length hit upon a season when the fly makes no attack.

If our friend from Andover has sown his turnips in an open field, we would advise him to sow a second time ; for there are certain days on which the seed may be sown and the plant not be cut off by the fly. A close examination will enable him to determine whether insects are the cause of the trouble. — ED.

COMPARATIVE VALUE OF AGRICULTURE.

THE following facts are gathered, by the Albany Cultivator, from a letter of James McQueen, addressed to Lord Melbourne, on the subject of the corn laws :

Produce of British Agriculture.

Grain of all sorts,	£134,000,000
Potatoes,	20,000,000
Hay, grasses, turnips, straw,	120,000,000
Natural pasture,	63,502,000
Butcher's meat, pigs, poultry, game, &c.	82,283,759
Fisheries, food from,	12,000,000
Products of the dairy, vegetables and fruits,	48,500,000
Allowed for consumption of farmers in some articles not enumerated,	2,500,000
Wool, hops, seeds, flax, hemp, and timber,	22,479,166
Mines, minerals, coals, &c.	33,970,276
Total produce of agriculture,	<u>£538,536,201</u>
The capital vested in and the charges on the manufactures of the United Kingdom are stated to amount, in the aggregate, to	£105,773,879
And their total produce, per annum,	£259,412,702
The whole capital vested in agriculture,	£3,258,910,810
In manufactures,	£217,773,872

or fifteen to one in capital, and double in produce, with this further superiority, that, in the agricultural capital, it is all fixed and real. Agriculture expends nothing abroad, while manufacturers pay to foreigners £20,000,000 annually for raw materials.

Commerce.

The total exports for 1838 amounted

To foreign countries, to	£37,833,000
To her colonies, to	15,532,566
	<u>£53,365,566</u>

The Cultivator then proceeds to say,—

It appears, from the preceding data, that the capital invested in British agriculture is fifteen times as great as that which is invested in British manufactures, although the latter excel in magnitude the manufactures of any other nation; that British agriculture pays most of the burthens of the government, supports a privileged clergy, and contributes more than thirty millions of dollars annually to her poor rates; that its products exceed in value *more than fourteen times* the whole amount of her exports to foreign countries, although her commerce exceeds that of any other nation; and that her agricultural capital is fixed and abiding as her islands, while the capital vested in her commerce and manufactures is subject to many contingencies which may impair or destroy it.

Now let us apply these facts to our own condition. We will assume the population of both countries to be the same. Ten millions, or one half of her population, are assigned to agriculture. With the collateral branches, as mines, fisheries, &c. which are classed under agriculture by Mr. McQueen, fifteen millions of our population may be assigned to this class. And the presumption is, that our agricultural capital and agricultural products overbalance the capital and products of manufactures and commerce as much, nay more, than they do in Great Britain. From this view of the subject it will be seen that agriculture is really the GREAT business of this nation; that it is worthy of the most liberal patronage of our governments, state and national; that it ought to be enlightened by a better education to the agricultural class; that it ought to be encouraged and patronized by public bounties and

rewards ; that it ought to be respected for its highly salutary influence upon our republican institutions, and upon the good order of society ; and, finally, that it ought to be honored at least according to its intrinsic merits, that it may be more followed by men who have minds as well as hands to accelerate its improvement.

We mean no disrespect, by these remarks, to the merchant or the manufacturer. We are not in the way of believing that by attempting to raise one class we sink the other classes. Manufactures and commerce are the hands and legs, while agriculture is the body. They are reciprocally useful to each other. The body may sustain life without the limbs, but the limbs will perish without the aliment which they derive from the body. But we believe the other classes have numerous and efficient advocates, who are able to take care, and who do take care, of their interests ; and that agriculture demeans herself, and compromises the best interests of the state by her modest, passive, degrading acquiescence in total neglect. We wish to raise the agriculturists of our country to the condition which belongs to them, to that of intelligent, prosperous, high-principled men, who know their rights and their duties, and will fearlessly assert the one and faithfully perform the other. Then will our agriculture be made to double and treble its products, to compete with the agriculture of other countries, and to supply all our wants ; then will party interest be made to bend to the public good, and riot and outrage be made to give place to law and good order ; then shall we truly become an independent nation, rich in all the elements of human happiness. Even if we fail in all these fond anticipations, we can lose nothing by making the effort. We must be gainers in a less or greater degree.

CORRESPONDENCE.

To the Editor of the Cultivator :

DEAR SIR, — A subscriber to your valuable paper is desirous to know when is the proper time for fall seeding to grass. I have three acres of ground that bore wheat, and oats, and barley this summer, and I intend to put the land to grass this fall.

I have been unlucky in spring seeding, for my land is rather dry, and when I take off my grain the powerful sun of August is apt to wither my grass and kill it. If you have any experience in sowing down stubble-ground in the fall, I would like to avail myself of it.

Respectfully yours,

S. H.

Lunenburg, August 8, 1839.

We have often experienced the difficulty of which our correspondent S. H. complains. To remedy the evil, we sometimes procure ashes at the rate of twenty bushels to the acre, and sow them on after the spring grain and the grass-seed have made their appearance. This matter tends to keep the ground moist, and it does no injury to the grain. We have sometimes delayed sowing our grass-seed, where we had spring grain, until September; then we have ploughed in the stubble and sowed our herds-grass and our red-top, but no clover, until winter. It has sometimes succeeded well, and sometimes it has not. We would rather sow our grass-seed in spring with our grain than wait until fall.

But we have had very good grass by fall sowing. The best way to proceed is to plough but one acre at a time, then sow it immediately, while the furrow is fresh, and the seed is more likely to vegetate. We have no difficulty in seeding down on the first of September, excepting from the dryness of the ground; and the sooner we can put in the seed after ploughing, the more moisture it finds in the earth. — Ed.

MR. BUCKMINSTER, — I am but a recent subscriber to your paper, but I understand you practise differently from many farmers in our part of the country in regard to your treatment of low lands. I hear that you are in the practice of ploughing them and then seeding to grass without having rotted the sod; that is, that you sow your grass on the furrow, and without sowing any kind of grain with it. If this be so, you will oblige at least one subscriber by stating what has been your success, and whether you expect a crop of grass large enough for mowing the next season. B.

South Andover, August 6, 1839.

In answer to our correspondent from South Andover, we can say we have for some years been in the practice of sowing down all kinds of land in the fall to grass, and without going through the process of planting. But we have derived the greatest benefit from thus treating all our *low* lands where the plough can be made to run. These lands can never be planted to any advantage, and yet they want to be moved once in a few years, for the wild grasses will creep in and take the place of better company unless large quantities of manure — more than we can spare — are often applied to the surface.

We formerly practised planting such land either with corn or with potatoes; but we uniformly found that when we sowed it down to grass it would lie dead and heavy; and, though for a year or two we could cut a decent crop, it would soon turn wild again, and we were scarcely repaid our labor of going through with this long process. We therefore rather chose to let such lands lie and yield a small harvest, than to waste our strength and expend our manure where it turned to so little profit. We now find that, when managed in a proper manner, these lands are the best of any for grass, and that there is no kind of need to plant them in order to get them into the best of grass.

We choose for this purpose the last of August and the first of September. We plough one acre, or one day's work. We then take a heavy roller and flatten down the furrows well, so that the harrow shall not disturb them. We next put on a dozen loads of compost manure — twenty will do no harm — spread it and harrow it in, going at first lengthwise of the furrow, then a little diagonally, but never crosswise. Next we sow one peck of herds-grass, and one bushel of red-top : we save our clover to be thrown on in winter. We then take a brush-harrow and cover the seed. If any sods remain on the surface, on account of the imperfection of the plough, we rake these into the dead furrows in a few minutes with the common hand-rake.

We do not wish to commence earlier than this, lest the dry weather should injure t' e seed ; we do not choose to sow later than the middle of September, lest we should make our crop small at the first inowing. We have never been troubled with the winter-killing of our grass sown in this way ; and we cut from one ton to a ton and a half of good hay on an acre the first season after sowing, and we get more the second year. If we should use half the manure that we take for corn or potatoes, we could cut from two to three tons to the acre the first season.

By this procedure we lay the sod under, and our land is light : it will remain light much longer than when pulverized by planting ; then, too, we have not exhausted our soil, and taken off, in the shape of corn or potatoes, all the virtue of the manure, but we have placed *under* the sod about a dozen tons of rowen and of roots, to be rotting and turning to English grass as we want it. — ED.

To the Editor of the Cultivator :

SIR, — I have seen but a few numbers of your paper, but I have often heard that you were bred a farmer from your youth up, and that the farmers of

your town, Framingham, have within a few years made great improvements on their low lands and peat-swamps.

With us such lands have been generally neglected, and they yield no profit whatever, though we must fence them and pay the taxes. I should like to know your modes of improving such lands; to learn what is the best time of year to engage in the business, and what has been your success.

Yours, A SUBSCRIBER.

Lunenburg, Aug. 17, 1839.

There are various modes of reclaiming these low lands and peat-swamps, and each one may be best in a differently situated swamp. The first act in the drama is to drain off the surplus water. Nothing can be done towards raising English hay in a wet meadow. This is a good season of the year for draining. One central ditch is often sufficient to carry off all the water; and, when this is the case, it is mischievous to multiply ditches, for they are in the way of the plough. Don't smile, friend, at the idea of ploughing your swamp, which now your dog cannot cross with safety! We plough our meadows as soon as we get them well filled with English grass-roots.

But some meadows are kept wet by means of springs that issue from the banks on the their borders. When these springs abound, it is good to run side-ditches along at their base, and thus cut them off. These ditches should be cut as nearly parallel as possible with the main central ditch, or with each other, in order to cut the meadow into convenient lands for ploughing.

When the meadow is drained, the next inquiry is, how can it best be brought into English mowing? If the surface consists of roots, peat, and an abundance of combustible matter, it is best to subdue by paring and burning. This paring is done with a bog-hoe, when the ground will not bear a team; and it often happens that,

when we have turned over the sod in August, it will burn well in two or three weeks. When the sods will not burn separately, we pile them in heaps, and in dry summers have no difficulty in burning the greater part of the matter turned up by the hoe. If any sods are left unburnt, we pile them in high heaps, to stand until another summer.

We spread over the ground evenly all the ashes we have made, and then sow on our seed. One peck of herds-grass and one bushel of red-top are quite sufficient seed for an acre. If we wish for clover to be mixed, we sow this in winter and let it bury itself, but we cover the other with a hand-rake.

When we can get the ground prepared, we choose to sow as early as the first of September, because we then harvest a larger burden at the first cutting, but we do not fear the winter when we sow as late as the last of that month. The grass in these grounds is not often winter-killed. When we obtain a good mess of ashes from the sods we think this the cheapest mode of preparing these lands, for the ashes make manure enough for two or three years.

Meadows which have a surface that cannot be easily burned may be prepared for grass by ploughing, or by turning over the sods flat with a hand-hoe. In this case it is necessary to cart or to wheel on loam, gravel, or sand, and then a top dressing of compost manure.

It often happens that the border of a meadow consists of a good loam which is so high that it may be very cheaply hauled on to the meadow. Gravel is good for this purpose, but pure sand is the poorest of any thing. When the surface of the meadow is tolerably smooth it need not be covered more than three inches thick with gravel. One man in one day, with a small yoke of oxen and cart, will cover over one fourth of an acre sufficiently deep for the reception of the compost manure.

Common smooth meadow-land, with a burden of

coarse grass upon it, will be much more readily covered, if we suffer the grass to stand unmowed. It will help to fill up the vacancies between the hassocks or hillocks, and will all soon be converted into manure.

As to expense, we have sometimes, in a good season, pared, and burned, and seeded an acre for about twenty-five dollars; and we have had burden enough at the first cutting to pay the whole cost; that is, one and a half tons, at about sixteen dollars. This price we sometimes obtain in the field, but a more common price with us is ten dollars the ton for standing grass. — ED.

BOOK-FARMING.

WHEN a man expects good crops without labor, we call him a book-farmer. When one sits at his desk and attempts to teach farmers what he is ignorant of himself, we call him a book-farmer. When one tells us we must all raise wheat and make flour, we think he is a book-farmer. When one tells us we can raise roots for two cents a bushel, we call him a book-farmer. When one tells us the manure we can make from pork is worth more than the grain costs to fatten it with, we set him down a book-farmer.

When one says "buy lime, buy lime, to make your land rich," we chalk him down a book-farmer.

When we hear a man say his peat-meadow is worth three dollars a rod for fuel, but that it brings him more in grass, we mark him a book-farmer.

It is unfortunate for the community that so much has been written on the subject of farming by people who practically knew but little of the business. It is this which has caused so strong a prejudice in the minds of many farmers against looking at any thing that may be written on the subject of their occupation.

They well know that farming cannot be taught "by

BOOK," and they are provoked to see so many wild schemes as have been proposed to them *to lay out their money*, where there was no reasonable prospect of a profitable return.

Locations, soils, markets, prices of labor, are all so different, they require different rules and modes of management. What is profitable to a farmer near a great market, may be quite unprofitable to one at a distance; still there are some leading principles applicable to all.

Farmers should endeavor to overcome this prejudice, for they necessarily live more remote from each other than do merchants or manufacturers; they therefore have much more use for written communications to make them acquainted with the practices and the improvements of brother farmers.

The mercantile and the manufacturing community have so many papers at command, that every new improvement, invention, or important article of information, goes with the speed of a locomotive, and the whole population is moved as with an electric shock.

At a trifling expense farmers may, in like manner, avail themselves of useful hints, and of the various modes of farming which are practised in the civilized world; and there can be no more doubt of their ability to improve upon their present modes of cultivation, than there is of the ability of other classes.

He must be a very dull scholar who cannot, in the course of a year, by reading of the improved practices of the best practical farmers in the country, acquire enough of practical hints to pay for a weekly paper.

LOW LANDS.

Now is the time to improve upon lands that lie too low to be tilled for grain. We know of many farmers

who are determined to make trial of our mode of treating these lands. We beg of all our brother farmers to make the trial of at least one acre each. We know what will be the result, for we have been practising on this plan for years. We bring our low lands directly into grass from grass, without going through with the very unprofitable process of planting such lands with corn or potatoes.

We have formerly said much on this subject, but we think it must not yet be dropped; and, especially, as we have very many new patrons who wish to know our views in full on a system of seeding lands to grass which never has been extensively practised in any part of the world.

Any farmer may try a single acre without fear of ruin, for he may plough it in a day, and one more day will serve to carry on his manure and seed it to grass. If he dare not venture so far out of the common course of husbandry, let him try one fourth of an acre, and finish up the business in half a day.

Every farmer of fifty acres has some land too low to be planted. Every one has lands which he cannot make so productive as he would wish. If we pursue the system of planting each field before we lay it to grass, the process requires so much manure we cannot do justice to all our fields: some must lie nearly unproductive, merely for want of due attention.

In general, the time to plough is when there is something on the ground that may be turned in green. This is the cheapest, the easiest, the safest mode of enriching our worn-out fields. By adopting this plan we can easily make all our tillage-lands fertile. We can go through each field with such rapidity that the whole farm may feel the benefit of our presence. By ploughing in a green crop of rowen at this time, but very little manure is required in addition for an acre, and we are thus enabled to seed down four acres for one for the next season's mowing.

In addition to this, the sod keeps the land light much longer than if it had been pulverized by planting; consequently the land will not need to be ploughed again so soon.

