ESTABLISHED 1819.

SIXTH SERIES.] JULY, 1866. [VOL. I.—No. 1.

TERMS: $2 A YEAR.

THE AMERICAN FARMER:

A

MONTHLY MAGAZINE

OF

AGRICULTURE AND HORTICULTURE.

THE OLDEST AGRICULTURAL PUBLICATION IN THE UNITED STATES.

Has probably a larger COUNTRY *circulation than any publication of any kind South of New York.*

PUBLISHED BY

WORTHINGTON & LEWIS,

OFFICE, No. 52 SOUTH GAY STREET,

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BALTIMORE, MD.

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Office of General Agency of Soluble Pacific Guano Co.

JOHN S. REESE & CO.,

71 South street, Baltimore, General Agents.

Your attention is invited to the annexed reports of inspection analysis of six cargoes of PACIFIC GUANO, (embracing last arrivals,) consigned to this Agency, and discharged at our wharf.

The samples were taken from *commercial packages as discharged*, by the chemists, and hence represent the Guano as actually *brought into market*.

The importance of this branch of trade to the agriculture of the country, demands that it should be placed on a basis above *adventurous enterprise*. To promote this object, consumers should require regular inspection analysis, by competent and responsible chemists, who are known to the public—the samples to be taken from *trade packages* by the same, and duly certified. Until manufacturers and agents are required by public sentiment to do this, both the legitimate trade and consumers are exposed to imposition. Incidental analysis of samples handed to chemists and the result published, amount to but little. That analysis only is valuable to the public which represents actual *cargoes in packages for market*.

With a view to place the trade on a basis commensurate with its public importance, the PACIFIC GUANO COMPANY, at heavy expense, instruct us to have every cargo of their Guano duly inspected, upon arrival. The results of late arrivals are herewith given, with names of vessels, and chemists by whom the inspection was made.

Intelligent merchants, farmers, and planters, will at once perceive the superior value of this Guano.

The elements here given are those which alone constitute the value of all Guano and other fertilizers.

Having no data from which to make comparison, we can only assert from a general knowledge of the composition of most articles offered in our markets, and from a knowledge of the source and cost of raw material, that there are none with which we are acquainted that can compare in value with SOLUBLE PACIFIC GUANO; and although it commands a higher price, it is cheaper by 20 to 30 per cent.: in evidence of which we recommend 20 per cent. less by *weight* to be used per acre than of any other fertilizer, sold at less or the same price per ton, and no more per acre than those selling at 20 to 40 per cent more per ton, not excepting *Peruvian Guano*.

Inspection analysis of six cargoes of Soluble Pacific Guano, made for JOHN S. REESE & Co.

Names of cargoes.	Per-cent. animal matter.	Per-cent. Ammonia yielded.	Per-cent. of Bone Phosphate soluble.	Per-cent. Bone Phosphate of Lime.	By whom inspected.
Sch. Lacon	41.24	3.40	17.07	24.32	Dr. Liebig.
Sch. Paladium	39.71	3.65	15.76	24.71	Dr. Liebig.
Sch. Fly-away	35.11	3.52	12.90	28.40	Dr. Liebig.
Sch. Ira Laffrenier	37.83	3.41	15.10	24.51	Dr. Piggot.
Sch. Clara W. Elwell	40.55	3.63	15.19	28.75	Dr. Piggot.
Sch. Mary E. Amsden	38.94	3.21	14.79	28.08	Dr. Piggot
Average of six cargoes	38.90	3.47	15.13	26.46	

The original of above may be seen in manuscript at our office.

Baltimore, 1866. JOHN S. REESE & CO.

NOTE.—Pacific Guano weighs 65 lbs. per bushel, which is 15 to 20 per cent. less than the Super-Phosphates of Lime, hence in its application farmers must not estimate quantity by *bulk*, but by weight, else they will apply less per acre than is intended. J. S. R. & CO.

FLOUR OF BONE.

We will give a money guarantee of the purity of this article. It is *unsteamed, unburned bone*, reduced to the fineness of *flour*.

One hundred pounds contains thirty-three pounds of *animal matter*, and *yields four and a half pounds actual ammonia*, which is all that pertains to *raw* bone.

Bones subjected to *steam pressure lose* a large part of their *animal matter*, and hence their value is *greatly impaired*. When steamed, they can be made tolerably fine by ordinary means. They may be detected by their peculiar white appearance, and the absence of odor. *Bone Flour* burns with a quick blaze when thrown on a fire; not so with *steamed bone*. These are important facts for farmers.

One hundred pounds of Flour of Bone contains the value of one hundred and fifty pounds of *acid dissolved bone*, or Super-Phosphate, because *one-third* of properly dissolved bone is acid and water. *Flour of Bone* is as quick and active as Super-Phosphate or dissolved bone, and is consequently worth at least 25 per cent. more per ton. We recommend two hundred and fifty pounds per acre, where *three hundred pounds Super-Phosphate* or dissolved bone would be applied. The manufacturers are the patentees of the only known machinery by which raw bone can be reduced to the fineness of flour.

JOHN S. REESE & CO.,

Sole Agents for the Company,

71 SOUTH STREET, BALTIMORE.

Terms Cash.

INDEX TO VOLUME I, SIXTH SERIES.

☞ NOTE.—See Farm Work, Vegetable Garden, Fruit and Flower Garden, of each number, for subjects not alphabetically indexed.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, JULY, 1866. Vol. I.—No. 1.

The Old Farmer to its Old Friends.

Good Friends:—The Old Farmer, after four years of absence, greets you once again. For more than forty years, he was wont to visit your peaceful fields, and happy firesides. Why he has been so long away, the history of the times just past will tell. Sad and dreary times to every human heart, they have been; ruinous, desolating, deathful, to the best and the bravest—there was no place for the work we had to do. Our ways are the ways of peace; our counsels are for seasons of quietness; our work is the work of Him, who made to grow out of the ground every plant that is "pleasant to the sight, and good for food;" whose pleasure it is, that the earth bring forth her increase, and men made after His glorious image multiply. What had we to do, then, when the work of the day was not to destroy life only, but to break up all its springs and sources; when fields were blasted, and store-houses and barns were burned, and firesides were desolated, and all science, and all knowledge, and all the mental resources, and physical energies, of a great people, North and South, were devoted to the one work of devastation and slaughter?

And now, as quiet has come over the scene again, and our work of peace is renewed, we find many whose lot has lain outside of the bloody track of war, and whose happy fortune has been, not in the way of its desolations. They have well anticipated what we would first say to them, for we know not when, or where, there has been such outpouring of affectionate sympathy, in so substantial a form, as has been shown by the women of Maryland, and their cheerful helpers, in the work of Southern relief. We will not say to them, what they know so well, how great the need is, that in such well-doing they be not too soon weary.

To most of our old friends, we come again with the feeling of one who visits the house of mourning, when a cruel death has struck down its best-beloved, or a desolating calamity has swept away its earthly support. Our first thoughts can be those only of sadness and sympathy, like the friends of the stricken old man, who came "to bemoan him, and to comfort him, over all the evil that the Lord had brought upon him." Let us hope that, as with him, "the latter end" may be "more blessed than the beginning;" that the "seven thousand sheep" may, ere long, be "fourteen thousand," the "three thousand camels" "six thousand," and the "five hundred yoke of oxen" "a thousand yoke." For "the young men who are dead," may others soon grow to fill their places, and may the daughters be still, like the daughters of the old man of Uz, "For in all the land no women were found so fair."

The American Farmer.