But most of us have lands so low that we cannot think of planting them. They produce rushes, skunk-cabbage, buckhorn, polly-pod, lamb's bane, moss, or low blueberry bushes, that are all worth rather more to be covered up by the plough than to be mowed or fed.

Many such fields as these may be easily ploughed, and now is our time. Our cattle are strong, and are kept now at small expense, compared with spring keeping on hay. We have now more leisure for ploughing than at any season when we have any thing that is green to be covered up.

METHOD OF SEEDING ON THE FURROW. We will again remind our early patrons and inform our more recent friends of our mode of seeding on the furrow at this season of the year. We take a good plough that will lay the furrows flat; we next roll them down hard, then carry on a dozen loads or more of compost, or fine manure, and harrow thoroughly, first lengthwise of the furrow, then a little anglewise. We then sow herds-grass seed and red-top, and cover it up with a brush-harrow. It is best to sow down as soon as possible after ploughing, as the seed is more likely to vegetate.

In winter we sow on some clover-seed, and that will be forward enough for fall feeding next season. Clover will not remain long in such land, but we think it best to fill up the ground with good grass, to keep out the poor. By the time this tap-rooted plant dies, the whole space will be filled by the spreading herds-grass and red-top.

August 26.

LABORS OF SEPTEMBER.

THIS month should be spent principally in making improvements on the farm. No crops of consequence are to be harvested, and lands which would not suffer us to approach them in the spring, on account of their exuberant moisture, may now be ploughed or pared, and burned, and fitted for a next year's harvest of grass.

Forty or fifty years ago, when some people loved labor better than at present, two or three weeks were often spent in mowing the annual growth of bushes in the cow-pastures, where the plough would do the business much more thoroughly.

No service or drudgery can be better calculated to make boys dislike farming than this eternal repetition of clipping bushes without a prospect of reducing them. The labor is about as interesting as that of turning a grindstone by hand, or churning cream in cold weather in a dash-churn.

Wherever the plough can be made to go in a bush-pasture, it should be preferred to any instrument that barely cuts the bushes. These will make good manure when well buried, and it is more pleasant labor to plough than to mow them. Farmers often say we have more land near home than we can manure, and it is folly to plough up our pastures unless we can manure them; we are only making them poorer. This is not so where a grain crop is not taken off. Every ploughing makes lands richer, provided there is vegetable matter to be buried in the furrow.

If one ploughing will not kill all the bushes, a second ploughing may finish them; and it is better to kill half than to let them all stand. Pasture-lands that are turned at this season should be sowed directly with grass-seed: no grain should be thrown on. If plaster of Paris suits the soil, a couple of bushels spread on an

acre will give the grass a good start ; but on some soils plaster seems to do no good.

A man may plough one or more acres in a large pasture without the labor of fencing off as in case of planting ; for his cattle may generally be taken from his summer pasture in this month, before they can injure the new grass. When lands are seeded down to grass, they should be harrowed well and laid as smooth as may be, that they may be better fitted for another ploughing a few years hence. If no manure can be spared, the land should be turned occasionally, and more especially where there are bushes. In most cases we obtain better feed the next summer than if we had not turned over the soil ; but we should not turn in the cattle quite so early in spring.

If our doctrine is correct, that grass does not exhaust lands, it must be evident that by repeated ploughings, and turning under the vegetable growth, we are making our pastures richer and richer. But how few will plough without sowing grain ! Many are loath to make the experiment.

The plea of the slothful is, "we cannot enrich our farms, because we have not manure." This plea will not hold where a man has a team and a plough.

TURNING MEADOW INTO ENGLISH. Last September we carted as many loads of loam and soil from the road-side on to a meadow, near by, as one man could do in one day with a yoke of oxen. The grass on the meadow was coarse, and as we had an abundance of hay, we preferred not to mow this, but to bury it green.

One man with oxen would cover nearly one fourth of an acre in a day, as the long grass helped to fill up the hollows between the hassocks. After this was evenly spread over the grass, so as to cover it completely, a few loads of compost manure were spread on the top, and then herds-grass and red-top were sowed and brushed in. It was near the middle of September

when it was sown. This summer the piece gave a fine crop of English hay, and the clover which was thrown on in the spring now looks finely for fall feeding. This land was thoroughly drained, and the mud from the ditches helped us to form the new surface.

Thus where there is soil near a meadow that is made dry enough to be carted on, one man, in a week, with a single yoke of oxen, will carry on enough of soil to convert a whole acre of poor meadow into English mowing. Say the expense is two dollars per day, or twelve dollars per acre, — and such land needs not much manure: it will nearly maintain itself in grass, if the rowen crop is turned under once in a few years. This land, thus prepared, is worth more than one hundred dollars per acre twenty miles from Boston.

How much of such land we have within thirty miles of Boston which now bears a burden that will hardly pay for fencing! It requires no expensive process to double the quantity of hay now cut in Massachusetts.

GARGET.

THIS disease in cows is very troublesome at certain seasons, and is more often found to afflict the best milkers than the poorest. Garget root, as it is called in Maine, jalap more commonly in Massachusetts, has been the usual remedy for this disorder. It bears a berry large as a pea, and full of purple juice. The plant is quite common in this vicinity, but does not flourish so well farther north.

We have been in the habit of taking a piece of the root an inch long, and half an inch in diameter, and inserting it in a hole cut in the dewlap of the afflicted cow. In cases of a severe attack, the dewlap will swell sometimes to the size of a small hog's bladder.

When the cow is but slightly attacked, we have cut holes in potatoes and inserted bits of this root, and then given them to her for a lunch. This is the easier mode of administration, and generally answers a good purpose.

A writer in a late number of the *Maine Farmer* recommends saltpetre for this disease. He says he gave a pretty strong dose, something like two ounces, and in less than twelve hours her milk was restored good as ever. This cow had been so subject to the disease through the summer as to be nearly useless. He suggests the propriety of mixing a little saltpetre with the salt given weekly, or oftener, to cows, but has some doubts whether it may not prove injurious to the blood.

Now we call on our medical gentlemen, of whom we have a very goodly number for patrons — thanks to their liberality — to give us an opinion whether saltpetre, in small quantities, will be likely to prove injurious to neat stock.

This question is of vital importance to all who keep cows; and who, in the country, does not keep them? If saltpetre shall be found a complete remedy for the disease, it can be very readily administered by any one.

THE HARROW.

FOR old fields of all kinds we prefer the square harrow. Many make use of the triangular or crotch harrow for all kinds of land. In new ground, full of stumps, the triangular harrows may be best, but in old fields they are very objectionable. The moving power raises from the earth the forward teeth, and leaves the centre nearly untouched; but the centre should always be the most thoroughly harrowed, because the edge is harrowed twice by the lapping on of the instrument.

GATHERING POTATOES.

YOUNG farmers often dig their potatoes too soon. They should be suffered to stand until fully ripe, if we wish for the most nourishment they will afford. In truth they are not wholesome for man or beast when unripe ; and, by putting them early in the cellar, they are liable to heat and spoil in the heap.

They should be but little exposed to the air, and no amount of dry loam mixed with them will prove injurious when housed at the proper season of the year.

We have known some very early farmers obliged to overhaul their potatoes and throw them out of the cellar to prevent their spoiling. So long as the vines are green the potatoes are growing ; and, though after the frost has taken their tops we expect no great increase, we think the potatoes often become more ripe and mealy by lying in the ground until the vines are dead.

COLD AND WET GROUNDS.

PEOPLE often ask, "What shall we do with our cold and wet grounds? If we put no manure in the hill we fear we shall get no crop." It is believed that most farmers have some dry and warm land. Let the corn be planted on such land. We are not so bound by a system of rotation of crops as to be obliged to try every field with corn. Rotation to some extent is useful, but we have thousands of acres, excellent for grass, yet wholly unsuitable for corn. Let these acres remain in grass. If they need ploughing, sow them again to grass in September : they need not be planted.

Warm and dry grounds, if manured, and the manure thoroughly mixed with the soil, will generally give us good crops of corn when they are well attended to.

CORN-FIELDS.

Nothing in the vegetable kingdom looks richer than a well-cultivated field of corn at this season of the year. Fifty or sixty bushels of rich, heavy grain are often taken from a single acre, and the stover in which it is enveloped, when well preserved, affords a rich repast to neat cattle of all descriptions.

In passing through fields of corn this season, we often see the blades standing so close to each other that they bear no ears. The worms and the birds did not call for their usual supply, or the tiller neglected his duty. It is well to plant a large quantity of seed when its cost is so trifling as that of corn; but he who leaves too many stalks in a hill will be sorry for his neglect to root out a part when it is too late to remedy the evil.

When rows are three and a half feet apart, and hills two feet distant in the row, two stalks of our middle-sized corn are sufficient to remain on the first hoeing.

HARVESTING CORN.

As to the best mode of harvesting, we have some hesitation. If we had a field of late corn, and we were in fear of a frost, we should be inclined to cut the whole stalk at bottom and make shocks of the corn, to stand two or three weeks before harvesting. Fifteen or twenty hills may be put together in one shock, and one should be left standing to support the others which are to be placed around it. One band, or birch withe, will be sufficient for one shock; and, if well put up, they will stand two or three weeks without racking over. When we wish to cart them home, we throw a whole shock at a time on the cart, and keep the stalks straight. In this way they are more easily husked.

We are not sure that we save any labor in adopting this mode of harvesting, but it is certain the fodder is better when secured in this way. If the stalks are cut above the ear, they should always be put in pikes, or shocks, as some call them, and there suffered to stand as long as two or three weeks: they become sweeter, and are better relished by cattle. When we house them soon after cutting, they retain an acid which is not agreeable to cattle, even though we take the trouble to hang up the bundles on poles and let the air in the barn draw through them so much as to prevent any mould from gathering. We have had stalks that were thus kept, and looked perfectly well and bright, but the cattle would not eat them so well as they would others that had been weather-beaten.

When we have put stalks in the pike we are apt to suffer them to stand out too long. Three weeks of pretty good weather will fit them to be packed close on the scaffolds. They should be opened and sunned on the day of carting.

PEAT.

WE take much pleasure in copying into our columns a letter from Mr. Phinney to Dr. Charles Jackson, on the subject of peat.

E. Phinney, Esq. of Lexington, is one of our most scientific farmers, and we are proud to have him enrolled on the list of Middlesex husbandmen. He is the first writer who ever dared, to our knowledge, to declare, in public, that we sometimes plough too often, throwing up again to the winds what ought to be kept below until entirely rotted and converted into a new vegetable growth.

From him we have caught as many useful ideas on farming as from any one individual who has written so little on the subject.

“ *Dr. Charles T. Jackson :*

“ Dear Sir, — I herewith send you a sample of my peat. I am very desirous of availing myself of the benefit to be derived from a chemical analysis of the same, which you kindly offered to make. A more intimate knowledge of the nature and properties of peat, which can be obtained only by a scientific examination of its constituent parts, would enable farmers more justly to appreciate this valuable species of land. It is from a want of this knowledge that our extensive tracts of low meadow and swamp-lands have hitherto been esteemed of little or no value. Allow me to say, sir, that I know of no way in which you could render a more essential service to the public, more especially to farmers, than by enabling them to convert their unproductive and unsightly bogs and morasses into luxuriant fields, and sources of wealth. I consider my peat-grounds by far the most valuable part of my farm; more valuable than my wood-lots for fuel, and more than double the value of an equal number of acres of my uplands, for the purpose of cultivation.

“ In addition to these, they furnish an inexhaustible supply of the most essential ingredient for the manure-heap. A statement of the uses to which I have appropriated peat-lands, and my management of them, though very imperfect, may serve to give you a partial conception of their value and uses, and at the same time enable you to see how important it is that the farming community should have more information on this subject.

“ In the first place, they are valuable for fuel. I have, for twenty years past, resorted to my peat-meadows for fuel. These, with the prunings of my fruit-trees, and the brush from my uncleared lands, have given me my whole supply. The prunings and brush are bound in bundles, and housed, and, with the help of a small bundle of these fagots and peat, a quick and durable fire is made. It gives a summer-like

atmosphere, and lights a room better than a wood fire. The smoke from peat has no irritating effect upon the eyes, and does not in the slightest degree obstruct respiration, like the smoke of wood; and it has none of that drying, unpleasant effect of a coal fire. The ashes of peat are, to be sure, more abundant, but not more troublesome, and are less injurious to the furniture of a room, than the ashes of coal.

“The best peat is found in meadows which have for many years been destitute of trees and brush, and well drained, and where the surface has become so dry, and the accumulation of decayed vegetable matter so great, that but little grass or herbage of any description is seen upon the surface. If the meadows are suffered to remain in a miry condition, the wild grasses and coarse herbage will continue to grow, and the peat be of a light and chaffy texture, fixed with undecayed fibrous roots. By draining they become hard, and the peat becomes compact and solid, and the cutting out and carrying off greatly facilitated. A rod square, cut two spittings deep, each spitting of the length of eighteen inches, will give three cords when dried. It may be cut from May to September. If the weather in autumn be very dry, the best time for cutting will be from the middle of August to the middle of September. If cut the latter part of summer, or early in autumn, it dries more gradually, and is not so liable to crack and crumble as when cut early in summer. The pieces are taken out with an instrument made for the purpose, from two to three inches square; and, if of good quality, will shrink about one half in drying. It is considered a day’s work for a man, a boy, and a horse, to cut out and spread a rod square. The man cuts it out and lays it upon a light kind of drag, made for the purpose, and it is drawn off by the horse, and spread by the boy as thick as the pieces can lay singly. After becoming dry enough to handle without breaking, it is made into piles, cob-house fashion, of from twelve

to twenty pieces in a pile. It will then require about four weeks of dry weather to render it fit to be housed for use. The top, or turf, is thrown back into the pits from which the peat is taken; and, if well leveled, and the ground drained, it will, after the first year, give a large crop of foul meadow, or other lowland grass. Peat, taken from land which has been many years drained, when dried, is nearly as heavy as oak wood, and bears about the same price in the market.

“The value of peat-lands for tillage is now pretty well known and acknowledged. Some years since, I occasionally sold to my neighbors a few rods of my peat-land yearly, to be cut out for fuel, at three dollars per rod, being at the rate of four hundred and eighty dollars per acre; but, finding this sum to be less than its value for cultivation, especially when laid to grass, I have declined making further sales at that price. I have raised upon my reclaimed meadows seventy-five bushels of corn, five hundred bushels of potatoes, or from four to five tons of the best hay, at a first and second cutting, to the acre, at a less expense of labor and manure than would be required to produce half this crop upon uplands. To render these lands productive, they should be thoroughly drained, by digging a ditch around the margin of the meadow, so as to cut off the springs, and receive the water that is continually flowing in from the surrounding uplands. If the meadow be wide, a ditch through the centre may be necessary, but this will be of no use without the border ditches. This being thoroughly done, and the surplus water all drawn off, the next step is to exterminate the wild grasses and herbage of every kind that grow upon the surface. To effect this, the method heretofore generally and now by some pursued, is to cover with gravel or sand, top dress with manure, sow the grass-seed, and then rake or bush it over. This, for the first year or two, will give a good crop of hay; but, after this, I have invariably found that the more coarse and

hardy kinds of wild grass would work their way through the sand or gravel, and entirely supplant the cultivated grasses ; when the whole must have another covering, or be abandoned as worthless. If to be planted with corn, or any of the root crops, my course has been to turn over the turf or sward with a plough having a wrought-iron share or coulter, ground to a sharp edge ; in the driest season, say in the month of September, roll down as hard as possible ; carry on in the winter a sufficient top dressing of compost, twenty cart-loads to the acre ; and, in the spring, plant with corn or roots, without disturbing the sod. When the corn or roots are taken off, the surface is made smooth with the cultivator, or hoe and harrow ; and, late in November, or just before the heavy frosts sets in, sow with herds-grass and red-top seed, half a bushel of the former, and one bushel of the latter to the acre. The field is then rolled, which completes the process. If the plough does not turn the sods smooth, it will be necessary to follow it with a bog-hoe, to level the uneven places. By keeping the sod undisturbed in the cultivation, a more firm and compact surface is formed, upon which oxen or horses may work generally without danger of miring. If the land is intended for grass, without the intervention of a hoed crop, the turf is turned over with the plough, as before stated, in August or September, or as early as the surface becomes dry enough to admit the oxen or horses upon it ; then follow with the bog-hoe and turn over such parts as the plough has left unturned ; make the whole smooth with the hoe, and, late in November, spread on a top dressing of compost, not less than twenty cart-loads, made half of loam, and half of stable manure, to the acre ; then sow the grass-seed, and bush, and roll down. If the ground be miry, so as to render the use of the plough impracticable, the bog-hoe must be resorted to, and the whole turned over by hand, and top-dressed, and seeded to grass, as above stated. The cost of turning over with

the hoe will be twenty dollars per acre, at the usual price of labor. This mode of culture completely subdues the natural wild grasses, and gives a compact and rich surface of vegetable mould, which will give an abundant crop of the best English hay for four or five years, without the aid of more manure. If the sod is disturbed and attempted to be pulverized in the course of the cultivation, the surface, when laid to grass, will be loose and spongy ; an extra top dressing of loam and manure will be required, and, after all, the surface will not become so compact, nor the produce by any means so great. Should meadows be found too soft and miry to admit of their being ploughed in the summer or autumn, and the expense of turning with the hoe should be thought too great, I would advise ploughing in the spring, when the frost is out to the depth of three or four inches, carting on the manure, and then sowing or planting at a convenient and proper season. The art of reclaiming these low meadows consists in taking off all the surplus water by judicious draining, and in thoroughly exterminating the natural herbage and grasses. This being effected, we have our rich bottoms, equally as productive as the deep alluvials of the west, and obtained at a cost and sacrifice infinitely less."

Lexington, January 30, 1839.

PLASTER OF PARIS.

WE have often promised to give to the public our own views of the value and of the operation of plaster on our New England soils, but have never yet had space to devote to the subject.

Much has been written upon its chemical qualities, as well as upon the surprising effects of it when applied to certain soils. We propose to take notice, in the first

place, of its effects, and from these, our premises, we may then draw some general conclusions.

We believe it to be now generally conceded that plaster, on certain soils, has no sensible effect; but it is not so generally admitted that it is beneficial on any soil. Many people who have tried it on certain lands, and found no advantage in the use of it, are ready at once to condemn it *in toto*, and to discredit all they may have heard in its favor. They come to conclusions too hastily. They have not patience to make repeated trials on soils differently constituted, and, because they did not find it to operate like common barn-yard manure on all kinds of soil, they hastily pronounce judgment against it.

It has been a common remark that plaster did not operate well near the sea; but there are exceptions to this theory, and we much doubt whether the vicinity of salt water checks its beneficial operation. We have very generally found that our plaster had but little effect on light, sandy plains, on low and wet grounds, or in seasons when the clouds always furnished a sufficiency of moisture.

But on dry and heavy loams, on clayey soils, and on gravelly hills with a deep loam, we have generally noticed the good effects of plaster. Even on the banks of the Kennebec river, where much of the soil is clayey, there are fields where plaster would not pay the expense of spreading. Yet we have seen fields there brought directly from sterility into heavy clover, merely by the application of two bushels of plaster sown on the acre.

In the town of Framingham we have lands on which plaster seems to have no effect. These are our plains, with a soil light and inclining to sand. We have tried plaster on other lands in the same town, where it had surprising effects; where two bushels spread on an acre has doubled the quantity of feed for two successive years. This land lies at the southwest part of the

town, and the soil is a heavy loam : some parts of the pasture, which is hilly land, are ledgy, and the ledges have formerly been covered with moss. Plaster here has the effect of bringing up clover through the moss ; and the cattle are so fond of this new growth, they often destroy all the moss in search of it.

It seems philosophical to suppose that plaster operates to most advantage in soils that are naturally deficient of the article. We cannot rank it with the manures : they are beneficial to all soils. It probably acts as a stimulant to other matter. It attracts moisture from the atmosphere, and acts as a solvent on the surface of soils that are liable to be baked in the sun and to crack open ; hence it is more serviceable in dry seasons than in wet ones. It is better on the surface than underneath.

There is much difference in the quality of the article sold as plaster. We have often thought that best which contained the most sulphur. We test it by boiling it in a kettle ; and, when hot, it will be so light it may be stirred as easily as hasty-pudding, when only half thickened. If it be good, it then emits a strong flavor of sulphur.

It has been objected that plaster tends, in the end, to impoverish the soil ; that it sends out a forced growth by its stimulating power, and then leaves the land poorer than before. The same objection has been made to ashes ; that they stimulated, but did not enrich.

We cannot agree to such doctrine. We might as well say that showers of rain were useless because they merely stimulate other matter. Any thing which will produce a large vegetable growth may readily be converted into manure, by means of the plough. The more we make our fields produce, the more ability we have to go on increasing our crop from year to year.

GRAPES.

OF all the fruits of the field or of the garden, grapes are the most easily cultivated. A cutting from a vine buried in moist ground will soon take root, and, in a year or two, will produce fine fruit.

Many foreign grapes have been introduced within a few years, but most of them need a green-house, or some kind of protection from our cold winters, which makes the cultivation of the fruit troublesome and difficult.

When the Isabella grape was first introduced, it was thought it would flourish well in our open air, and require no protection. It is now found that, to insure its bearing, and even its existence, it should be buried during winter; and, when the utmost care has been taken, our summers are often too cold to bring the fruit to maturity.

CREAM-COLORED GRAPES. We have a native grape-vine in our garden, which we found in the woods some years ago, and which bears a rich and sweet fruit, quite different from the native purple grape of the woods. Its fruit was ripe on the first of September, and it is equal in richness to the imported white sweet-water grape, which is not usually brought to maturity in the open air. This grape has none of that unpleasant sourness so common to the purple grape when the skin is kept long in the mouth. Its taste much resembles that of the best white plums, and there can be no doubt its juice would make excellent wine.

One bushel of good soil would be sufficient, near a lady's window, for a vine that would be an ornament to the house, and a source of gratification to the lovers of fine fruit. These vines may be propagated in multitudes in the city, and they require no care except a little clipping of the exuberant foliage. But farmers have no time. Men have more fancy for grain than

for grapes; and we intend now to address our female patrons who have been so liberal in our support.

Every lady whose name is on our books shall be welcome to a handful of cuttings from this grape-vine, if she will be at the trouble to send for them at our office next spring; and we will warrant each cutting to grow, if she will expend upon it five minutes' attention. We make the same offer to future female subscribers.

They will find this grape quite as ornamental, and not half so troublesome, as the geranium; then all its fruit will be net gain.

THE ENGLISH ARTICHOKE.

WE have been requested, by a gentleman of Mississippi, to direct the attention of our farmers to the more extensive cultivation of the English artichoke, as an excellent article of food for hogs. It is now cultivated by some of our farmers, but upon too small a scale, considering its great value. We learn that Judge Caruthers, and Mr. F. H. Gordon, of Smith county, have about twelve acres each now growing, which will afford food for near a hundred hogs from the 1st of November till planting time.

The artichoke requires but little labor in tilling, and is very productive. The roots will remain in the ground safe during the whole of the winter; the stalk and the foliage furnishing an excellent protection from the frosts, and enriching the soil greatly. The hogs can be let on them the 1st of November, and remain till spring, when they will be in prime order. A portion of the ground cultivated should be set apart for seed; the seed to remain in the earth where it grows till spring, then taken and planted about the time sweet potatoes are planted, with about the same amount of

seed per acre. Thus four bushels of seed will plant an acre of ground, and require one ploughing and hoeing, and keep thirty or more hogs from the 1st of November till spring. If our farmers do not pay more attention to this, they certainly are blind to their interest. Seed, we presume, can be had quite plenty next spring. — *Southern Cultivator*.

[From the Genesee Farmer.]

SUGAR-BEET.

THE valuable qualities of this root for feeding animals is beginning to be understood; and we may reasonably expect that its culture will hereafter be very much increased. The common beet and the mangel wurtzel have both been proved valuable roots, but the sugar-beet is much superior to either of the former, as was indeed to have been expected from the greater quantity of saccharine matter it contains. It is cultivated with as much ease and certainty as the common beet, and, though usually more difficulty has been found in preserving the beet or the carrot than the ruta бага, there is really no more danger of failure where cellars of proper temperature are to be had. For making fine mutton, the sugar-beet is said to be unrivaled. We find a letter on this subject in the "Whip," from which we make the following extract, which we are confident is worthy the attention of all those who wish to produce from their flocks meat of the first quality. The writer was an extensive mutton grower for the Philadelphia market, and his mutton, before he commenced using the sugar-beet, had attained a high character; at last he commenced the use of this root, and he says:

"What surprised him most was the rapid manner

in which they took on fat, when fed on the sugar-beet ; and, when carried to market, the saddles excited particular attention from their very superior appearance. But it was not in appearance only ; the meat was of a much better quality, more juicy, and exceedingly tender. The inquiry was, 'Why, sir, on what do you fatten your sheep?' and when I replied, on the sugar-beet, hay, and a small quantity of corn, it would generally call forth acclamations of surprise. My first trial was four years ago ; and, since that time, I have been a constant grower of the beet. The meat I bring to market is always in demand, and brings several cents more per pound than that fattened in the old way ; and yet, strange to say, some of my neighbors, though I have urged them, will not plant the beet for their stock. I have been benefited to the extent of several hundred dollars by the introduction of this root : the effects are visible ; my neighbors see it, and know it, and yet they stand looking on, halting between two opinions. But light is breaking in upon us, and of one thing you may be assured ; that is, that the time is not far distant when every extensive stock-feeder will also be an extensive root-grower."

The opinion here last advanced is doubtless a correct one ; and we also think that, whether feeders or not, every cattle-grower will, if he consults his own interest, be a root-grower. We are convinced, that in this country, as elsewhere, the root culture lies at the basis of all profitable cattle husbandry.

DYSPEPSY IN HOGS.

WE often find hogs, at this season of plenty, losing their appetites. This complaint would not be so disagreeable if it attacked them when we had but little food for them ; but now, when full harvests are coming

in, and some of a perishable quality, to have hogs that have no stomachs is worse than to have no hogs.

Rotten wood has been recommended as a corrector of the acid in a swine's stomach, but charcoal is one of the best things that we have tried. We cannot tell the why, but hogs are fond of it, and will eat a portion of it daily when they can get it. It is insisted by some that there is much nourishment in charcoal, and that hogs have been known to live on it a great length of time. In a voyage from Europe a lost pig was found in a charcoal pit, after some weeks, plump and hearty.

Captain Riley, many years ago, in his travels in Africa, surprised us in his accounts of feeding camels, on long journeys through the desert, with nothing of consequence but charcoal. Now we do not vouch for the truth of these stories, but we know that some hogs love charcoal, and will fatten better for having that as one item of food or condiment. It may be pure fancy in the hog, but not a wilder one than some of our own race manifest for the African complexion.

CORRESPONDENCE.

MR. BUCKMINSTER, — I have a hundred loads of compost manure which I intend to put on my grass-land, and I should like to have your opinion as to the best mode of using it. I agree with you that it is more profitable, in this region, to raise grass and hay than to raise grain for sale; but I think we sometimes lose by not putting on our manure at the right time, and in the right mode.

Some people spread manure on their grass-lands immediately after haying. Some choose this month, October, and some prefer laying it on just before

winter. My land is somewhat low and rocky, and cannot be easily ploughed.

Yours, W.

Leominster, Oct. 2, 1839.

We lose some of the virtue of manures, when we spread them on grass-lands, in consequence of evaporation; and the longer the land has lain in grass, the more we lose, because the sward has become more compact, and will not readily suffer the compost to become incorporated with it. We have sometimes put compost on to grass-lands that were rather dry, and that had not been ploughed for many years, and we could see but little benefit arising from the application. Some have lately recommended spreading it on immediately after mowing. We see no good reason for this. It is usually as dry weather at that season as at any in the year, and we cannot fail to lose much by evaporation.

Some prefer the fore part of May for this operation, and calculate on the rapid growth of the grass to cover up the manure. We have more than one objection to this practice. We have no leisure at this time; we have no manure ready unless it was prepared the year before, and if prepared, it should have been put on then; we injure the land by going on it when it is soft; and, when we spread manure on at this season, it is much in the way of the scythe; and the rake will gather up a part of it with the hay in July.

We think the best time is in November, as soon as our harvesting is over. The compost will then dry up but little before its virtues are mingled with the soil. If the land has long lain in grass, it should be well harrowed, after applying the compost. If the harrow moves slowly over the ground it will tear up but few of the roots, and it makes more room for those that remain: it opens the ground so as to admit the compost, and, before the long days of May arrive, much of the goodness of the manure is sunk into the soil.

We do not advocate the spreading of much compost on grass-lands when we can plough them, for we cannot avoid a loss from evaporation at any season of the year; but there are some lands too low for planting, and too rough to be ploughed. They are good for nothing but grass, and they often yield a good harvest between the rocks and the stumps. Composts for such lands should have a large proportion of loam or fine gravel mixed with them, and then the loss by surface manuring will be less.

We undoubtedly make more profit of our manures by incorporating them with a ploughed soil; and if we have ingenuity enough to turn under a green crop of rowen, in aid of the surface application, to be rotting as it is wanted, we may enrich our lands with great rapidity, and constantly keep them rich. But this should always be done about the first of autumn, as we have often stated. — Ed.

FIG-PEN IN AUGUST.

At this season of the year the sty should be particularly attended to. The health and comfort of all human beings who may pass by one are concerned in the proper management of the contents.

Manure is of immense importance to the farmer, and now is the best time for increasing it. Hogs in the fore part of the season make but little manure, for they are not so fully fed; but we should begin to feed them better before this month is past, that they may be fit for the butcher before the coldest weather comes on.

At this season, loam from the road-side may often be procured where there is a rank vegetable growth which may be taken up with it. All this should be thrown into the pen, and the pigs will look as much neater for this supply as will some floors with a quantity of sand spread over them.

CANKER-WORM.

WE think we cannot render a greater service to the community, at the present time, than to call the attention of cultivators to that destructive pest which so long has foiled all attempts to destroy it.

It is well known that some of these worms ascend the tree in autumn. Those, therefore, who intend to take measures of prevention should commence operations before the enemy has effected a lodgement from which he cannot be driven.

We fondly hope some cheaper, and more effectual method may yet be discovered to save our ornamental as well as our fruit-trees. Last summer the devouring herd attacked the English cherry-tree and the rose-bush for lack of their favorite food, and it is uncertain where they will stop, if no attempts are made to arrest their progress.