At the beginning of the year 1862, we announced, as the article we copy below, from a New York contemporary, bears witness, the *suspension* of "*The American Farmer*," till such time as "the storm of civil discord should have spent itself." Six months, we thought, might bring about that happy and hoped-for event. How we, with thousands of others, were mistaken, is a matter of history. When the war ceased, having incurred the evil of a long suspension, and a very considerable pecuniary loss, it was not deemed advisable to assume a heavy expense, too long in advance of the expected renewal of prosperity in the great field of our labor, the Southern States.

For a new enterprise, our catholic title, "The American Farmer," would be presumptuous.—But it is ours of right, and by prescription. It was assumed when there was no other such "Farmer" in America, and all the land lay open before us, when

"The whole boundless Continent was ours."

"The American Farmer" was first issued on the 1st of April, 1819, by its able and well known editor, John S. Skinner, Esq. It assumed its peculiar character of an exclusively agricultural journal on the suggestion, as we have understood, of the late Dr. Joseph E. Muse, of Cambridge, Md. Mr. Skinner's first design was to publish a political paper, with an agricultural department, but advising with some of the prominent agriculturists of the State, he was urged, by Dr. Muse especially, to undertake what was considered a somewhat hazardous enterprise. Dr. Muse was well known for his devotion to science and experimental agriculture, and from the first number of "The American Farmer," through a period of thirty years, was a frequent contributor to its pages. Mr. Skinner's editorial charge of "The Farmer" continued through some sixteen years, and he made its character as national as its name.

As in the course of years, able and numerous competitors in the same field of labor, sprung up at different points, especially in New York and the Eastern States, "The Farmer" became, more exclusively, a Middle and Southern State Journal. While it has had many friends in all the States, it has, of late years, circulated mainly in Maryland and the States immediately around, and in all the Southern States.

In 1855 the present editor became, by purchase, joint proprietor, and editor of "The Farmer," and in 1858, sole proprietor. A year later, his associate, Mr. Lewis, purchased the interest in it he now holds. When the war made it impossible to communicate with Southern subscribers, and all the business relations were broken up, which were so essential to the interests of the publication, its issue was reluctantly suspended. It is resumed now, with no change of proprietors, editor, printer, or even of type, paper, or general appearance.—It is, what it was well called, "The Old Pioneer," who having gone before, and prepared the way for others, is content now to work in good fellowship with the many, who have taken the field at a later day. We invoke the good offices of old, and new friends, and hope, by their help, as contributors to its pages, and in extending its circulation, to increase its value, and widen the range of its influence.

From "The World," New York, February, 1862.

The American Farmer.

The times—these awful times—chargeable with so many shortcomings—have caused frightful inroads upon the press, in several departments.—Some of the journals have avoided the fatal effects of the storm by shortening sail—reducing their dimensions and curtailing their expenses, while increasing their industry. Others have anchored for a more propitious season, while others again have literally swamped.

Among the casualties we name with regret the suspension of "The American Farmer." We trust it is merely a "suspension." That journal has become historical, and should not be discontinued permanently. It was the first agricultural publication issued in America, commencing more than forty years ago. Its founder and original editor, John S. Skinner, afterward Assistant Postmaster General of the United States, was one of those enthusiasts to whom human progress is largely indebted. A copy of his first volume has been deposited by us with the New York Historical Society, as a memento alike of his character and of social progress in the first art of life—the cultivation of the earth.

The present publishers, Messrs. Worthington & Lewis, of Baltimore, announce that the pressure of the times—the difficulty of circulation and collection in these days of turmoil—compel them to suspend the publication, though they hope to resume on the the 1st of July—trusting that before that period "the storm of civil discord shall have spent itself, and that happier days will dawn upon us all;" to all which hopes we freely say, Amen!

While speaking thus chronologically of "The American Farmer" as the "first" agricultural print established in America, (1819,) we do not withdraw anything we have said about the first journalist, Luther Tucker, who, about ten years afterward, (1829,) introduced in his own paper that *popular* mode of treating rural questions, in which "The American Farmer" was originally deficient, and the adoption of which by the agricultural press generally in this country, has made indelible marks in the agricultural literature of the world.

TO KEEP MILK SWEET.—Mr. Kavanah, in reply to a question by a correspondent, said that milk may ke kept sweet by keeping it in a clean room in company with fresh water. In some places it is customary to set tubs of water along the middle of the cellar, cave, or milk house, with an arrangement of pipes by which the water can be readily changed twice a day. It is found that this arrangement prevents the milk from being soured even by lightning.

JULY.

"Too long, at clash of arms amid her bowers,
And pools of blood, the earth has stood aghast,
The fair earth that should only blush with flowers
And ruddy fruits; but not for aye can last
The storm, and sweet the sunshine when 'tis past;
Lo, the clouds roll away—they break—they fly,
And like the glorious light of Summer, cast
O'er the wide landscape from the embracing sky,
On all the peaceful world, the smile of Heaven shall lie."

Farm Work for the Month.

However hot the weather, the farmer must brace himself to the appropriate work of the season. Grain harvest, hay harvest, corn and tobacco cultivation, buckwheat sowing, rutabaga sowing, and other minor works, all press upon him now. There is much to be done that must be done quickly, and done well.

WHEAT HARVEST.

The experienced farmer understands the necessity of being well supplied in advance, with all the ways and means for carrying forward, promptly, the saving of his wheat crop. Its preparation is so costly, and its value so great, that any unnecessary delay in securing it would be but the grossest mismanagement. All the necessary labor will be engaged, and all implements put in good order, or new ones supplied.

In a climate where the fiercer heats of summer ripen off the crop very suddenly, he must be watchful, and begin his harvest work at the earliest possible time; remembering that he is more apt to err in putting off too long, than in beginning too soon.

The same remarks are applicable to the Rye and Oat harvests, except that there is not the same pressing necessity in the care of the latter, as they are not liable to damage from a little exposure on the ground after being cut. But the best rule for all, is promptness and despatch in finishing up whatever work may be on hand.

HAY HARVEST.

The hay crop is growing yearly in value, in the Middle and Southern States, and it is necessary that especial attention be given to the method of curing it. It must be borne in mind that a great deal of the value of the crop depends upon its treatment within the few days in which it is submitted to the manipulations of harvesting. The most successful culture, and the most luxuriant growth, will avail little, if skill and due attention in curing be wanting.

There is great and most valuable help for us in the excellent mowers which now abound in the market. The despatch which they enable us to make, takes away much of the risk of damage by exposure, while they economise greatly the cost of labour. The grass can be cut down rapidly when the weather is fit for curing; the heavy labor of the harvest is borne by horses and mules instead of men, and a careful estimate will show at least half of the cost saved. No one, therefore, who has any considerable crop of hay to secure, can afford to be without a mower.

A few simple rules are all that is necessary to be suggested, and the utmost watchfulness and care must be used in applying them. In order to get the sweetest and best hay, the grass, timothy excepted, perhaps, should be cut very soon after the bloom first appears. It should not be allowed to remain long spread, out in a hot sun, but when fairly wilted, so that, upon pressing it in the hand, the driest portions break a little, it should be thrown into cocks as high as they can be made to stand well, without being made very large. In this condition, they may stand for two days, when they may be thrown open for a few hours, and taken to the stack or barn. Cured in this way, it will look green and bright, and retain the fragrance which is so grateful to our sense of smell, and which makes it very acceptable, we presume, to the cattle. It cannot be doubted that it retains its nutritious qualities entirely beyond that which is exposed on the ground through the hot sun of two or three summer days.

CORN.