We take from the *New Haven Herald* a well-written article on this subject, sent to the editor from an unknown hand in Philadelphia. We know not, at present, any cheaper mode of defence than the one here recommended.

We would invite the attention of our citizens to the following article on the canker-worm. The renewed foilage with which our shade-trees are now covered has in some degree removed the apprehension entertained a few months since, that we were in danger of losing one of the chief ornaments of our city. Our citizens ought to be apprised, however, that the effort required to put forth two sets of foilage annually, cannot be sustained, ordinarily, longer than two or three successive years. For one year, or two, this may occur without serious detriment; but the third year commonly proves fatal to the tree. Many of our most valuable ornamental trees have now been completely denuded two years in succession, and, unless measures

are immediately taken to secure them from the ascent of insects this season, many of them will probably be lost next summer. The insects will now soon begin to come out of the ground, so that what is to be done ought to be done immediately. We return our thanks to the anonymous author of this communication, which comes to us under the postmark of Philadelphia, and will forward copies of the paper as he has desired.

ENTOMOLOGY OF THE CANKER-WORM, (*Phalena Vernata Geomatia*, Peck,) WITH GENERAL REMARKS UPON THE VARIOUS REMEDIES OR PREVENTIVES.

From numerous remarks that I have heard made in various parts of the country, I was led to believe that the character and habits of the canker-worm were very imperfectly understood. And as its ravages appear likely to destroy a considerable portion of the fruit and ornamental trees, I was induced to study its entomology; and, believing it might be useful to those interested in its destruction, I concluded to offer the result of my labors to the public. And I would here suggest to the editors of newspapers, who are fond of fruit, and like to see flourishing trees, to insert the following account for the benefit of their readers.

The canker-worms begin to hatch in the spring, about the time the red currant is in blossom, and the apple-tree puts forth its tender leaves, which, in Boston, is about the last of April or the first of May. When first hatched, they are about one tenth of an inch long, and as large as a fine horse-hair. Having made their escape from the eggs, they move about with great activity in search of food; and, having arrived at the extremities of the branches, they begin to feed upon the pulpy part of the leaves. And if a leaf is taken and held against the light, it appears perforated with numerous small apertures, like pin-holes. They acquire their full growth in about four weeks. During this period they cast several skins, each succeeding skin

being larger than the previous one. The number of these, and the time intervening, is not ascertained. As they pass through these stages they become more and more voracious, and in the last stage are more destructive than in the whole of their previous existence, and make no hesitation in destroying the entire foliage, but eat the green fruit.

These worms spin a continuous thread as they move about, and leave it attached to their path ; hence, if a branch of the tree is struck so as to give it a sudden shock, the worms may be seen suspended beneath by this silken cord ; and when the shock has ceased, they ascend to the place from whence they fell. Immediately beneath the mouth, there is a conical papilia, from whence the fibre that suspends them is emitted. Their ascent, when thrown from the tree, is slow, and is performed by bending the head and anterior part of the body back, until the feet in the third segment can grasp the thread with their jaws, thus continuing to fold it up until they reach the branch of the tree. They pause at intervals, if the ascent is long. If by chance the thread should get broken, they crawl to the trunk of the tree and ascend.

The larva, or caterpillar, is, when full grown, about one tenth of an inch in diameter ; the head pale, marked on each side with two transverse, blackish stripes ; the back ash-colored, marked lengthwise with small, interrupted, dusky lines ; the side blackish, with a pale line along the length of the body. There are two white spots upon the last segment of the body. The abdomen, or under side, is ash-colored. In moving about, they draw up the hinder part to the breast, bending the body into the form of the letter *n* ; then extending the body to take a new grasp with the anterior feet, thus appearing to measure the space over which they pass. From this circumstance they are called *geomatia*, and in English, lopers, span-worms, inch-worms, &c.

In about four weeks after they are hatched, they cease eating, and descend to the earth and enter it, from four to eight inches, according to the quality and condition of the soil. For the first few days they continue shortening their body, and drawing in their feet. When they have contracted themselves sufficiently, they disengage their skin and slip it off, and become a chrysalis, which is about half an inch long, and one seventh of an inch in diameter.

It appears that the insect is soon perfect, as some of them in New England rise from the earth as early as the last of September; and they rise, more or less, until the first of May following, whenever the weather suits them, and the ground is thawed to the depth of their abode.

When they rise from the ground they appear in forms entirely different: the antennæ or horns of the perfect insect are setaceous. The body of the male is of an ashen amber color, nearly half an inch in length; extent of its upper wings, one inch and two tenths; the wings are ash-colored, with three obscure blackish stripes, and a small dash of the same color at the tips. The under wings are of a uniform color, and rather lighter than the ground of the upper ones. The body of the female is about four tenths of an inch in length, ash-colored, and marked on the back with a brown list, extending from the thorax to the tail. She is destitute of wings, has six long dusky legs with white joints. Both the male and female remain quiet during the day, and adhere close to the bark of the tree, and are so near the same color they are not seen without close inspection. In a short time after sunset they begin to move. The males may be seen flying about. The females, being destitute of wings, are under the necessity of ascending the trunk of the tree. They may sometimes be found together, subcupola. After this office is performed the males die, and in a few days the females deposit their eggs, about one hundred in num-

ber, which are deposited on the branches of the tree and generally near the extremities. The egg is of an elliptic form, about one thirty-sixth of an inch in length, of a pearl color, with a yellowish cast. As the included animal advances, the eggs assume a brownish hue, and finally become lead color. The eggs adhere firmly to whatever they are laid upon, and appear something like the top of a thimble, except the indentations are much finer, and, when laid in the fall, are not injured by freezing, but hatch about the time before mentioned. During the last stage of their existence they do not eat any thing. The female, after laying her eggs, having accomplished the object of her existence, dies. Cold weather does not have any effect upon the chrysalis moths or eggs, further than to benumb the millers and grubs, (grubs is the name usually applied to the female,) until it becomes warm again, for, if the insects in this state, when it is extremely cold, are carried into a warm room, they soon become active. A piece of ice containing a number of grubs was carried into a warm room. As soon as the ice was thawed so as to set them at liberty, they began to move about the room, and were none the less vigorous for having slept in a bed of ice.

They have been known to rise from the earth when the water was standing over them and come up through the water. When snow was upon the ground immediately around the tree, they have been known to rise from that part of the ground where there was no snow and cross over the snow to ascend the trees. The greatest natural and most destructive enemy of this insect is the *Amphelis Garrulus* of Linnæus, called, by Mr. Calesby, the chatterer of Carolina, and, in Dr. Belnap's History of New Hampshire, *cherry bird*. This bird destroys great numbers of them while in the larva state. Another check is a disease which may be called *deliquium* and is probably occasioned by a fermentation of their food. In this disease the whole in-

ternal structure is dissolved into a liquid, and nothing is entire but the exterior cuticle, which breaks on being touched.

The canker-worm is spoken of in the Bible among the judgments which were to be sent upon the children of Israel, and is said to have been observed first in the Southern States, where it is probably a native. It is certain that it must have spread by some means independent of itself, as the female, being destitute of wings, is forbidden to range. It may have been brought to New England by bringing trees from the Southern States upon which the eggs were deposited, or brought, in the larva state, into all populous parts of the United States, by falling from trees upon carriages and travellers passing under them. This conjecture is rendered probable, by its being in all places which have intercourse with such parts as are infested with it, and by its being unknown to new settlements.

There is a tradition among some of the oldest inhabitants of New England, that the forest-trees were destroyed very generally by this worm at one time; the precise period when this occurred I have not been able to ascertain. The night of the 17th of May, 1794, was so cold as to produce ice one third of an inch thick; at that time a great part of the canker-worms were hatched; to these the frost was so fatal that very few were seen. A person who paid very diligent attention saw but one male the next year. I am firm in the belief that frost would not kill them at any time except when in the larva or caterpillar state.

Having given the best description of the canker-worm that the above limits would allow, I will now proceed to describe some of the remedies or preventives. It will appear, by reflecting upon the peculiar construction and habits, that the females, being destitute of wings, and under the necessity of ascending the trunks of the trees, any apparatus that would prevent them from ascending, in case they laid their

eggs below, would prevent the young worms from ascending. It is also obvious that this apparatus must be of a durable character, so as to be a preventive seven months in a year, as will be seen by the foregoing description, that the grubs begin to ascend in September, and continue until the May following. The remedy that I shall first notice is tarring the trunks of the trees. This undoubtedly would be effectual, if the tree could be always kept in a proper state; but this is extremely difficult, if it is possible: a large portion of the time the tar would want renewing every day, if not twice a day. Sometimes oil or water is mixed with the tar, that it may remain soft longer. One gentleman of ample experience informed me that he lost a crop of apples by mixing oil with the tar. It appeared to render it so smooth that it did not adhere to the feet of the insects. When tar is used, and the insects are numerous, the dead bodies of those that are caught pave a path for their successors to pass; and if a tree is tarred, and it rains upon it a few minutes, the water will glaze the tar, so that the insects pass over with impunity. And they are more likely to ascend when it rains than at other times, as the water softens the ground and facilitates their escape. If but a few of the grubs ascend the tree, the worms from their eggs would be liable to destroy the trees. If tar is used, it is very injurious to the trees, if applied to the bark, as it destroys the outside bark. Those who use tar and do not wish to injure their trees, put a bandage of paper or canvass around the tree, and apply the tar upon that. Some are of the opinion that if the tar was applied directly upon the bark, that it would, in time, kill the tree. Very few persons who use tar have been able to save their fruit for the first year; but they generally calculate, if they apply it closely, to destroy most of the insects in two or three years. Heaping a little sand around the trunks of the trees, so that the insects, in crawling, loosen the sand with their feet,

and it rolls down, carrying them down with it, is practised. When the sand is moistened with rain or dew, it will not roll down; hence this remedy is almost or quite useless. If the sand keeps them down, they might lay their eggs below, and the young worms would ascend over the sand, wet or dry.

Heaping sheaves of flax around the tree, which is sometimes done, is liable to the same objections as sand; and one other is, that there is so little raised that it would be hardly possible to procure sheaves.

Putting circular tin troughs around the trees, and filling them with a decoction of tobacco, was tried by George Irish, of Middletown, R. I. and found to be very expensive, as the liquor evaporated, and required to be filled very often; and, when it rained, the water collected in them, and, freezing, burst them, leaving them very leaky; and, as the trees grew, they burst them, and rendered them quite useless, and they were abandoned in one or two years.

Putting a square tin trough around the trees, with a roof over it, the trough to have a little cheap oil in it, was found to answer better than any of the foregoing remedies; but it is very expensive, and requires much care, as it is necessary to make a platform of boards to support the trough, and prevent the insects from ascending between the trough and the tree. As the tree grows, it separates the platform, and the trough is required to be made larger. In making the trough larger, it is necessary to unsolder, or cut it open, and put four pieces into the trough and four into the roof; and the tin, by being continually exposed to the weather, soon rusts through and becomes worthless.

I have noticed in some parts of the country a piece of tin put around the trees, in the form of an inverted tunnel. This apparatus must have been contrived by some person who was ignorant of the entomology of the canker-worm, as it has been ascertained by experiment that the grub, when put in a glass tumbler, will

ascend the side, and, during her ascent, if the tumbler is turned down and rolled over, she will adhere to the glass, and walk about upon any part of it without any apparent regard to the rolling of the glass, and appears to walk as well upon the under side of the glass as upon the top. Hence all who have used these inverted tunnels have found them useless, or will, if they continue to use them.

A circular leaden trough and roof was invented by Jonathan Dennis, Jr. of Portsmouth, R. I. in 1836, and has since been patented. This trough and the roof is made of one strip of sheet lead, about three inches wide, but in the form of the top of the figure 2 inverted, with the foot cut off; thus forming a roof and trough of one strip, and then bending it around the tree so as to conform to the shape of the tree. It is made so large as to leave a space of one inch in width between the trough and the tree. The ends are then soldered together, thus forming a trough completely around the tree, with a roof over it. Three or more nails are tacked into the tree to support it, and the space between the trough and the tree is filled with sea-weed, hay, straw, husks, tow, cotton waste, or any other substance that will prevent the insects from ascending between the trough and the tree, and is easily compressed by the growth of the tree. These troughs were put on to three orchards belonging to Jonathan Dennis, of Portsmouth, R. I. father of the inventor, in the autumn of 1837, and it has proved to be the cheapest and most effectual remedy ever discovered. The three orchards contained one hundred and fifteen trees, varying in size from three inches to upwards of two feet in diameter. The expense was about thirty-five or forty cents per tree. Five gallons of cheap fish oil, that cost forty cents per gallon, was found to answer for the one hundred and fifteen trees for one year. A very little oil was put into the troughs the last of September. After it had remained several

weeks it was stirred, and in a few weeks afterwards a little more oil was added; and from the time the oil was first put in until the first of May following, there was a little oil put in twice, and the oil also received two or three stirrings. Putting the oil in three times and stirring it, giving the trees all the attention necessary, was less labor and occupied less time than it would have taken to tar the trees for one week. This apparatus destroyed the insects so completely (which for a number of years previous had been so numerous as to destroy the fruit) that it was difficult to find one upon the trees, and the crop of apples was so large as to render it necessary to prop the trees. This apparatus has many properties to recommend it. It is more effectual, more durable, and cheaper than tin troughs; it also takes less oil to fill a circular trough than it does a square one, for a tree of the same size. The packing is more easily put in, as the space is of a uniform width around the tree. It is also less liable to get out; and if the top of the packing was daubed with a little tar, it would stick it together, taking care not to put any of the tar upon the tree or the trough, but only upon the packing. This trough will last many years without being made larger; and, when the tree has grown so as to fill the space that was left between the trough and the tree, the trough can be cut open, and a piece soldered in, so as to make it large enough for several years more. And if the troughs are ever taken off, the lead will be worth two thirds as much as it was when it was put on. But I should not consider it safe to take it off while there were any canker-worms in the neighborhood, for they have been in some neighborhoods for the last fifty years without intermission, according to the accounts of the inhabitants. Being in conversation with an oil merchant, I inquired what kind of oil would remain longest exposed to the air without drying upon the surface: he replied, that cod-fish oil would never dry perceptibly, and for that reason was never used for

painting; and of course would be the best to put in the above-mentioned troughs for the destruction of canker-worms. — A LOVER OF GOOD FRUIT.

ON SAVING SEEDS.

WE lose immensely by not taking care, in season, to save the best seeds for spring sowing. In the multitude of our cares we forget, and need often to be reminded of the proper times and modes of preserving what we have grown in our gardens and in our fields. We need a faithful sentinel whose business it shall be, like the preacher's, to remind us often of our duty; and, if he tells nothing new, if he shows us nothing which we have not seen before, he may still be more useful than one who is always leading us into new schemes, and urging us to adopt his theories which he has reduced to practice.

In general, peas, beans, and all other vegetables that grow in pods, should be preserved for seed in those pods until the time for sowing. Melons of all kinds, pumpkins, squashes, cucumbers, &c. should have their seeds taken from the shell and washed; then they should be laid up in a dry place secure from mice, &c.

SEED WHEAT. If we could ever spare the time — and who cannot? — we might easily select the very best of seed from our own fields.