There should be little work to do in the corn field this month, under ordinary circumstances. If planted in due time and well cultivated, keeping the grass thoroughly subdued, there should be no occasion for further work. Should it be necessary, however, it must be got entirely clear of grass, and laid by as early as that work can be accomplished.

TOBACCO.

It is to be hoped that the planting, and replanting, are now completed. The first hoeing, which should be begun as soon as their is any appearance of the plants beginning to grow, should now be got through with, early. The dryness of the ground, and the necessity of working very close up to the plant, prove very often fatal, and great care therefore is necessary in this operation.

Either before, or immediately after this hoeing, the plough or shovel should be run with the bar close to the plant, and throwing the earth from them. The second ploughing will throw the earth back, and the second hoeing draw it moderately around the plants, and destroy every vestige of remaining grass.

Keep the flock of turkies in the tobacco, morning and afternoon, that the early glut of worms may be promptly destroyed. The turkies will be very effective, if kept well to their work, as long as the tobacco is small.

POTATOES.

Potatoes may be planted as late as July. To insure quick growth, open a good furrow, and plant while the ground is yet fresh, covering lightly with soil, and then filling the furrow with a mulch of any kind of strawy manure, or even straw itself, or leaves. This will protect the crop from the severe heat of the sun, prevents rapid evaporation, and thus secures, what the potato especially needs, a cool and moist soil. Before putting in the litter, a dressing of super-phosphate, or other good fertilizer, should be thrown in the drill. A mixture of four bushels of leached ashes, one of plaster, and one gallon of salt, makes a good dressing in the absence of other fertilizers; put in the drill, at the rate of about ten bushels to the acre.

MILLET.

If there be occasion to add to the winter's store of good hay, it may be done by sowing the common millet, or that variety of it called Hungarian grass. If there be moisture enough to make it germinate quickly, it makes a rapid growth, and will come off the ground by the first of October. It must be well manured, and on thoroughly prepared ground, to make a good crop. A light, rich loam suits it best.

BUCKWHEAT.

This is a crop not grown largely anywhere; but deserving, perhaps, more attention than it usually gets in the Middle and Southern States. No family should be without a supply of buckwheat flour among their winter stores, for no bread compares with good buckwheat cakes for a winter's breakfast. It is equal, if not superior, to oats, in feeding qualities for stock; it is grown easily, and at little cost for manure, on ordinary land; and has the advantage that a crop may be made very late in the season, interfering very little with the busier times of the farm.

It should not be sown earlier than the middle of the month, and a half bushel of seed to the acre is enough.

It is said to be good for soiling milch cows in the month of August, when in bloom.

RUTA BAGA.

Thorough preparation should be made as early as possible now, for this valuable root crop. If sod ground have already been turned, it should have soon another ploughing, which, with the necessary hoe work in preparing drills, will give it a very sufficient working. It must be well manured with some good super-phosphate, unless it have been otherwise fertilized, and the seed sown at any time, after the middle of the month, that the ground may be moist.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER, Maryland Agricultural College.

JULY.

ASPARAGUS.

Any more cutting of this crop will injure the plantations. To many it may seem needless to make this remark; but there are some who cut asparagus as long as a new head is to be found. We must advise them to desist, unless they have made up their minds to the policy of killing the goose, &c. Let the beds be pointed up with a fork, all weeds taken off, and the surface covered with a mulch of half-rotted cow dung.

BROCCOLI,

Where grown, should now be got out to furnish a supply during the fall and early winter.—Manure very liberally, and if planted in dry weather, water very freely with weak manure water; better, however, to have the ground ready, and plant immediately after a shower. This will save labor, and give the plants a better start. A free natural growth is especially requisite for broccoli, cabbage, &c.

CAULIFLOWER.

This most delicious vegetable is not cultivated near as much as it deserves. Now is the time to plant out for a late supply. Remember that for this crop the soil cannot be too rich; they will grow well in dung, only if well decomposed.—Cultivate and hoe between those coming forward, but do not draw any soil around the stems except any one be loose at the roots.

CELERY

Should now be planted for the late main crop. This will require a heavy watering where the ground is dry. Whenever the fly attacks the leaves, pick them off, and burn them. Dustings of coal or soot, we have found very useful, in protecting celery against the ravages of the fly.

LETTUCE.

This useful plant is too much neglected after the early spring months, through the tendency of running to seed in hot weather. This may in some measure be prevented, by sowing in a rich moist soil, in a partial shade.

POTATOES

Where not too far advanced, should be frequently cultivated and hoed between. To those who have not tried it, we would advise to give a top-dressing of wood ashes and guano, between the rows of the main crops. Upon sandy soils we have found such a dressing to considerably increase the produce. As fast as the early crops are taken off, plough and manure for broccoli, cauliflowers, cabbage, turnips and winter greens.

ONIONS

From seed this season, continue to cultivate, and hoe between the rows, and thin to about three inches apart.

Plant, for succession and late crops, *peas*, *dwarf beans*, *turnips*, *radishes*, *lettuce*, *endive*, *cucumbers* for pickles, *sweet corn* for last crop. *Beets* may still be sown for winter use.

Continue to use the cultivator and hoe between the rows of all growing crops.

Cucumbers, *melons* of all kinds, *squashes*, *egg-plants*, *peppers*, with many other similar plants, will be greatly benefitted at this season of the year, by a mulching of partly decayed manure.

The Fruit Garden.

STRAWBERRIES,

Where any are required for forcing, should be potted as soon as rooted, as they make roots faster in pots than in the open ground. Our plan is to lay the best runners in pots, (two-inch,) and when rooted transfer into four-inch, wherein they fruit. Cut away all runners not wanted for young plantations, and supply manure-water liberally to old plants and runners intended for new plantations.

FIGS.

Feed liberally with manure water and give a good top-dressing of quite rotten cow manure.—The young growth should be pinched back.

PEACHES AND NECTARINES

In pots or tubs, should be fully exposed to the atmosphere, the pots or tubs to be sunk about one-third of their depth in the soil. Keep well watered with manure-water, and give a top-dressing of good rotten manure. These trees are, not unfrequently, loaded with superfluous wood. The idea appears to be to have plenty to choose from at the winter pruning. Choose now all that will be wanted, which will have the advantage of ripening properly.

GRAPE VINES

In cold graperies, will now require air, night and day. The admission of a through draft, is to be avoided, as we have found it in many instances to be the cause of mildew. Grapes ripening should not be syringed, but have a moderately moist atmosphere and plenty of air.

Hardy Grape Vines.—Keep the young shoots tied up, and pinch them off from two to three joints above the fruit. Frequent applications of soapsuds and manure water to the roots will be of invaluable benefit to them.

The Flower Garden.

"To deck the shapely knoll,
That, softly swelled, and gaily dressed, appears
A flowery island, from the dark green lawn
Emerging, must be deemed a labor due
To no mean hand, and ask the touch of taste."

It is difficult to conceive of either an elegant or happy home, which has not a flower garden attached; and it is certain, the more we cultivate flowers, the more we are incited to observation of all things which grow, and the more do our minds expand in all that is true, and good, and beautiful.

ROSES.

That class known as "perpetuals" will now be benefitted by pruning back the shoots which have produced flowers, and have a mulching of short manure, with a good supply of manure water in dry weather, to assist the autumn bloom. Buds to be put on the Manetti or other stocks, must be done with discretion. If either the buds, or stocks to be budded, are in a soft state, they will not take. Twelve hours rain will do more to perfect the stocks and buds, than twelve days of artificial watering.

RHODODENDRONS AND AZALIAS.