Experiments are not wanting to show that, in most fields of wheat, there is a vast difference between the productiveness and the qualities of the different heads. Some will ripen much earlier than others, and these should therefore never be sown in the same field; for it is an important point to harvest the grain as soon as it is ripe.

It is also ascertained that the straw of certain kinds of wheat is much heavier than that of other kinds;

that the straw of some will weigh less than the grain which it produces, while the straw of other kinds will weigh twice as much as the grain.

Very little attention has yet been bestowed, in New England, on this subject. We sow in haste, and we reap in haste, without spending time to examine the different varieties in the same field; and no doubt a dozen different kinds of wheat and of rye are often sown together.

In regard to potatoes, we have generally been so careless that we are obliged very often to procure new seed from those who have been more careful. It is notorious that most people use only the refuse potatoes for the seed of a new crop! Can it, then, be matter of surprise that our potatoes run out? If we should always save our poorest calves and pigs for breeders, we should be obliged to send to Europe for cows as often as we do to our neighbors for new kinds of potatoes.

In regard to Indian corn we have been more cautious. This has ever been a favorite grain in this country, and more care has been taken to save good seed. The consequence is, we have now the very finest varieties of corn; and we need only to be more careful to select those grains for seed which are soonest ripe in the field.

But who goes into his wheat and his rye fields, his barley, his oat, or his buckwheat field, and selects the best heads in order to secure a prolific or an early variety? We hardly hear of such an instance; but all this must be done before we arrive at perfection in farming,

MAKING BUTTER.

MANY rules for making butter have been given to the public, and some of them are good, if we could

persuade dairy-women to follow them. It is quite an object to make butter of the first quality, if we make any, since the purchasers have begun to bid up handsomely for the best ; and the difference in the labor of making the best and the poorest is so trifling that none should think of making any of inferior quality.

It should be remembered by all who make butter for sale, that, for several years past, the best made, the premium butter, has brought at auction more than forty cents a pound, some of it forty-five, while ordinary butter has not, in firkin, commanded half that price. To lose one half of the proceeds of the dairy merely for want of skill and care is rather more than we can well afford to do, and it is time to resolve not to submit to this loss when we can avoid it.

Much of the butter that is made for sale in summer is sent off to market immediately, and before the rancid matter, shut up in the lumps, has begun to ferment and send forth its effluvia ; and, as most fresh-made butter will, for a few days, taste sweet, the purchaser makes but little difference in price ; and this is the principal cause why so great a proportion of our butter is carelessly made. It is hurried off to market, and is not suffered to rest long enough to rot on our hands. The old tune of "Robin's alive" is sung ; "If it dies in my hands you may saddle-back me."

To make butter that may be kept sweet through the winter, we need not say the pails and the pans must be perfectly clean. If cream is to be kept more than three days before churning, it must be salted and daily stirred. When the butter is formed and gathered, the buttermilk should be all turned from the butter, and a good quantity of pure cold water should be put in the churn, and the whole should be agitated for some minutes, that no buttermilk may lodge in the cavities of the butter.

We are well aware that some have *fancied* "we wash away the goodness" when we churn the butter

in water ; but we are happy to see better notions latterly prevailing, and that the celebrated highland Scotch butter is made as our own experience has proved to be best. There is no mistake about it. The buttermilk left in the butter is the principal cause of its rancid taste when long kept.

The butter must now be taken out with a small wooden shovel — maple wood is good — and the dairy-woman's hand, clean or unclean, must not touch the butter, for it must not be melted. This shovel should be used to work over the butter and let out the water contained in it; and the next day it must be shoveled over again and worked as well as a neat mason works his mortar, not touching his hand to it.

SALTING DOWN BUTTER. On the first working, some salt should be intermixed, and one ounce of salt to sixteen of butter is commonly sufficient ; but, as much of this salt will be washed away on the second working, it will be necessary to add more, as taste may require. And now, on the second working, a little *salt-petre* and a little pulverized *loaf sugar* must be well mixed with the salt last added. We have found one teaspoonful of saltpetre and two of sugar quite sufficient for twelve pounds of butter. It must be thoroughly mixed, so that every part of the butter may have a share.

This should be packed in hard-wood firkins, as close as possible, to exclude the air. No brine need be poured on, for the salt will form a sufficiency with the moisture of the butter ; and, when a new layer is to be added, this brine must be poured off to let the two churnings come close together.

We have often had butter put up in this manner in September and in October, that proved perfectly sweet in the following June. People who ate of it could hardly be made to believe it had been made eight or nine months.

This delicious article, this indispensable in cook-

ery, is more often spoiled for want of care than any thing that is brought to market. When pure, it is one of the most wholesome articles of diet, and no pains should be spared to preserve it in perfection.

POTATOES.

WE have lately given some hints of the fallacy of testing the prolific qualities of potatoes and other plants by the weight or the number of seeds planted. A potato may be so subdivided as to produce an hundred fold, when, in the usual mode of planting, it may not yield ten fold. We again invite attention to this subject in noticing an experiment made by the editor of the Zanesville Gazette, — a very valuable and interesting paper, published in Ohio.

It seems that, in a very accurate experiment made by him, one pound of the long reds — the La Plata potato — produced nine pounds more than the Rohan potato under the same cultivation; one producing thirty-two pounds and a half, and the other forty pounds and a half.

The long red is a great favorite of ours, but we think, *in our soil*, the Rohan will produce most; but we are open to conviction, and hope some of our readers have made accurate observations on the comparative merits of the two. We have never used any richer potatoes than the long johns when they have had time to ripen.

We publish the editor's observations at length.

NEW THINGS — ROHAN POTATOES *vs.* LONG REDS. We have a desire for improvement sufficiently strong to prompt us to make trial of all articles which are supposed to be extraordinarily valuable, when we can do so without incurring an unwarrantable expense.

In vegetables, experiments may generally be made on a small scale, which, if properly conducted, would be as fair tests, and lead to as correct conclusions, as though acres of land and hundreds of dollars had been put at risk. Some people never experiment at all. They fancy or "*guess*" that some things are better than others, and thereupon they adopt them, and continue forever to use them, without ever knowing whether the articles are comparatively profitable or not. A man takes it into his head that some substance — lime, ashes, bone dust, plaster of Paris, or something else — is a valuable manure, and he goes on to use it, but in such a manner that he cannot tell what its effects are. He uses the same substance for the whole field, and he cannot tell how much of the crop is to be credited to the manure; and, of course, he does not know how much the manure is worth. If he had used some other kind of manure on a part of the field, and had left a part without any manure, the soil being of a similar quality, he could easily have told, by calculating the proportional yield of each part, which was the best manure, and what each was really worth. An experiment of this kind would have been attended with little expense, and the results would have been a good guide for the future. We once knew a man who was in the habit of using considerable lime on his land every year, as he thought to profit; till, by making an experiment, he ascertained that the increase of his crops had been attributed to a wrong cause. Many people, when they see a large animal or a large vegetable, are led at once to consider that the race or variety to which it belongs is uncommonly valuable, without stopping to inquire how much ground it occupied, or how much labor and expense attended its production. Now, in all these things, PROFIT should be the criterion. The value of animals should be reckoned by the amount of meat, &c. afforded in proportion to the food consumed; and the value of vegetables by the sustenance

they afford in proportion to the ground they occupy and the expense attending their cultivation. To this test we intend to bring all varieties of animals and vegetables, before we can feel fully justified in making up a positive judgment upon them.

By referring to our memorandum-book, we find that, on the 26th day of April last, we planted one Rohan potato, weighing one pound, cut into thirteen pieces, each piece containing one or more eyes, and making one hill to each piece. We also planted, at the same time, the same weight (one pound) of the kind of potatoes commonly known as *long reds* or *La Plata reds*, they having been originally brought from the river La Plata, South America. These were cut into precisely the same number of pieces as the Rohan, and made just the same number of hills. As the experiment may, just at this time, be regarded as rather an important one, perhaps the details may not be uninteresting.

The soil is a deep alluvian, with rather too large a proportion of clay in its composition. It had lain for several years in grass, till last year it was broken up with a view of raising a crop of turnips; but the severity of the drought destroyed them. The past spring it was well manured with long stable manure, spread evenly over the surface and ploughed in.

It was then furrowed about four feet apart, and the potatoes planted in hills. In one of these furrows we planted the potatoes above mentioned. There was no perceptible variation in the quality of the soil, and we observed the utmost exactness in planting by taking a stick of a convenient length and marking off the hills precisely two feet apart. In cultivation, they received the same attention as the rest of the lot. They were worked once with the cultivator, the weeds in the row were cut out with a hoe, and, the ground being rather heavy, it was all worked over once afterwards with the spade.

On the last day of September the crop was harvested.

The vines of all the kinds were dead. The result, so far as the experiment was concerned, is as follows:— One pound of Rohan seed produced thirty-two and one third pounds; one pound seed of long reds produced forty-one and a half pounds: difference in favor of the long reds, nine pounds.

We chose the long reds to set against the Rohans, in this experiment, because we deem them far the most productive kind we have ever been acquainted with, and we thought, if the Rohans could beat *them*, there could be no doubt that they would beat all.

Now we do not say that this experiment is wholly conclusive. "One swallow does not make summer," is the old saying. But, so far as one experiment can be taken as establishing any thing, we think it unobjectionable; and, if a few other experiments should show similar results, we should consider the case settled. We should be glad to hear from others on the subject.

LABORS OF NOVEMBER.

WE must recollect that it is dangerous to suffer roots to lie in the ground, in this latitude, after the 15th of this month. We will warrant them up to that time. Turnips that are to be given to stock may have their tops cut off and fed out before they are dug from the ground; but those intended for seed should not be topped until they are dug up, and then the tops must not be cut too close to the turnip. They may be left half an inch in length.

Potatoes often project out of the ground, and the exposed part suffers in a hard frost. It is time these roots were in the cellar.

Corn is sometimes piled into the barn to lie until a leisure hour is found to husk it out. If it has been

brought in early, it will gather heat in the heap; if late, the husks have suffered. It is better to husk it out as fast as it is carted up. The husks will come off easier, and the corn will dry better.

The compost that has been carried on to grass-land may better be spread this autumn than suffered to lie in heaps until spring. The frost remains so long in the heaps that they cannot be spread before the first of May, and then we have no time.

IRRIGATION OF GRASS-LANDS. This was more extensively practised in years gone by than at present. We find it attended with much labor; the trenches must be watched and kept nearly on a level, or the water will not spread over the land. Another objection, of more weight, lies in the poor quality of the grass thus forced into existence. If manure has been spread over the surface, and the water has been made to flow freely among it, the grass will not be eaten by cattle.

We have seen hay, grown in this way, that was worth but little. We have seen it look bright and inviting, having the form and the appearance of the best of hay, but not worth half the price.

In our low lands, and our peat-swamps, that we have been bringing into English grass, we flush no water over the surface. We choose to let it take the rains and the dews of heaven in addition to the moisture that naturally rises from these low lands, and we obtain hay but very little inferior in quality to that which is raised on lands that have been in tillage.

There may be cases where it is advisable to irrigate the surface of grass-lands, but, when this is practised, care should always be taken that the water be not suffered to flow too late in the season. The current should be diverted from the grass two or three weeks before mowing time, that its quality may be improved.

CATTLE, of all descriptions, will require a shelter before the close of the month. Old cattle require more

warmth than young ones; but none in this climate require to be shut up in a close building. It is as injurious to them as a close room to the human species, — as close covering of the head of infants. We are confident that all young cattle will winter better when sheltered by an open shed that keeps off rains and winds, than when shut up in a barn with tight-matched boards.

CALVES. It has long been a maxim, that calves should not be kept too close during the first winter. They must be kept on good hay: rowen is excellent for their young teeth, as yet unused to grind dry fodder; and this should be fed to them in the first of the winter, when they are likely to suffer most.

Turnips and potatoes are excellent for calves, and a very few of these roots will keep the animals growing through the winter. The best remedy we have ever tried for scours in calves is boiled skim-milk. These animals require something more than hay to carry them through the first winter. They should not be suffered to stop in their growth at this age. By a little attention in the first winter, they may be brought to give milk one whole year sooner than those that have been neglected. It is more an object to bring them to milk while young, than to make them of large size.

[From Chaptal's Chemistry.]

ON THE SUCCESSION OF CROPS.

A SOIL may be forced, by extreme care, enormous expense, and the use of manure without measure, to produce all sorts of crops; but it is not in such sort of proceedings that the science of agriculture consists. Agriculture ought not to be considered as an object of luxury; and, whenever the produce of agricultural

management does not amply repay the care and expense bestowed upon it, the system followed is bad.

A good agriculturist will, in the first place, make himself acquainted with the nature of his soil, in order to know the kind of plants to which it is best adapted: this knowledge may be easily acquired by an acquaintance with the species of the plants produced upon it spontaneously, or by experiments made upon the land, or upon analogous soil in the neighborhood.

But however well adapted the soil and climate may be to the cultivation of any particular kind of vegetable, the former soon ceases to be productive, if constantly appropriated to the culture of plants of the same or analogous species. In order that land may be cultivated successfully, various kinds of vegetables must be raised upon it in succession, and the rotation must be conducted with intelligence, that none unsuited either to the soil or climate may be introduced. It is the art of varying the crops upon the same soil, of causing different vegetables to succeed one another, and of understanding the effect of each upon the soil, that can alone establish that good order of succession which constitutes *cropping*.

A good system of cropping is, in my opinion, the best guarantee of success that the farmer can have: without this, all is vague, uncertain, and hazardous. In order to establish this good system of cropping, a degree of knowledge is necessary, which unhappily is wanting to the greater part of our practical farmers. I shall here state certain facts and principles, which may serve as guides in this important branch of agriculture.

More extensive information upon this subject may be found in the excellent works of Messrs. Yvart and Pictet.

PRINCIPLE 1. *All plants exhaust the soil.* Plants are supported by the earth, the juices with which this is impregnated forming their principal aliment. Water serves as the vehicle for conveying these juices into

the organs, or presenting them to the suckers of the roots by which they are absorbed ; thus the progress of vegetation tends constantly to impoverish the soil, and, if the nutritive juices in it be not renewed, it will at length become perfectly barren.

A soil well furnished with manure may support several successive crops, but each one will be inferior to the preceding, till the earth is completely exhausted.

PRINCIPLE 2. *All plants do not exhaust the soil equally.* Plants are nourished by air, water, and the juices contained in the soil ; but the different kinds of plants do not require the same kinds of nourishment in equal degrees. There are some that require to have their roots constantly in water ; others are best suited with dry soils ; and there are those, again, that prosper only in the best and most richly manured land.

The grains and the greater part of the grasses push up long stalks, in which the fibrous principle predominates : these are garnished at the base by leaves, the dry texture and small surface of which do not permit them to absorb much either of air or water : the principal nourishment is absorbed from the ground by their roots : their stalks furnish little or no food for animals ; so that these plants exhaust the soil without sensibly repairing the loss, either by their stalks, which are cut to be applied to a particular use, or by their roots, which are all that remain in the ground, and which are dried and exhausted in completing the process of fructification.

Those plants, on the contrary, that are provided with large, fleshy, porous, green leaves, imbibe from the atmosphere carbonic acid and water ; and receive from the earth the other substances by which they are nourished. If these are cut green, the loss of juices which the soil has sustained by their growth is less sensibly felt, as a part of it is compensated for by their roots. Nearly all the plants that are cultivated for fodder are of this kind.