Whenever these beautiful shrubs are grown, unless seed is wanted, the dead heads of flowers should be entirely removed, being careful to do it without injury to the young shoots. If seeds are allowed to ripen, there will be much less bloom next season. There is no shrub more orderly in its habit of growth than the rhododendron, and generally speaking it is the better way to let it grow in its own way. Planted in proper soil below the level, (they should never be planted above the level,) they will seldom require any artificial watering. As a rule, the removal of dead blossoms is about all the attention rhododendrons and azalias require. We are supposing them to be planted in good beds of peat-loam, and well decomposed cow dung, mixed up well together.

CHRYSANTHEMUMS

Will be benefitted by frequent applications of liquid manure, and sprinkling overhead in the evening. Now is a good time to strike cuttings of the *pompones* to flower in the greenhouse during the fall.

Cineraria, calcularia, primula sinensis, mimulus, mignonette, &c., may now be sown in a light rich compost, and placed in a moist, cool, shady place, which will bring them out much better than a more exposed place. When the plants are well up, they must then have more light and air.

FLOWER BEDS.

Stir the surface soil before the plants meet, and all that need pegging down should be kept regular betimes, and especial care taken to get plenty of shoots on the north side—the south side is pretty sure to take care of itself.

WINTER FLOWERS

Must be cared for now. Propagate *euphorbia splendens* and *jacquiniaflora, poinsettia pulcherrima, salvia splendens, calliearpia purpurea, &c.* Put all potted shrubs for winter blooming, in a cool, moist bottom, until the end of August, when they may be removed to a more sunny position.

Foot Rot in Sheep---Cure.

There is, we believe, very little of the disease called "foot-rot" in this and the more Southern States: but, as many sheep are being brought into the State from sections where it is very prevalent, it is well to put on record, what, we have the high authority of Mr. John Johnston, of Geneva, for saying, is a sure remedy. He says there are few flocks of sheep in Western New York that are free from the disease, and that they will never fatten if "foot-rot" is among them:

NEAR GENEVA, April 6, 1866.

Messrs. Tuckers:—I notice in your issue of April 5, page 224, a Subscriber inquires about curing foot-rot in sheep. I have often given, through the agricultural papers, a never-failing cure, if properly applied—that is, a salve made of finely pulverized blue vitriol, together with thorough paring of the diseased feet. Rub on the salve, and in about four days every sheep will walk sound if the paring has been thorough. The lame must be separated from the sound, *but the sound ones must have the salve rubbed in between the hoofs also, else there will be no cure. Those that were lame must be dressed again* in about four days, examining closely that no hoof has been left on with a sore under it. The sound ones must have salve thoroughly rubbed in again in about a week. Let the lame ones, or those that were lame, be dressed three or four times as I have directed, and the sound ones at least three times, and I can warrant a cure. I fooled away my time for two years, when I kept about 1,000 sheep, in dressing only the lame ones, some twenty-six years ago, and would never have cured them, had not the thought struck me that "an ounce of prevention is better than a pound of cure." I could produce many witnesses that, in the way I mention, I made a thorough cure.

Now every man can cure his sheep in the same way, if he will only try and persevere. It appears to me there are but few flocks of Merino sheep in Western New York but what have foot-rot. It is almost impossible to get one hundred wethers to fatten but what have it. When I get such, I give them three or four thorough dressings, and I see no more of it; and I dress the lame every three days, the two first times, and the sound ones about a week apart as above described.

Sheep will never fatten if foot-rot is among them; you may as well think of fattening a sick horse or cow. I have two neighbors who have foot-rot badly, and who have gone on dressing the lame ones only for a year or more. I gave one of them a talking to, the other day, that he appears to take heed to, and seems to go at it as if he would do something. He says he has lost five hundred dollars by the disease this winter. I told him if he did as I directed, every sheep would walk without being lame in four days, but to go on and dress as often as I told him, and perhaps more, and if he thought he could not do as I directed, I would come and stand or sit by him until I saw he was master of it—and now I expect he will make a cure.

Sheep ought to be thoroughly cured before turned to their summer pasture, and not make it foul with diseased feet, else it may take more dressings than I state to make a cure. It is better to give one or two more than enough, than to give too few. A man can dress about fifty in a day at the first dressing, and he may do nearly double that number the other dressings. But don't hurry; do your work right, and you will find it most profitable in the end.

JOHN JOHNSTON.

VANILLA.—A successful effort, it is said, has been made to raise this plant in France. The experiment was made in the public gardens of the St. Bruno, and the quality is affirmed to be equal to the best imported from the West Indies. The seed of the vanilla is remarkable for its fragrant odor, and yields an oil which is much used as a flavor. It is also employed in medicine in place of valerian, all the virtues of which it is supposed to possess, while it is at the same time far more grateful to the taste.—*Ex.*

GENERALLY speaking, the smaller the quantity of fruit on a tree, the higher the flavor; therefore, thin all fruits in moderation, but avoid excess; a single gooseberry on a tree, or a single bunch of grapes on a vine—no matter how fine it may be—is a disgrace to good gardening.—*Ex.*

Scalded Meal.

The nutriment afforded to animals by seeds and roots, depends upon the rupture of all the globules which constitute their meal and flour. These globules vary in different roots, tubers and seeds. Those of potato starch, for instance, are usually from fifteen ten-thousandths to the four thousandth part of an inch; those of wheat rarely exceed the two-thousandth part of an inch, and so on. From experiments made on these globules by M. Raspail, the author of "Organic Chemistry," and M. Biot, of the French Academy of Sciences, the following conclusions have been drawn:

1. That the globules constituting meal, flour, and starch, whether contained in grain or roots, are incapable of affording any nourishment as animal food, until they are broken.

2. That no mechanical method of breaking or grinding is more than partly efficient.

3. That the most efficient means of breaking the globules is by heat, by fermentation, or by the chemical agency of acids or alkalies.

4. That the dextrine, which is the kernel as it were, of each globule, is alone soluble, and therefore alone nutritive

5. That the shells of the globules, when reduced to fragments by mechanism or heat, are therefore not nutritive.

6. That though the fragments of these shells are not nutritive, they are indispensable to digestion, either from their distending the stomach, or from some other cause not understood; it having been found by experiment that concentrated nourishment, such as sugar or essence of beef, cannot long sustain life without some mixture of coarser or less nutritive food.

7. That the economical preparation of all food containing globules or fecula, consists in perfectly breaking the shells, and rendering the dextrine contained in them soluble and digestible; while the fragments of the shells are at the same time rendered more bulky, so as the more readily to fill the stomach.—*Co. Gent.*

Visiting Farmers.

In ancient times the English law required a young man, on completion of his apprenticeship, to travel over the country a certain number of years, working at his trade, before he could be licensed to make a permanent beginning for himself. The object was to compel him to become familiar with the different modes in which other craftsmen conduct the business he had learned, so that by knowing all, he might become a perfect workman.

Travelling from one farm to another, to learn what was going on upon each, how this or that process was conducted, what machines were successful, which were failures, what was the most profitable fruit crop, and how best to produce it, who had the most successful garden, and how it was managed, with the long catalogue of items on kindred topics—would be a mere repetition of the English obligation to become perfect in the farmer's calling.

There are times throughout the year when most men can indulge in this useful recreation, and there are those who systematically devote to it a portion of every season. I have indulged in it myself, and have rarely gone any where without learning something that was new to me, and many times useful.

On these brief perambulations I have uniformly found the latch-string of the door within sight and reach. Going in unheralded, and even anonymously, I have never been received discourteously. The house-dog may have been snappish, but the proprietor has been all suavity. —*Author of "Ten Acres Enough," in Horticulturist.*

Care of Cows.