There are some plants, which, though generally raised for the sake of their seed, exhaust the soil less than the grains: these are of the numerous family of leguminous plants, and which sustain a middle rank between the two of which I have just spoken. Their perpendicular roots divide the soil, and their large leaves, and thick, loose, porous stalks readily absorb air and water. These parts preserve for a long time the juices with which they are impregnated, and yield them to the soil, if the plant be buried in it before arriving at maturity: when this is done, the field is still capable of receiving and nourishing a good crop of corn. Beans produce this effect in a remarkable degree; peas to a less extent.

Generally speaking, those plants that are cut green, or whilst in flower, exhaust the soil but little: till this period they have derived their support almost exclusively from the air, earth, and water; their stalks and roots are charged with juices, and those parts that are left in the earth after mowing will restore to it all that had been received from it by the plant.

From the time when the seed begins to be formed, the whole system of nourishment is changed: the plant continues to receive nourishment, for the perfecting of its seed, from the atmosphere and the earth, and also yields to the grain all the juices it had secreted in its own stalks and roots: by this means the stalks and roots are dried and exhausted. When the fruits have arrived at maturity, the skeleton remains of the plant, if abandoned to the earth, restore to it only a small portion of what had been taken from it.

The oleaginous seeds exhaust the soil more than the farinaceous seeds; and the agriculturist cannot be at too much pains to free his grounds from weeds of that nature, which so readily impoverish them; especially from the wild mustard, *sinapis arvensis*, with which cultivated fields are so often covered.

PLASTER.

WE hope more experiments will be made in New England on the use of this article. We are well aware there are lands on which it seems to have no beneficial effect; but we have soils on which it has a wonderful operation; and, where we have such, this is the cheapest manure or stimulant that can be applied.

Last week we were informed, by a gentleman of South Andover, of an experiment made with it by Mr. Asa E. Abbott, of that place, on his corn-field. Mr. Abbott put plaster on the hills of many alternate rows of corn, leaving half of them without it. The plastered corn looked much best through the summer, and, on harvesting his corn, he weighed the ears of all the rows. The corn on the plastered rows weighed fifty-two pounds, while the corn on the rows not plastered weighed less than half that number of pounds.

Mr. Abbott's soil was not what would be called clayey. It was rather gravelly, — not a light soil, — it was not sandy. The plaster was put on greensward, ploughed in the spring.

A neighbor of Mr. Abbott tried an equally accurate experiment on old ground that had been planted the year before. He found, on weighing his corn, he had one third more where he had used plaster than where he had used none.

We are not certain that plaster operates more powerfully, in general, on greensward than elsewhere, though we know that wood-ashes are worth twice as much when so applied, they contributing to its decomposition. Still, plaster may sometimes do us more essential service on greensward. We will suppose a case where the land was poor, and now a good coat of manure is spread on equally over the field. Here, in a proper soil, plaster in the hill will prove very efficacious; for it gives the corn an early start to take advantage of

the manure. Now greensward land, where a good crop of grass has been ploughed in, is situated much like the last described: something is wanted in the hill to enable the corn to take advantage of the other matter.

There is another reason why plaster may sometimes operate better on greensward than on old ground. Greensward is more liable to suffer for the want of sufficient moisture; and one of the modes in which plaster operates is to draw moisture from the atmosphere.

Much depends on the right mode of using manures and plaster. If corn has been manured in the hill, and not otherwise, it might prove injurious to the crop to stimulate it too much in the fore part of the season, by any means whatever. It might be top-heavy; we might have more stalks than corn. The same may be said of potatoes.

COARSE MEADOW-GRASS.

THOUGH there is plenty of grass this season, none should be lost. We notice that some farmers neglect to cut their coarsest meadows when they think they have a supply of better hay for their stock. This is waste. It is much easier to make manure than to purchase it; and all the coarse grass, whether in the fields or in the pastures, should be gathered and put into the barns or into stacks. It sometimes happens we are short of hay in the spring, and we are never more likely to be so than when we were confident of a good supply in the fall.

This coarse hay will often serve a good turn in the spring when cattle are short of grass; but, in any event, it is exceedingly valuable as litter for horses and for neat stock. It multiplies manure while it makes a comfortable bed for them, and none of it should be suffered to wither away in the field.

TRANSPLANTING.

WE see that some are recommending the practice of transplanting trees in autumn, but we think this is not the best season. If the intent is to set out trees, as most people do, to be trimmed by horned cattle, and to be hoed by the hogs, it is not of so much consequence at what season the operation is performed.

But if it is desired to have a thrifty orchard, that will be productive in this present century, that will continue growing, notwithstanding the removal of the roots to a distant field, it is of some consequence to choose the best season of the year for the removal.

Trees that are of the right age, and that are properly set, require no staking: they do better to depend on their own strength than to be tied up. But they should always be supported with litter, or straw, or poor hay, placed about the roots; and if the land is not rich, some coarse manure should be placed on the surface about the tree. But if trees are transplanted in autumn, it is dangerous to place any material of this kind in that place for fear of the mice.

We cannot see any propriety in exposing young trees in new fresh earth, to stand and be racked six months before there is any possibility of their taking root.

The best mode that we have tried is to take up our trees early in spring, and bury their roots in a cool place until the ground has become warm and mellow, so that it may be placed nicely about the roots. This need not be done before the first of May. If the trees are then carefully set, they will begin to grow immediately, and will often extend their limbs one foot during the first season. They will bear in four or five years.

We intend, at the proper season, to be very minute in describing our mode of setting trees, and the reasons which influence us.

We have now nothing farther to say than to dissuade from the practice of fall-setting, feeling confident that much is gained by setting in the spring.

CORRESPONDENCE.

To the Editor of the Boston Cultivator :

DEAR SIR,—I noticed, in your Cultivator of last week, a communication stating the result of an experiment made by planting the Rohan and long red potatoes, by way of comparison, with which I was much interested. I, sir, have tried an experiment this season on potatoes, though mine was not a comparison between different kinds of potatoes and between different manners of seeding with the same kind. I have often heard it said that the eyes of potatoes might be cut out and planted, and the main body of the potatoes saved for consumption, and the crop be equally good. Feeling anxious to ascertain the truth on this subject, and likewise to know the relative value of small and large potatoes, whole and cut ones, &c. I resolved to satisfy myself by experiment. The spot I selected for the experiment was prepared and manured as nearly alike in every part as possible: the strip of ground was only wide enough for two rows: this strip I divided into six pieces containing four hills each, and each piece of four hills I seeded differently from every other; and, although it was quite late (the first of July) when I planted them, and my crop small, as I expected, yet I do not know why the comparison would not be just, the lateness of the season being as favorable for one plan of seeding as for another. Last week I dug my experiment field, as I called it. I dug each lot of four hills by itself, and weighed them myself, that I might feel satisfied that there was no mistake in weighing. For the sake of convenience, I shall give you the

weight of the six potato-fields, of four hills each, in proportions or parts as follows :

	PARTS.
Lot 1st, four hills, one large potato, cut in two pieces, in each hill, produced	13
Lot 2d, four hills, one large whole potato in each hill,	15
Lot 3d, four hills, the eyes of one large potato in each hill,	3
Lot 4th, four hills, four small potatoes (which together would weigh about half as much as one of the large potatoes) in each hill,	10
Lot 5th, four hills, two potatoes, about as heavy as one of the large ones, and cut in two pieces each, in each hill,	11
Lot 6th, four hills, one large potato, cut into eight pieces, in each hill,	9

The potatoes above called large were all about the same size. From this experiment I have satisfied myself, at least, on these points: one is, if we wish to study economy, it would be better to eat less, and plant less, and let the potatoes have their eyes; the next is, we cannot plant too large seed; and the third is, we cannot cut potatoes too little. I have tried this experiment for my own benefit, but, sir, if you think it would be any benefit to the public, you are at liberty to publish it. I intend to try the same experiment again next year, and plant early.

Yours affectionately, MARSHALL S. RICE.
Newton Centre, Oct. 29th, 1839.

We are much gratified with the receipt of the above from M. S. Rice, Esq. If gentlemen would try more experiments on a small scale, in all branches of husbandry, they would confer lasting benefits on the community. We want authenticated facts; we should not be satisfied with guessing what modes are best.

For ourselves, we have always succeeded better when we planted without cutting our potatoes than when we cut them. We have known good crops raised, in some seasons, when the eyes only were planted; in other seasons not half a crop would be realized. We know not yet the reason of this difference. Will some one tell us? — ED.

[From the Cheshire Farmer.]

THE BROWN CORN.

IT will be recollected that we previously have given some account of a kind of corn denominated the "Brown corn." We procured, last spring, one and a half bushel of this corn of Mr. Brown, and planted one acre with it, and sold the rest. Our acre did very well, producing, as was judged by many farmers who saw it, not far from forty bushels. As we picked a part of it for seed, and fed out some without measuring, we are not able to give the exact amount, though it would not vary much from forty bushels. It is a large eight-rowed corn, and very early: a specimen of it may be seen at this office. We exhibited some of it at the last meeting of the society in this county, and find it took very well with the farmers in this section. We have already had orders for some ten bushels of it for seed.

Concluding that what we raised would go but little way in supplying the demand, and desiring not again to be *treed* with corn, we proceeded personally to the farm of Mr. Brown, a distance of ninety-five miles, examined his field, and purchased so much of his corn as he would spare, suitable for seed, which in due time we shall have on hand for the accommodation of farmers in this section.

A few days since we received the following letter from Mr. Brown, which we take the liberty to publish:

Moultonborough, (L. I.) Oct. 16, 1839.

B. Cooke, Esq.: Dear Sir, — I harvested my corn last week, and have a fine lot of seed traced in fine order. On account of tracing so much, I could not measure it in the usual way, but had it weighed by the man appointed to measure crops for premiums.

The whole crop on the acre, in ears, weighed eight thousand and fifty-one pounds. We shelled both of the traced and the untraced, to get the amount in bushels: of that which was traced, seventy pounds made a bushel; of that which was not traced, sixty-eight and three fourths pounds made a bushel: whole amount, one hundred and sixteen bushels. We first went over the piece and selected all that was suitable for seed, which was over one half in weight.

Mr. Lamprey measured his the usual way, by measuring all in a basket and shelling one basketful, and had one hundred and thirty-one bushels, for which he obtained the first premium. Mr. Pilsbury, on Cow Island, measured his in the same way, and had one hundred and thirty, and took the second premium, there being but two premiums offered by the society. But the committee on crops, considering the exact manner in which I obtained the measurement, and superior quality of the specimen which I presented, recommended in their report to award me a premium, which was accepted, and I obtained a premium for the *excellence* of my corn. It seemed to be the opinion of many before harvest, that I should have most on an acre; but the season being more suitable for their ground, it being dryer than mine, partly accounts for the result, and the manner they measured, which cannot be so exact as that of weighing, will also partly account for it. By ploughing in the manure very deep, I did not probably get so much of the strength of it as if the season had been dryer; but I would not discourage the practice of deep ploughing, and well mixing the manure with the soil. I still think it the best way: if in some seasons we do not get so much of its strength, we retain the manure and enrich the soil.

I am yours with respect,

JOHN BROWN, 2d.

FRUIT-TREES.

To the Editor of the Boston Cultivator :

THE growing of good fruit has been much neglected heretofore, and does not as yet receive half the attention its importance demands. Many people are discouraged from planting an orchard, because several years must elapse before it comes into bearing, making the remark we so often hear, "I shall never live to eat the fruits of it ;" but how many men are there, with a prospect of living many years, who regret that they had not planted an orchard which might now have been a source of pleasure as well as profit to them. There are many young and thrifty orchards in the country, and not a grafted tree among them ; and yet grafting and inoculating are operations so simple that they may be performed by almost any one, by giving the subject a little attention. If these trees were grafted with good varieties of winter fruit, they would in a few years afford quite an income, with a comparatively small investment : winter apples will always pay the expense of gathering, be they ever so plenty, while the making of cider is often attended with loss, to say nothing of the cold, disagreeable work. There is considerable attention paid to quinces at the present day, and a plantation of them in a bearing state is a very profitable concern. One hundred quince-trees, full grown, in a bearing year, will afford as much income as a small farm : they are very easily raised, as they grow from cuttings, and send up many suckers from the roots, which may be taken up and planted out. Forsyth says it improves the fruit both in quantity and quality to graft the trees. The smaller fruits, such as currants and gooseberries, may be cultivated with little trouble : and one who has a garden, may have a good row of currant-bushes : they grow readily from cuttings : they do best in a shaded situation, or by a south fence ;

and, by keeping them free from grass, and well pruned, they will bear profusely. Currants are a very grateful as well as wholesome fruit. There are many other kinds of fruit which might be cultivated with profit, as well as to gratify the palate: they may be grown according to the different tastes of individuals, and though in some instances the returns should not pay the expense, yet the pleasure enjoyed in nurturing them, watching their growth, and finally tasting the fruit, will make ample amends for the small pecuniary loss.

O. V. H.

November, 1839.

The above communication is from an unknown hand. We presume it is for publication, and therefore give it a place.

The importance of rearing good fruits is not generally estimated. We have infinitely the advantage of the English in this business; and, if we please, we can easily supply that market.

A gentleman from Medford, the other day, observed to us that a new era was dawning on commerce. That, by means of the rapid communication by steamboats, we could soon send to Europe articles that we should not trust on a long voyage.

He observed that nothing was more acceptable to a friend in England than a present of our native fruits. But for home consumption they are valuable, and should by all means be made plenty. People who are fond of fine fruits are not generally addicted to ardent spirits; and a taste for fine fruits may be *acquired* quite as easily as a taste for gin. A large portion of our community are *preaching* strenuously against the use of rum, and horrid stories are daily told to terrify us out of our vicious taste. These have become very old stories now, and are scarcely worth telling again. Would not these preachers do better to shift their course a little, and try to persuade a vicious world to

adopt *substitutes* for these poisonous drugs? If "moral suasion" is not quite tart enough for their tastes, we invite them to try apple-suasion, pear-suasion, grape-suasion, and peach-suasion. This would give a little variety, at least, to the sermons, and serve to keep us awake.

It will be found quite difficult to force people to give up all their luxuries at once, and we may find it more feasible to divert the taste to some luxuries of an innocent nature, than to wholly forbid the use of them.

We know there is a small party that travels on the high pressure principle; and they forbid the use of tea and coffee; but with all our tendencies towards temperance, we think it impolitic to dispense with these.

Let us diligently cultivate the best fruits our climate will produce, and we may, in time, forget entirely the use of ardent spirit. — ED.

VEGETATIVE POWER OF SEA-SAND.

A FEW days since, a quantity of sea-sand was carried out of Morecambe bay, about a mile from the Furness shore. It had been, less than an hour previously, covered a considerable depth by the tide, and contained several cockles and other shell-fish. It was immediately placed in pits, or beds, fifteen inches deep, and sown, without manure or admixture of any kind, just in the state it was when taken from the bay, with wheat, barley, peas, mustard, cress, and radish-seed. In five days, the mustard, cress, and radish-seed had sprouted, and begun to vegetate, having thrown out a considerable length of root, while (what is most extraordinary) the shell-fish were even then alive! Thus have we wheat, barley, peas, mustard, cress, and radishes, all growing, and cockles and other shell-fish in a living state, in one and the same bed of

sea-sand ! Should any one be at all incredulous as to the truth of this statement, he can easily try the experiment himself: an ordinary flower-pot, filled with sea-sand, sown with almost any kind of seeds, would at once put the matter to the test. Common hay-seed sown in October last, in beds of sand similar to the above, and treated exactly in the same way, have now grown to the extraordinary height of three feet six inches and a half. Some wheat sown about Christmas last, (now in ear,) three feet three inches ; barley, do. three inches ; peas sown about April last, (pods completely formed,) three feet three inches. The farmers all around the bay of Morecambe, in forming compost for their wheat and barley crops, use of sea-sand about twenty-six carts, (small one-horse carts,) lime about four carts, manure ten carts, per statute acre. Why use so great a quantity of sea-sand, if it does not possess very considerable vegetative power ? —
Eng. Paper.

 CORRESPONDENCE.

To the Editor of the Cultivator :

SIR, — I see you are recommending the culture of the native grape. I have some native vines in my garden ; but, latterly, they have not borne many grapes. I suspect I have not given them a sufficient trimming, and I hesitate as to the proper time of the year to cut off the superfluous branches. As you have experience in its cultivation, will you let me know, in your next paper, when is the best time to trim, or whether they should ever be trimmed, and oblige

Roxbury, Nov. 22d.

A SUBSCRIBER.

Grape-vines should never be trimmed in spring nor in summer. They bleed excessively when cut in those

seasons, and are no doubt injured in the operation. November is a good month for trimming them ; probably the best month of the twelve. At this season they will lose no sap, and the cuttings may be saved for propagation, either by covering them in the garden earth, or by placing them in a cellar. They will be more likely to vegetate in spring if buried in sand in the cellar.

We are not in favor of excessive trimming in any case : it is as pernicious as excessive legislation. If grape-vines are not placed too near each other, they will not require much trimming ; but they must have something to rest on, — a tree, a rail-fence, or a building. If they are suffered to lie without poling, without running up so as to have a free circulation of air through their leaves, they will not be likely to bear fruit.

We have seen them bear abundantly, year after year, without any attention, when they were allowed to spread out on a tree, or on a high fence ; but we think they are injurious to fruit-trees. And we have seen apple-trees that absolutely refused to bear other fruit while sustaining a load of grapes.

Trellises or supports should be prepared at this season, or at least the vine should be now prepared for another season, so that nothing need be done in spring save the tying of it to the support.

[Communicated for the Zanesville Gazette.]

AGRICULTURAL SOCIETY'S REPORT.

CROPS AND CULTIVATION. The committee on crops and cultivation respectfully present the following report. To them were referred these questions, viz : "What crops have been raised in this country ? with what success ? and what improvements might be ef-

fects in the mode of cultivation, or by the introduction of new kinds of crops?"

Your committee cannot but congratulate themselves upon the unanimity of their views with regard to the subjects presented to them. Coming from various sections, and hitherto strangers to each other, their experience and observation have led generally to the same conclusions. In a county presenting such a diversity of soil and situation as ours, no general remarks can apply with equal force in every case. Of the justness of our remarks, and their applicability to his own situation, each can best judge for himself. They are not made in a spirit of dictation: if useful to any, our end is gained.

The crops which have come under our notice, as having been cultivated in this county, are wheat, Indian corn, oats, rye, barley, buckwheat, clover, potatoes, turnips, flax, hemp, and, to a very small extent, ruta бага, sugar-beet, and mangel-wurtzel.

First in importance, both as to the extent of its cultivation, and the value of the product, is the *wheat crop*. To it our soil and climate appear to be well adapted. Though some districts yield a larger crop, we have never been visited by such serious failures as others have suffered. The average crop, however, falls far short of what we believe it ought; probably not exceeding fifteen bushels per acre. Late and careless sowing tends much to produce this result. The chief difficulties with which the wheat crop has to contend arise from the extreme variableness of our climate. Frequent thaws during winter are often suddenly succeeded by severe frost when the young wheat plants are unprotected by a covering of snow. They then not only suffer from the frost, but when, as is often the case, the earth becomes dry by long freezing, it is blown from about their roots, leaving them still more exposed. Again, in spring and summer, droughts are often succeeded by alternate rains and hot sun,

producing scab and rust, the latter especially often proving very destructive. Against most of these evils early sowing is perhaps the best preventive. Wheat sown in September would evidently be better fitted to withstand the rigors of winter; and experience shows that it is more likely to escape the dangers which threaten it in summer. Rarely suffering from rust, and having longer time to mature, the grain is generally increased in weight and improved in quality. Ploughing in the seed, or some other method which would insure a deeper covering of earth than it generally receives, would, by giving a greater depth of root, be a preservative against some of these evils, particularly the effects of winds and drought. Spring wheat has not yet been tried to an extent sufficient to test the propriety of its general instruction. A trial of it is, however, desirable. If found to be adapted to our climate; it would prove a valuable acquisition, especially when a sufficient quantity of the winter variety has not been sown.

For the profitable culture of *Indian corn*, the greater part of our soil is not well fitted. And though a most valuable crop, and, to a certain extent, indispensably necessary to every farmer, it is desirable, on account of its exhausting qualities, and the exposure of the soil to washing during its cultivation, to reduce the quantity grown as much as possible by the introduction of other crops to supply its place. And here we would recommend that, in the cultivation of this and similar crops, a level surface should be retained as far as practicable. This will not only lessen the danger of washing, but be conducive to the growth of the crop.

Oats thrive well with us, and are to be prized not only for their marketable value, but as furnishing an excellent food for work-horses, and thus superseding the necessity of an enlarged crop of *Indian corn*. It has also been found to be an excellent preparation for wheat in heavy soils.

Rye has proved rather an unprofitable crop in our

county. It is thought to be inferior in quality when grown here to that produced in some other districts. Requiring equal labor with wheat, and not yielding any more per acre, while its market value is less than one half, its cultivation has been in a great measure abandoned.

The culture of *barley* has also been an unsuccessful experiment; not yielding more than twenty bushels per acre, while its cultivation is very troublesome. With regard to profit, it may be ranked with rye, neither of them giving a sufficient remuneration for the disagreeableness of encountering their lengthy beards.

Clover, happily for us, grows luxuriantly in our soil. At once useful for pasture, hay, and the improvement of the soil, it is an invaluable crop, and should at once be introduced upon every farm. Those, however, who expect to produce a kind of magical effect upon their fields, by merely scattering a few seeds over them, will most surely be disappointed. A gallon of seed per acre is necessary to produce a good crop.

Buckwheat is grown in small quantities; and, as the crop is rather precarious and the demand for it limited, its cultivation cannot become much more extensive.

Of *flax*, which was at one time extensively cultivated for domestic purposes, but little is now grown.

Experiments on a small scale have been tried in the culture of *hemp*; but the amount and disagreeable nature of the labor required to fit it for market renders it rather an undesirable crop. Neither does much of our soil seem well suited for its growth.

Field *beans* have been raised to some extent for the southern market. The demand being small, large crops would be unsaleable. But as an article of home consumption, they are worth the attention of the farmer. Sown in drills, and cultivated like corn, they produce about twenty bushels per acre.

A cheaper and more abundant supply of food for stock than is afforded by exhausting farinaceous crops,

has become a desideratum with our farmers. In the Northeastern States, peas have been resorted to for this purpose. Within our knowledge but a single trial has been made of them in this county. Though this experiment was not conducted with sufficient accuracy to test the quantity they will produce per acre, it has shown that they will grow here luxuriantly. The gentleman who has grown them here gathers them with a horse-rake, without any previous cutting. He states that he has found them to fatten hogs faster than any other food he ever tried.

But "root culture" presents a prospect of the most abundant supply. Which is the best kind of root is a question yet to be decided. The potato, which some have recommended, however indispensable for the table, requires too much labor in its production, and is too uncertain to be depended on for stock feeding. The common turnip is still more uncertain.

The ruta бага, sugar-beet, and mangel-wurtzel seem to divide public favor, though the latter has the most advocates. Sufficient experiments have not yet been made in this county to test their relative or positive rate of production.

And further permit us to remark, that, however correct our theories, or whatever crops we cultivate, a neat and thorough manner of doing every thing is necessary to insure success. A scarcity of laborers and the abundant production of a vigorous soil have induced a careless and negligent habit of farming. A disposition to regard the extent of our fields more than the manner of their cultivation, has been but too prevalent. But a better spirit we believe is beginning to prevail. Farmers are becoming aware that the best cultivation is the most profitable; and we hope that the formation of this society will be an era from which we shall date the commencement of a rapid advance to excellence. All of which is respectfully submitted.

JOHN STILLWELL, *Chairman.*

[From the Genesee Farmer.]

AGE OF THE HORSE.

“P. L. P.” of Ludlowville, has, in a number of queries, called our attention to that valuable animal, the horse, and requested information on some subjects that cannot well be illustrated without the aid of the proper engravings, to which reference can be made. These it is our intention to procure; and, with their aid, we shall endeavor to give the readers of the Farmer some items of knowledge respecting this noble animal that will be practically useful. In the mean time, the following remarks on the structure of the teeth will show the foundation on which a knowledge of the age of the horse is obtained by attending to them.

Among dealers in horses, the front teeth, which are called *incisors* in other animals, are called *nippers*, as, from the motion of the horse in eating, it is evident the grass is rather broken off than cut by the teeth. These teeth, six in number, are covered with a very hard substance called enamel, the base of which is phosphate of lime, and is so compact as almost to bid defiance to the best files. This enamel constitutes the outside of the tooth, and as it rises above the surface is bent inward, and apparently sunk into the body of the tooth, forming an indentation or pit, occupying the centre of the tooth; and the inside and bottom of this being, during its existence, blackened by the food, constitutes the peculiar appearance or *mark* by which, until the tooth is much worn, the age of the horse can be determined. As the teeth, or nippers, are renewed at different times, the mark will be partially or entirely worn from some, while it will be entire on others: the difference in the wearing, until all are worn, is a criterion not liable to error. The hollow part never fills up, but remains there till the enamel is worn to the

same level, when the wear of the whole teeth is nearly uniform.

The horse's mouth is not perfect, that is, all the teeth, nippers, tusks, and grinders, have not made their appearance until he is about six years old. The wear is now operative on all, and the *mark* has disappeared from the central nippers. At seven years, the mark is worn out on the four central nippers, and is fast wearing from the outer ones. At eight years, the *marks* are all gone from the nippers of the under jaw, or the bottom ones; and there is nothing remaining on them which clearly indicates the age of the horse, or "which will justify the most experienced examiner in giving a positive opinion." Dealers, or horsemen, after the animal is eight years old, are accustomed to look at the nippers in the upper jaw, and some aid may be drawn from the appearances they present, as they do not at all times wear away with the regularity or the quickness of the lower nippers. Still the information they give after eight cannot be implicitly relied on; and it is a common saying among jockeys, that a horse is never more than nine. Up to eight years of age, "P. L. P." can determine the age of his horse; later than that, he must depend on his own or others' knowledge, or on tradition.

TINCTURE OF ROSES.

TAKE the leaves of the common rose, place them, without pressing them, in a bottle; pour good spirits of wine upon them, close the bottle, and let it stand until it is required for use. This tincture will keep for years, and yield a perfume little inferior to otto of rose: a few drops of it will suffice to impregnate the atmosphere of a room with a delicious odor. Common vinegar is greatly improved by a very small quantity being added to it.—*German paper.*

MAKING BACON.

BACON is an article of use in nearly every family in this country ; yet very little attention is paid to its preparation by most of our farmers. It is enough for them that the hams are taken out, salted at random, smoked in an imperfect manner, and this is then called bacon. The western part of Virginia is most famous for its fine bacon ; and those at the north who have in substance adopted the mode pursued there, find their bacon greatly improved.

Too heavy hogs are not so good for bacon as those that are smaller, if equally well fattened. One that will weigh two hundred is large enough, as the salt will strike through the pieces more equally, and the smoking be more perfect. It is essential, for the first rate bacon, that the pork should be corn-fed ; at least, if any thing is used to aid in fattening, it should be in the first part of the time, and corn be given for five or six weeks previous to slaughtering. The pork of corn-fed pigs will be hard and compact, and the kidney fat ; instead of being soft and unctuous, like lard, will be solid, like beef suet.

In the best establishment for making bacon, three pecks of salt and one pound of saltpetre are used for every thousand pounds of pork ; the salt to be measured, and the saltpetre reduced to powder, thoroughly incorporated or mixed with it. None but the best salt should be used in making bacon. At the south, that which is produced at the Kenhawa works, at the first crystallization, is preferred ; at the north, the coarse salt of the Onondaga works, or that produced by evaporation, is to be chosen as more pure than any other kind.

The prepared salt is to be thoroughly rubbed on the meat, and then liberally sprinkled over the outside. There is little danger of oversalting from quantity : it

is length of time that produces the result. The meat is to be laid, with the skin side down, in good casks; the hams and shoulders first, and then the smaller pieces. Salt must be sprinkled over the bottom of the cask before the meat is laid in. At the fourth or fifth day, the meat must be taken up and again thoroughly rubbed with the salt. At this period of the process, some use a teaspoonful of powdered red pepper to each piece, and the whole is replaced, after any bloody or impure brine that may have formed in the cask is removed. In about two weeks, the smaller pieces will be fully salted, and should be taken from the cask, and the remainder repacked; those that were at the top being now placed at the bottom, as pressure will prevent the passage of the brine through the meat, if the position of the pieces is not changed. The shoulders will be struck through in about three weeks, and the hams in four.

Smoking is the next important part of the business, and should be well done, or good bacon cannot be made. Smoke-houses are usually too small; the meat hangs too crowded, and too near the fire. The pieces should by no means touch the wall, or each other; but space for the free circulation of the smoke should in all cases be allowed. The time required for smoking is the same as that for salting, — four weeks for hams, three weeks for shoulders, and two weeks for the other pieces, or middlings. Damp weather is improper for smoking meat, as the bacon, from the dampness that is apt to settle on the meat, acquires a bitter flavor, in some respects like that given by pyroligneous acid. Sound maple chips, or blocks of hickory-wood, are chosen for smoking meat; though the celebrated Hamburg hams are smoked with oak-wood alone. The smoke-house should be at a moderate temperature, as that will greatly assist in preventing the appearance of dampness on the meat. Two fires a day, if properly made, will finish the smoking in the time specified

above. Some throw, occasionally, powdered red pepper on the fire, as it is said to prevent the attacks of insects on the bacon after smoking, and somewhat improves the flavor.

If the smoke-house can be kept perfectly secure against the entrance of insects, and is dark and cool, the bacon may be left in it till wanted for use; but there are few houses of this description, and, on the approach of warm weather, must be taken down and packed away secure till required for the table. Salt, clean hickory-ashes, or oats, will secure it from insects or dripping, if placed in a dry or cool position. It is sometimes kept by white-washing the surfaces, by dipping the hams in strong lye, which converts the surface into a kind of soap, and sometimes by sewing them up closely in cotton. Probably the best mode, however, in all respects, is to pack them down in powdered charcoal, which will not only effectually exclude all insects whatever, but, by keeping the meat dry, and correcting any tendency to unpleasant flavor, keep the meat in good order for any length of time. — *Genesee Farmer*.

[From the Pictou (N. S.) Farmer.]

BOTS.

THE committee will conclude their report with a few remarks on bots in horses, although, strictly speaking, without the limits of their subject.