In the discussions at the Annual Fair of the N. York State Agricultural Society, Geo. A. Moore gives his method of caring for his cows as follows:

My best cows do not go dry over six to eight weeks. The best cow I have, was milked at night and had a calf by her side the next morning. Cows must be sheltered, groomed, well fed and cared for. A cow should go in the barn when the first cold weather comes on in the autumn and stay there till it is over in the spring. Of course the stables should be well ventilated. I have found that cows kept in the barn through the winter, do just as well as those which are let out. Air, light, good water and good food are essential. With these provisions, cows are kept in good health, there are no miscarriages, and the general effect upon the health and usefulness of the animal is good. Cows "come in" with us when 24 months old, and we breed and milk them right along. Three years ago I picked the poorest and oldest cows from my herd, kept them housed from Christmas till March, loosed them from the ties and turned them out, and they played like calves. They gave more milk and did better the following season than they did the year before. I have kept cows in stanchions from November to May, caring for and grooming them well, and they bred better, there were fewer losses, and they were healthier, and did better the succeeding season, than if they had been left out, or allowed to run out in the usual way. I prefer to tie cows for winter feeding, but use stanchions in my milking stables.

Surface Manuring.

We give below an excellent "summary of the principal facts and reasons in favor of Surface Manuring," by a correspondent of the *Country Gentleman*. The writer seems to have examined with care the leading agricultural papers, of the more Northern states at least, during a number of years past, in order to put the subject in its true aspect.

In giving his history of the progress of opinion on the subject, he says that 'Mr. John Johnston was the first to come out, and openly advocate in print, the practice of surface manuring.' While we recognize fully, Mr. Johnston's claims, as one of the most independent and intelligent of agricultural writers, he is not entitled, we think, to the credit of having first openly advocated in print this method of manuring. Long before Mr. J. wrote at all on the subject of Agriculture, we presume, Mr. Botts, then editor of the *Southern Planter*, Mr. Garnett, of Virginia, one of the leading writers of his time, and, we believe, Mr. Edmund Ruffin, commended this method of manuring.

Nevertheless, the general opinion had not advanced. No set of men, say what they will, are more under the influence of theories than practical farmers, and especially of a theory that appeals so directly to the senses, as does this one of manures. It was claimed, for a long time, by chemists, that the waste of strength was plainly indicated by the odors arising on any exposure of the manure, and that the loss was proportioned to the length of time it might remain uncovered on the surface. There were certainly very few writers—we do not think there was one agricultural editor—who controverted this teaching, when, in 1856, we distinctly and pointedly took ground against it, in a leading editorial of the *American Farmer*. In this article we said, "we know that men of science will shake their heads at the wanton waste of ammonia, but practical men should stand by their facts." Mr. Mapes, of the *Working Farmer*, said at that time, "Those who imagine they find good results from spreading manure on the surface, and leaving it for days, weeks, or months, before it is ploughed under, mistake the action of the litter, or longer portions of the manure, as a mulch, for the action of the manure on the soil." In reply we said, "We so far differ from this, and kindred opinions on the subject, that we think manuring on the surface, for ninety-nine farmers in a hundred, the best general method of application."

Our editorial was copied into the London *Farmers' Magazine*, and it is a coincidence, that during the following summer Prof. Vœlcker made, at Cirencester, the famous experiments which have changed the current of opinion on the chemical question involved.

We do not claim that we were the first to bring the subject into notice, but that the *Farmer* pressed it so pointedly and urgently, as to fix the attention of intelligent observers, and writers for the Agricultural press, and that within the ten years past it has, on this account, gained more upon the good opinion of the Agricultural community than in half a century preceding.

It is proper to bear in mind in this connection, that it was in the face of false, or rather, perhaps, misapplied teachings of science, that intelligent observation furnished facts which could not be gainsaid. The experience of practical men was appealed to, to uphold the practice of manuring on the surface, while the teacher of science still maintained the inevitable loss of the volatile ammonia. Finally, however, it was ascertained that the loss of ammonia was not to be estimated by the quantity of wasting odors the manure evolved. Ammonia never failed, it is true, to give a sensible indication of its presence, but other gases, of no value to the crops, magnified the appearance of the waste. It now appeared, that only in so far as the manure had rotted, was ammonia found at all. The nitrogen of the unrotted manure was not liable to waste from evaporation. Thrown upon the surface, there was no wasteful exhalation, even under the hottest sun, except of a very small amount of ammonia.

The summary given below is an interesting one, and we commend it to the notice of our readers:

Surface Manuring.

A summary of the Principal Facts and Reasons in Favor of Surface Manuring.

Speaking of his examination of the history of the matter, the writer in the *Country Gentleman* says: I find that Mr. John Johnston "was the first to come out and openly advocate, in print, the practice of surface manuring; that Mr. J. and many others have practiced this course from twenty to thirty years; that it was adopted after repeated trials and experiments in manuring, in the different ways usually practiced; that Mr. J. and others found that one load spread on a grass or clover sod, early in the fall, and plowed under in the spring for corn, did more good, and gave a better profit, than two loads supplied in any other way; that the course usually taken is to pile the manure in the spring, let it ferment and rot, and in the fall draw and spread it on a grass or clover sod, to be plowed under the next spring

for corn, though on many grass farms it is applied in the fall to meadows, while it is sometimes put on land prepared for winter wheat, and said to be harrowed in, though probably only partly covered, just before sowing; that it is usually found to do best when applied rather early in the fall, so the grass and clover can grow up and cover and protect it; this also gives time for the soluble portions, which constitute the principal value of rotted manure, to be carried into the soil by the rains. It also makes a great deal better sod, and growth of grass and clover, to plow under in the spring, which is a great benefit to the succeeding crop of corn.

Surface manuring appears to answer much the same purpose as liquid manuring. Nearly all of the valuable portions of fermented and rotted manure, being soluble, are washed out, taken into, and completely diffused through the surface soil by the fall rains, so as to be in the best possible condition to be used by the growing plant. At the same time there can be but very little, if any loss, by the strength of the manure washing away, or being carried too deep into the soil," for, as Dr. Cameron says, "by a beautiful provision of nature—the absorptive power of soils—they will be retained until required to nourish the plants." Liebeg also states that if "water holding in solution ammonia, potash, phosphoric and silicic acids, be brought in contact with the soil, these substances disappear almost immediately from the solution, the soil withdrawing them from the water." It also appears that there is no other way in which the fertilizing properties of manure can be so well worked into and diffused through the surface soil, just in the position and condition in which they are needed by the growing plant, as by liquid manuring, or applying the manure to the surface so that the rains can dissolve and carry them into the soil. It also appears that when manure is plowed into the soil, there is comparatively little chance for it to be thus prepared and brought to the plant, but that the roots have to find and use it as they best can. Hence it will be seen that, when the manure is plowed under, the roots of plants cannot as soon nor as thoroughly receive the benefit of it, as when diffused through the surface soil by the rains; while, being covered with several inches—often six to eight—of soil, there is comparatively little chance for rains to dissolve, bring it to, and diffuse it through the surface soil, where it is mostly needed. But this is but one of the great benefits that may be realized by surface manuring.

Another great advantage is, that by piling, fermenting, and rotting manure, it is brought into a much more available condition for the immediate benefit of growing plants. Now it is well known that the principal value of barn-yard manure consists in the amount of available ammonia and soluble mineral substances it contains, while it is shown by Dr. Voelcker's investigations that "perfectly fresh barn-yard manure contains but a small proportion of free ammonia, and but a small proportion of soluble matters, whether organic or mineral—that, comparatively speaking, but little nitrogen, and of course but little ammonia, exists in fresh dung in a state in which it can be assimilated by the growing plants"—that "most of the nitrogen is gradually liberated as the fermentation of the dung progresses—it being found that there is a regular increase of soluble organic matters, including nitrogen, which keeps pace with the progress of fermentation." It also appears that "in fresh manures (with abundant litter,) the larger part of the insoluble organic matter consists of straw in an almost entirely undecomposed state. In rotting manure, the straw is converted into humus—(humic and ulmic acids, humine and ulmine)—the compounds of which, with potash, soda and ammonia, are soluble, and of a dark brown color. The humus mostly fixes—(forms non-volatile compounds with)—the ammonia that results from the decay of nitrogenous matters." It also appears that the most useful mineral matters contained in manures are also brought into a more soluble and available condition for the use of growing plants.

True, it has been objected that in rotting barn-yard manure there may be a considerable loss of ammonia which is set free by the fermentation in the heap; but it is shown that this is not the case. Dr. Voelcker shows that "in the interior and heated portions of manure, ammonia is given off, but on passing into the external and cold layers, the free ammonia is absorbed and retained. During the fermentation of dung, ulmic, humic, and other organic acids are formed, which fix the ammonia generated in the decomposition of the nitrogenized constituents." It is also stated by Dr. Cameron that "it is an error to suppose that the manure heap loses a sensible proportion of its important constituents by exposure to the air; on the contrary, if it be in a compost state, the only ingredients which evaporate from it, are water, and an inconsiderable quantity of carbonic acid; hardly a trace of ammonia escapes. During the fermentation of manure, its nitrogen, (for there is no ammonia in fresh natural manure,) is converted slowly into ammonia; at the same time other constituents of the dung—carbon, hydrogen, &c., are converted

into certain acids which combine with and fix the ammonia."

Should the plain practical farmer want any further proof that there is no loss by fermentation of any of the valuable constituents—what he considers the strength of the manure—the vastly greater effect of, and benefits received from rotted manure, ought to be more than enough for his satisfaction.

But it is true, that while there is very little loss from evaporation or exhalation of ammonia, or other valuable volatile substances from the manure heap, there may be some loss from washing by heavy rains; and there seems to be the more reason for this objection, as it is shown that fermentation renders the most valuable constituents of manure soluble, and hence liable to be washed away. But it is shown in practice that this may be mostly prevented by making the piles large and high, the sides square or perpendicular, the top dishing, so they will hold and take up all the water that passes on to them, and making them in places where no running water can reach the sides or bottom, thus giving very little chance for the rains to wash them away.

It is also found that when manure is well spread that all fermentation is at an end; so there is no setting free of ammonia or other valuable matters, the most of the foul odors arising from the manure when spread, as well as in the pile, being due to the escape of carbonic acid, carburetted hydrogen, and other foul gases, that are not of much value in manure—while in well fermented and rotted manure, the most important and valuable ingredients, instead of being in a condition to be dried up and carried off by the sun and air, are in precisely the best possible condition to be dissolved and carried into the soil by the fall rains. So that if manure is finely spread early in the fall, these ingredients will be washed into and well diffused through the soil before winter, where, according to Liebig, Voelcker and Cameron, they will be retained until wanted by the growing plants.

It is also claimed that manure applied to the surface is valuable as a mulch—that when spread early in the fall so as to give the clover and grass a good start, and they are not fed down too close, it is found that the coat of manure and growth of grass is a considerable benefit as a mulch and protection of the land, and roots of the grass. It is also found that when manure is applied to wheat, whether put on before sowing and worked into the surface, or finely spread afterwards, that it answers the same purpose, giving the plant a better and stronger growth and making it less liable to freeze out, while the large growth and coat of manure is a protection to the soil and roots of the wheat—while in regard to grass that has not been fed down in the fall, it is found to start earlier, so as to give quite a growth if not fed off, as it never should be, in the spring, to turn under for corn. This new growth, by making the sod green and succulent, and starting it to rotting immediately, is a great help to the corn, so that in reality surface manuring in the fall has the threefold effect of enriching the land, mulching and protecting the soil and wheat and clover and grass roots, and producing something of a crop for green manuring.

There is another important point in the consideration of this subject, that it is very probable the great mass of American farmers, like the writer, have never given much attention, which has been somewhat strongly brought to mind while investigating this subject. This is the very general practice in England of spreading manure on clover stubbles after haying, to be plowed under in the fall for wheat, haying being rather earlier and wheat seeding considerably later there than here. Mr. Luther H. Tucker, in referring to this practice states that "there are many in England who constantly practice this way to advantage, and consider that in no other, can greater benefit be obtained. It helps to some extent to bring forward the 'seeds,' (of clover, &c.,) so that when they are ready to plow a few months later, there is a closer and thicker sward to turn over, which will, of course, yield the greater nourishment it has thus been accumulating, to the coming crop of grain." There is also much other testimony to the same effect, it being shown that English farmers when questioned on this point, state that after trying various other ways of applying manure, it was found that in no other way could they apply it to so good advantage, or with as much benefit to their wheat. Yet, in following this course, the manure has to be exposed, as it is finely spread on the surface, to the sun and air during the warmest season of the year. Thus showing that with well fermented and rotted manure, which is always used, there can be but very little if any loss by the escape of ammonia or drying of the manure.

There is another way of surface manuring, extensively practiced in England, which should not be forgotten,—that is, by feeding off turnips, on the land where they are grown, with sheep. This is a favorite practice with English farmers, who claim that it is one of the best ways they have for manuring and enriching their land. The usual course is to put the sheep on to the

turnips in October, and keep them folded on a small piece until it is eaten off, and then move them on to another, generally following this course until it is time to clear the land to be plowed for barley in the spring. To make the sheep gain faster, and the manure richer, but mainly the latter, they are often fed oilcake, and sometimes clover hay, but both fed in the fold on the turnip field; so the manure is left as it is dropped on the land by the sheep, and thus it remains all winter. So that instead of apprehending any loss by the washing away of the manure, it is generally if not universally considered and conceded to be the best way the turnip crop can be fed to sheep, to manure and enrich the land. Clover is also sometimes fed off in this way, oilcake being also fed, mainly to make richer manure.

Now the point of most importance to the American farmer, is that in neither of these ways, in which the principal part of the manure made by English farmers is applied to the land—whether exposed to a summer sun or winter washing, is there found to be any serious loss of the fertilizing properties or matters of manure—thus furnishing the best possible proof of the correctness of the conclusions of some of the best agricultural chemists, that when manure is spread on the land, there can be but little, if any, loss by evaporation or escape of volatile substances, as there is no fermentation; nor much loss by washing, as the soil immediately absorbs all important matters held in solution by the water passing over or through it. And this point is the more noteworthy, because large quantities of oilcake and grain are fed with the especial view of making rich manure, such as there would certainly be a loss on, if on any—while not only are English farmers working hard and looking sharp to find every chance for making and saving manure, but some of the best scientific men are giving their attention to the same subject.

There is one other point that has been dwelt on to some extent, and that is, that surface manuring is nature's mode—that by the decay of leaves and the various other vegetable substances deposited on the surface, the soil has been gradually growing richer for an indefinite period. In proof, the prairies are referred to as notable instances. It is also shown that the valleys of rivers are kept very rich, by the deposit of enriching substances by overflowing water. The valley of the Nile, which has been under constant cultivation without any other manure, for thousands of years, is referred to as a prominent instance of this kind. The Ganges and other rivers, are also referred to as examples of this kind of manuring.

Orleans Co., N. Y. F.

Flax Culture.