The estrus communis, or horse-bee, as it is commonly called, is seen depositing its little yellow eggs on the legs of horses, during the summer and autumn: these are taken off by the horse, biting at flies, or scratching himself, and swallowed. In the stomach of the horse

they are hatched, and this is the place nature has assigned for their first transformation. They are now in the state of maggots; and, in the spring of the year, they are always found in great numbers adhering to the lower part of the stomach, and the adjoining intestine. After a time, they quit the body with the fæces, and soon again assume the form of the fly. One of the committee has investigated this subject with some pains, and, after having examined the stomach of several horses supposed to have died of bots, he has come to the conviction that these animals scarcely ever cause death in the horse. In animals that have been killed by violence they are found in equal numbers as in those supposed to have died of bots. In fact, he believes no horse's stomach, that has been exposed to the fly, will be without them in the spring season. He has almost uniformly found the stomach uninjured, though swarms of the animals were adhering; and it is impossible that they can prove fatal in any other way than by gnawing and inflaming the coats of this organ. The reason that death is so often ascribed to the presence and operations of these worms, is to be found in the general ignorance of the symptoms of other diseases: the horse dies, the stomach is opened, the bots are found, and, therefore, they are the cause of his death. As well might it be said that a bird, found sitting on a fallen tree, had been the cause of its overthrow. In ninety-nine cases out of a hundred, they will be found entirely innocent, and some other important organ will, if carefully examined, present appearances sufficient to account for the fatal event. If it be admitted that bots can cause the disorder, unfortunately we possess no means of ascertaining their presence, no symptom to be depended on, except the accidental one of their being voided; and we know of no remedies that can claim the least confidence to effect their dislodgement.

All kinds of burning and corrosive medicines have

been poured down the unfortunate animal's throat, with no other effect than that of increasing the original disease, or producing one where none previously existed, without disturbing the worms in the least. One of the committee has experimented on them after the death of the horse, by placing them in a cup with spirits of turpentine, strong lie, and various powerful medicines, without producing any effect for many hours. This being the case, it is impossible to apply any of them for a sufficient space of time to destroy the bots, leaving out of the question the injury done to the tender coats of the horse's stomach by substances so pernicious.

If there are grounds to suppose that worms are really the mischief, the most eligible course is to improve the horse's condition by change of diet, moderate exercise, and grooming, with occasional doses of some gentle alterative medicine.

All of which is respectfully submitted.

JAMES N. CRANE,
STEPHEN GOULD,
EDWARD L. BROWN.

Lower Horton, September 23, 1839.

[Extracts from a speech by David Paul Brown, Esq.]

FARMERS AND MECHANICS.

“WHY, gentlemen, who was it that shed the brightest lustre upon the vast science of astronomy? One David Rittenhouse, a native of Pennsylvania, who followed the plough. Who was it that tore the lightning from heaven, and the sceptre from tyrants? One Benjamin Franklin, a printer's boy, who protected himself from the inclemency of winter by exercise alone, and lived upon a single roll of bread a day.

Who was it, when the veteran armies of Great Britain faltered and fled in the Indian war, safely conducted the retreat, and secured the remnant of the army, though he had 'never set a squadron in the field, nor the division of a battle, knew more than a spinster?' One George Washington, a Virginia planter. Who was it that shed the brightest halo around the brightest reign that the world ever knew, — the reign of Elizabeth, the age of the Raleighs, the Bacons, Sidneys? Why, it was one Ben Johnson, a quondam apprentice to a bricklayer, and one Will Shakspeare, a peasant boy, shrewdly suspected of poaching upon his neighbor's deer. Or, passing from astronomy and poetry to law, who was it rose from a low beginning to be lord chief justice of England? One Charley Abbott, whose father was a barber. Who was it that rose to be lord high chancellor of England? One Jack Copley, whose father was an American painter. Who was it that became the brightest star in the judicial constellation of Great Britain? One Phil. Yorke, whose father no one knew. Or, passing to a still further illustration —

* * * *

“Although I do not mean to say that there never was a great man among the wealthy, curled darlings of the nation, yet I do mean to say, and history sustains the assertion, that luxury and affluence are calculated to enfeeble the mind, and that those, therefore, who are great in despite of them, would probably be much greater if removed from their influence. It is a well-known fact among gentlemen of the turf, that blooded horses, which for years have been permitted to browse and cater on broken, irregular, and mountainous pastures, have acquired a much greater muscular strength, in sportsman's phrase, better bottom, than those which are fed upon a level surface. The application of this, although a physical illustration, is not difficult. Men whose lives have been an uninterrupted course of difficulty, a perfect up-hill work, acquire in time a self-

dependence, and a self-sufficiency and promptitude in every emergency, which those who have been accustomed to stand for fame on their forefathers' feet, or to lean for all pleasure upon another's breast, never have known, and never can know."

[From the Farmers' Companion.]

IMPROVEMENT OF THE SOIL BY ANIMAL AND VEGETABLE MANURES.

THE great sources of fertility to the farm are the refuse of the crops which they bear, modified by the farm stock, and preserved and judiciously applied by the husbandman. There is not a vegetable matter grown upon the farm, be it considered ever so useless or noxious, but will, after it has served ordinary useful purposes, impart fertility to the soil, and contribute to the growth of a new generation of plants, if it is judiciously husbanded and applied. There is not an animal substance, be it solid, liquid, or gaseous, be it bone, horn, urine, hair, wool, or flesh, or the gases which are generated by the decomposition of these matters, but, with like care and skill, may be converted into new vegetable and afterwards into new animal matters. To economize and apply all these fertilizing materials is the province and the duty of the husbandman. To aid him in this useful labor, is the object of this essay. And, —

1. OF THE CATTLE-YARD. This should be located on the south side of and adjoining the barn. Sheds, substantial walls, or close board fences, should be erected at least on the east and west sides, to shelter the cattle from cold winds and storms; the size and the divisions to be adapted to the stock which it is intended to feed. Excavate the centre, or some other part of the yard, placing the earth removed upon the

borders, which may be ten to fourteen feet broad, or upon the lower sides, where there is a descent, so that the liquids will all run to the centre, and the borders, which should be left gently inclining, will remain dry and firm, for feeding the cattle upon. The centre may be from two to five feet lower than the borders. The labor may be done principally with the plough and scraper, and smoothed off with the scraper and hoe. We were employed two days and a half, with two hands and a team, in giving a cattle-yard the desired shape. When the soil of the yard is not sufficiently compact to hold water, or is not likely to become so by the tread of the cattle, or the puddling effects of the manure, the bottom should be bedded with six or eight inches of clay, well beat down, and well covered with gravel. This is seldom, however, necessary. Our yards are upon a sand loam; and yet the liquids never sink into the earth.

When the yard is prepared, the first thing done should be to overlay the whole bottom with six to twelve inches of peat-smamp earth, where it is at command; and, where it is not, with earth from ditches, the road-side, or other rich deposits. It is then fit for the reception of the cattle, and of straw, coarse hay, corn-stalks, and other litter of the farm; and, subsequently, as they may be gathered, the weeds, potato and pumpkin-vines, and other vegetable matters. These materials will absorb or take up the urine and other liquids, and, becoming incorporated with the dung, double or treble the ordinary quantity of manure. During the continuance of frost, the excavation gives no inconvenience; and, when the weather is soft, the borders afford space for feeding the cattle, and for a dry passage to the barn. In this way the urine is saved, and the waste incident to rains, &c. prevented. The barns and sheds which adjoin the yards should be provided with eve-gutters, which should discharge outside of the yard, so that the waters from the roofs may pass off.

As a further precaution against waste by rains, a cistern or tank may be sunk near the yard, into which an under drain may be made to conduct the liquids, when they are likely to accumulate to excess. These liquids may be pumped into casks upon carts, and employed to great advantage upon grass or arable crops. The Flemings call these liquids the *cooked* food of their crops.

To guard against the wasting influence of the sun in summer, a roughly constructed covering, supported by posts, may be erected over the central depot. This is seldom necessary under our mode of management, which requires a thorough cleaning of the yard every spring, for the corn, potato, and other root crops.

The cattle should be kept constantly yarded in winter, except when let out to water, not only because, if suffered to run at large, they poach and injure the fields and meadows, but because they waste their dung; and the yard should be frequently replenished with fresh litter. Upon this plan, from ten to twelve loads of manure may readily be obtained, every spring, from each animal wintered in the yard. If the manure from the horse-stables and from stalled neat cattle be added, the quantity will not only be proportionally increased, but the quality improved. Whenever the yard is thoroughly cleaned for spring crops, it ought to be again bedded with fresh earth, and well littered.

2. THE STABLES, whether occupied by horses or cattle, may be made to contribute much to the value of the yard dung, by their urine, which may be conducted into the yard by paved or other conduits, leading from the stables to the yard. In these, too, litter may be as profitably employed to increase the dung, and to promote the health and comfort of the animal, as in the yard or open sheds. The dung from the horse-stables, if suffered to lie in a mass, is apt to heat and become *fire-fanged*, as it is termed, which very much impairs its quality. Where there are cellars

under stables, the dung is thrown down into them, and is there protected from the wasting influence of the weather; but even here it is liable to suffer injury, unless hogs are permitted to root among it, or unless the cellar is frequently cleaned out. An approved practice is, to scatter the dung from the stables over the cattle-yard, which thus retards fermentation, prevents waste, and produces a homogeneous mass of excellent manure.

3. **THE HOG-PEN.** Hogs are excellent animals for manufacturing manure, if they are furnished with the raw material, as peat, earth, straw, weeds, &c. and a suitable place for conducting the process. The composts of their formation is among the cheapest and the best that are used upon the farm. The slops of the kitchen, the weeds of the garden, the refuse fruits of the orchard, and the offal of the farm, are readily converted, by these swinish laborers, into meat or manure. Hogs are profitable laborers, and should be employed to as great an extent upon the farm as the proprietor's circumstances will permit.

4. **THE SHEEP-FOLD** may be made an abundant source of fertility to the farm. Economy in its management consists in giving abundance of litter, repeated at short intervals, sufficient to absorb the urine, prevent wasting exhalations, and secure health to the flock, and in applying the dung in its recent or unfermented state.

CABBAGE-PLANTS.

WOOD-ASHES placed about cabbage-plants will much improve their condition. Frequent hoeing will serve to keep the ground moist, and will help their growth.

The driest ground in the garden is in the thickest growth of weeds. These suck up the moisture and give it the winds.

NEAT STOCK.

WM. GARBUTT, Esq. of Wheatland, N. Y. in a communication to the Genesee Farmer, dated 19th July, announces the arrival of a bull and two heifers, imported by Mr. Vernon, from the stock of Mr. Davy, one of the most celebrated breeders of the pure North Devons in Devonshire, England, and says:

“The animals are very beautiful and sufficiently large for profit, and a valuable acquisition to Western New York, for which we are indebted to Mr. Vernon. I consider the Devons better adapted to the wants and habits of the farmers in Western New York than any other of the improved stock, not excepting the improved short-horned Durhams. The want of size in the Devons is more the fault of the breeders than the breed, for animals soon adapt themselves to the quantity of food they have to live on. They are excellent feeders, and the beef is of the best quality, *being well mixed*. They are fair milkers, and yield a great proportion of butter and cheese to the quantity of milk: they are very active, tough, and hardy; excellent travellers, and first best for labor. But permit me here to add, that we farmers must learn to take better care of our animals before we can receive much benefit from improved stock. If we cannot supply them with a sufficiency of *nutritive* food, and shelter them from the inclemency of the weather, it is of very little consequence what the breed may be, they are all unprofitable. * * * The most efficient means of improving our domestic animals would be the introduction of agricultural exhibitions: by comparing each other's stock, we should become judges, see their defects, find the means of correcting them, and receive a powerful stimulant to improvement.”

A correspondent in the same journal from which the above extract is taken, in his second number of a series

of "Notices of Improved Farm Stock," in New York, thus speaks of Mr. C. N. Bement's at his Three Hills farm, near Albany, than whom a more distinguished and successful breeder is not, perhaps, to be found in the State :

"Mr. B's. Durhams, like every other breeder I have called upon, have become pretty well thinned in point of numbers ; he has, however, a few still for sale ; among these I would particularly notice his yearling bull Astoria, as being of good size, and of very perfect symmetry of form. I also took quite a fancy to a large three year old heifer, the name of which I do not recollect. But Durhams, as I have before hinted, I do not think the proper stock on light soils, either at the North or South. There are exceptions ; but, as a grand rule, they must have a luxuriant pasture that produces a good thick bite in summer, with generous feed throughout the winter, or it is idle to think that they can be kept up to good flesh and great size. I believe Mr. B. for one, is becoming convinced of this, and has accordingly procured some Devons, an Ayresshire heifer, with more expected soon to arrive from abroad, and also a few good native cows. One of these last, of handsome color, limb, and shape, unites extraordinary milking qualities. From the 19th Dec. to 18th Jan. she made fifty-six pounds of well-worked butter, which is nearly two pounds per day, a great yield for the dead of winter. She is what I think Col. Jacques would class among his celebrated "Cream-pot" breed, without hesitation. I have ever been a great advocate for the improvement of our native breeds of all description of stock, and I am glad to see Mr. B. enter upon the subject so spiritedly. Massachusetts' able agricultural commissioner, Mr. Coleman, has shown, by his reports, that we are not deficient in first-rate dairy cows. These have only to be carefully selected and crossed with Durham bulls of fine points, middling size, and of deep milking families, to soon insure as valuable a

breed of dairy cows as could be imported at ten times their expense from abroad. In this way, the Ayreshires have been made, that have become second now only to the Durhams. Could the attention of stock breeders be better employed than turning to this? It really seems to me the only way that our country can ever be filled up with good milking and fattening animals. A few years of such breeding would assuredly do more for us than a century of importations."

[From the Genesee Farmer.]

TIMBER FOR FENCING.

MR. EDITOR,—As it is a time light is expanding, and farmers are becoming more free to communicate their several stocks of knowledge and experience, and you have interested yourself so much as to collect information and arrange it in such a manner that it may be compared to a great reservoir, public storehouse, to which we can resort for almost any important information which is necessary to our concerns, I cast in my mite, which is relative to the choice of trees for culture. This country is much lacking in durable timber for fences, &c. yet the yellow locust and native mulberry are easily propagated, and almost incorruptible to last as fence posts, having been taken up for examination, upon Long Island, after having been used as gate-posts, and then were found to be sound enough, to all appearance, to last fifty years more. My informant I think told me the truth, as I suppose he is a man to be believed. Mr. Samuel Wiman, in this town, informed me, about two months since, he had a native mulberry bar-post which had stood thirty years; that it was still strong in the ground; the holes for the bars to run in wore out, which spoiled it. The yellow locust and native

mulberry are so rapid a growth, if they are cultivated with care, that though a fence were built of basswood, I think by the time a new one would be necessary, the timber would be grown to sufficient size to make posts to board to, on a good soil. I measure my ground, and set my locust trees fourteen feet apart, in order to have them for posts as they grow. If my brother farmers will follow the preceding method, instead of any other method, or kind of trees I have seen described, I think that as much good would result from the operation as from hedges twice told, or any other operation of a like amount of cost and labor.

H. SEELY.

GRASSHOPPERS.

GRASSHOPPERS multiply much faster in dry weather than in wet. Hens and turkeys are excellent company for them when they can keep up. If they fall in the rear, they should be driven out and made acquainted with the shy little hoppers.