We remember a time when Flax growing was common in Maryland It was before the days of cheap cotton, when it was thought good economy, on large farms, to grow and to manufacture, as far as possible, all that was necessary for home consumption. There was a regular allotment of ground for the small crop of flax; which was broken on the flax-break, hackled, spun, and woven at home, for the use of the negroes. Of late years, attention has been directed to its culture again, owing to the high price of cotton. It has one advantage over that crop—that it needs little of the laborious field culture which it demands; being sown broadcast and needing no further care till harvest. The following, from a German flax-grower, we take from *Country Gentleman:*

Messrs. Editors: — In No. 683 of the *Cult. & Co. Gent.*, I find an article on flax culture, written by Mr. W. H. White, of South Windsor, Conn., in which the cultivation of flax is highly recommended to the attention of American farmers. Some assertions in said article I would heartily subscribe to, but others I consider erroneous, and, as I have been raised and am living in a country where, for centuries, flax culture has been an important and lucrative branch of agriculture, and am myself engaged in raising this product of the farm, perhaps you will grant to my remarks on this subject a page of your interesting paper.

First, let me speak of the proper place of flax in the rotation of crops. Your correspondent, in No. 683, says: "The soil should have been previously made rich by a *high manuring*." We never manure for flax. The fibre is injured by manuring; fresh manure is neither liked nor required by the flax plant. It is one of the greatest advantages for the farmers that the flax plant will thrive better without manure than with it, and that even the crop following flax on the same field requires less manure than if the same had been sown a year sooner in the place of the flax. For instance: Oats is here always sown at the end of the rotation, and after the oats are removed, the field has to be manured for the next crop. Now, after such oats, we sow flax without manure, and, after the flax, rye or wheat, with but a half allowance of manure, and raise a sure crop, and, after such winter grain, we have an excellent chance for red clover. Clover, indeed, is never better than in the second year after flax, As we raise no Indian corn, our rotation, being confined to small grain, must of course vary from yours. But making this allowance, the following rotation is an excellent one for our regions, on soil adapted to wheat and clover:

1st year—Beans; manured.
2d—Wheat.
3d—Oats.
4th—Flax.
5th—Rye or Wheat, with clover sown, is half a manuring.
6th—Clover.
7th—Wheat—half a manuring.
8th—Oats.

Here you have the proper plan for flax in a rotation, as proved by experience, as well as from scientific reasons. In the above rotation every crop has a fair chance, and the periods of manuring are well distributed. Take out the flax, and you can put in its place nothing but fallowing, thus losing a year's crop and having no better results thereafter. However, if part of the land has become weedy or foul from unfavorable weather, or other causes, such part then receives the benefit of a fallowing, instead of sowing it with flax.

Of course, the land, to produce flax in the above order, must be in a high state of cultivation. It will not do to sow flax on worn-out land. But good farming, with a rational rotation of crops, never takes the least strength out of the land. The reason why flax is not benefitted by fresh manuring, is partly this: The fibre requires an early growth; all extremes, every excess of heat or cold, drouth or moisture, are injurious: every part of the plant, as much as possible, must grow under the same influences. Therefore flax likes so much the sea coast and hates the inland, where heat and cold, wet and dry spells, will come on abruptly and in excessive manner. Fresh manure also disturbs such equal growth; it works different in dry or wet spells of the season, different in cold or warm weather. It is a well-known fact that barley from fresh manured land, (especially sheep manure,) is not good for the brewer; that seed wheat must not be taken from fresh manured land, nor after clover; and in similar manner flax is injured by fresh manuring

Your correspondent, in No. 683, advises further, to sow the flax-seed on *fresh-plowed land*. We never do so here—at least no experienced farmer does so in those sections of our country, where good flax is raised. We prefer an old furrow for two reasons. 1st. Because old-plowed ground keeps moist longer, while fresh-plowed land will in a dry spell soon suffer from drouth. 2d. Because all land, with the exception of sandy soils, needs exposure to the influences of the atmosphere for four or five weeks before the seed can be sown. All loamy soils—which are those best adapted to flax culture—are highly benefitted by such exposure, and we do not throw the seed on until the plowed ground has gone through such a state of fermentation, which makes it more mellow, softer for the hand, more elastic for the foot, darker of color, richer of nutritious substances. For these two reasons, our mode of preparing the land for a flax crop is as follows: Early in the fall the field is plowed shallow; it is important to plow immediately after the crop has been removed. Three or four weeks thereafter, when the field begins to cover itself with weeds, it is thoroughly harrowed and plowed shallow again. The second plowing is not necessary where the field remains clear of weeds. Very early in the spring, as soon as the land has sufficiently dried off, a deeper furrow (the last before seeding) is given. This last plowing can also be done in the fall, and frequently such plowing before winter gives better results than if done early in the spring.

The land now is left rough. The harrow is not applied until a growth of plants, (weeds,) begins to spring up. Then, however, the field receives a thorough harrowing, aided by rolling. The harrow not only passes twice over the land, as your correspondent thinks necessary, but frequently four or five times; the harrowing is continued until the whole field is like a garden bed, perfectly pulverized, and *all hollows*, every *trace of the furrows* destroyed. A sharp stick thrust into the ground must everywhere meet a solid mass; the heel must not sink in deeply. This is the work assigned to the harrow; I know that in America much less attention is given to harrowing than here. The field now is again left; the seed of weeds still left in the surface will now germinate, and two weeks after this, such new crop of weeds is again destroyed by a thorough harrowing. Then after the next shower of rain the flax seed is sown, covered by a light harrowing, and the ground rolled, for which purpose a ringled roller is preferred. The best sowing time here is between the 20th and 25th of May; in America perhaps earlier sowing may be preferable.

The amount of seed required, where fine fibre is desired, is 180 Prussian pounds to the acre, which is equal to about 200 American pounds, or 3¾ bushels. The cost of seed per acre thus averages 18 Prussian thalers, or $13 in gold. We are obliged to buy our seed either from Russia or Zealand, and can use home-raised seed only once, so that every other year we have to buy imported seed.

We have an excellent flax market here, as there are large spinning factories, and alone for those in the province of Westfalia nearly a million and a half worth of flax has to be bought abroad, mostly in Russia.

Our object, as farmers, is to get rid of the flax at as early a period as possible, and it is of great advantage that, for the last five years, we can sell the flax in its raw state. The farmer now merely pulls up the flax, rots and dries it, and then finds ready sale for the straw. For this state, the price has been 28 pounds of straw-flax for one thaler, or about 2½ cents, gold, per pound, these two years; at present it sells even higher, to wit., 26 pounds for one thaler. One acre will, on an average, produce from 2,500 to 3,000 German pounds of dry flax straw—though, in 1863, I harvested myself from one acre 4,800 pounds. At 3,000 pounds, and a price of 28 pounds, as above stated, the fibre is worth 107 Prussian thalers per acre, while the whole cost of raising is about 30 thalers, including the seed; so the net profits are about $48, gold, per acre. These figures are not imaginary, but, on numerous farms, such profits have been made for many years here.

Flax raising, however, is a trade, and wants to be learned. I cannot here enter into its details, but your correspondent, in No. 683, commits two farther mistakes, which I will mention, and hope he will pardon me for this, as my sole object is to promote exact knowledge of an important branch of agriculture.

1st. The steeping of the fibre in water is really a "rotting;" its object is not only to soften the filaments. The flax in the water must ferment, and this fermentation must have its full process. The end of the same is indicated by a sinking of the steeped flax; as soon as the fermentation is over, the immerged bundles will sink several inches in the water, and then it is time to take them out of the water. Fermentation being the object, warm water will attain the same much quicker than cold water; in fact, the water must have a certain temperature, and also a quick-running stream is unfit for this purpose.

2d. The spinning factories cannot buy flax in its green state, nor even in its raw state, but only after the rotting and after the breaking of the woody rot which surrounds the fibre. Therefore there must be men that make a business of buying and preparing the flax for the spinning factories, or else the farmer has to take care of these operations himself. Green flax can bear neither transportation to any distance nor delay; and, even after the rotting and drying, the flax is too bulky, and, in consequence, requires too much cost for transportation, as well as storeage, to be saleable to the factories in this state; besides, it cannot be estimated right in this state.

Finally, I consider flax a highly recommendable crop; but if your correspondent, in No. 683, says that it requires "less skill and attention" than any other crop, I should, on the contrary, say, "it requires more skill and attention than almost any other crop of the farm." Besides, the farmer must be sure of a market.

WM. LAER.

Munster, Prussia, March 8, 1866.

Cruelty to Animals.

John T. Hoffman, Henry Grinnell, J. J. Astor, and other prominent citizens of New York, have got from the Legislature of that State an act of incorporation under the title: "The American Society for the Prevention of Cruelty to Animals."

In accordance with the general idea of the Association, several laws have been passed, making provision for the more effectual suppression of cruelty to dumb beasts. The following are some of the provisions of the law:

Transportation of Animals by Railroads.—No Railroad Company in this State, in the carrying and transportation of cattle, sheep, or swine, shall confine the same in cars for a longer period than *twenty-four consecutive hours*, unless delayed by storms, or other causes, without unloading for rest, water and feeding, for at least ten consecutive hours; and shall not receive nor re-load cattle, sheep, or swine, from other railroads, which have not been rested at least ten consecutive hours immediately preceding such loading and re-loading, and have been watered and fed within said ten hours.

Cruel Treatment of Animals.—Every person who shall, by his act or neglect, maliciously kill, maim, wound, injure, torture, or cruelly treat, any horse, mule, ox, cattle, sheep, or other animal, belonging to himself or another, shall, upon conviction, be adjudged guilty of a misdemeanor; and every owner, driver, or possessor of an old, maimed, diseased horse, or mule, turned loose, or left disabled in any street, lane, or place, in any city in the State, who shall allow such horse, or mule, to lie in any street, lane, or public place, for more than three hours after knowing of such disability, on conviction, shall be adjudged guilty of a misdemeanor.

Among other items of cruelty to animals, prohibited and punishable by the same law, are "premeditated fights between persons with their fists," fights between game birds, or game cocks, or dogs, or bulls, or bears, or between dogs and rats, or dogs and badgers, &c.

REMEDY FOR THE SCOUR IN LAMBS.—Take the seed of the common dock, make a strong decoction, sweeten with loaf sugar, add half a teaspoonful cayenne pepper to the quart. Give to each lamb a wine-glassful three or four times a day until a cure is effected.

Reconstruction.

If the politicians would allow the farmers of the land to take charge of the work of reconstruction, we might hope for a speedy return to peace and prosperity. They would bring to bear upon the subject a quiet, practical, common sense treatment, before which, all the difficulties conjured up by the former would speedily vanish.

The idea is suggested as we read the letters which we here extract from the *Southern Cultivator*, and admire the cheerful, hearty submission to circumstances, and sound, good sense they evince. One is from a Georgia man, who would be classed, we suppose, with what the vulgar educated call "poor whites;" the other from an educated gentleman, a native of Maryland, who having farmed before the war in Illinois, had returned to the South where he acted as a Confederate surgeon. He now makes the field of his operations, an Alabama plantation:

A VETERAN'S EXPERIENCE—GOOD ADVICE.—John Farrar, of Georgia, says: I have concluded to inform the readers of the *Cultivator*, how I am getting along in the management of plantation affairs, and how I manage the freedmen and women of which I have the control. In the first place let me say that I am in my 78th year, was raised to hard work, my mother and father had seven hearty boys, each of whom lived to weigh more than 200 pounds, I being the eldest had the brunt of work to bear, consequently, but little schooling fell to my share.

I am now attending to the business part of a farm for another man, the late war having left me with but little in this troublesome world. I have 21 hands all told, viz.: 9 men, 8 women, and the rest boys. I have had more than 4,000 panels of fence made or reset, about 20 acres cleared, I am planting about 190 acres in corn, about 180 in cotton, say 25 in sorgo or syrup corn, as the negroes here call it, shall put 5 acres in sweet potatoes, have 1 in Irish potatoes, have 10 good plow stocks. My hands are easy controlled and work freely, I encourage them to do so, I am nearly all my day time with them, tell them that if they will work, so as to deserve it, it affords me pleasure to give them a holiday. They have pushed ahead to my satisfaction with but little exception so that I have given them one-half of more than half the Saturdays of this year so far. Some old togy may think I am fooled in this, to think that a half day with twenty hands makes over a week for one, but I know that I gain by it, I am a judge of a day or a week's work. I get up at three o'clock, make my own fire having the wood at hand, sit by it and think over my day's business, come to my conclusions, ring the bell twenty minutes before day for all hands to rise, the women go to cooking for breakfast and dinner; get off to work before sunrise; every set of hands have their work for the day told them. I have quite early breakfast, saddle and mount my little mule and I am with the hands or going from one set to another until the middle of the day, come home, get dinner and am off again frequently in less than one hour. The hands have good pay for the year, they board and clothe themselves, everything they need is furnished them on the place at a less price than the nearest market; they seem to enjoy themselves highly, it does them good to think what they want their credit is good for. I treat them kindly, talk with them freely on matters pertaining to their interest, wink at small errors, but reprove any neglect on their part. If things go exceedingly wrong with any one of them, come down as it were like a clap of thunder, whatever the difficulty may be settle it right then, and never hint the thing again. I hardly ever enjoyed myself more than I do when going from one set of hands to another, and find all things going to my satisfaction.

Dr. H. Hinkley, of Alabama, says:

Though fond of my profession, yet I am more fond of agriculture, and see a vast mine open in the prosecution of Southern agriculture, to willing hands and stout hearts. I have "pitched in" to hard work, and intend to "run the concern" as I did in Illinois, by being my own overseer, and doing whatever my hands find to do. If every negro were in Guinea, Southerners would be better off; but as they are not, we must use them, and teach them how they should work.

Having perfect confidence in my ability to make free niggers do as much or more than slaves did, I leased a prairie farm in Alabama for several years, and on the first day of January (ult.) my contract was signed, and my hands at work —before my neighbors. I send copy of my contract, which is simple, and embraces all that I deem requisite. I work about twenty-five hands, and they are good ones. They rise before day, and are at work till dark. They fiddle and dance at night, and get their lessons in the spelling book; and they grin with delight at the beautiful bright steel mold board, clipper plows, which I have received from the North; and do with three furrows what the old wooden mold board and slaves did with four—or rather they more than do it—as they not only list a bed with three furrows, but they bring up soil that never saw daylight before. My idea of our native implements is not favorable—especially after farm-

ing in Illinois four years, where the most beautiful, useful and excellent labor-saving agricultural implements in the world are made.

My desire is to help the agriculture of my native South as much as possible; and help make it what its destiny now points—a white man's country. We want *all* the good white men we can get.

We want smaller farms, more villages, less pride, more industry, fewer stores and clerks, and more laborers. We need not be any less gentlemen, any less hospitable, intelligent, refined or chivalrous. The almighty dollar is a stigma against the Yankees; but I think the everlasting nigger and cotton was just as engrossing an idea with us. Agriculture is a peaceful occupation; it leads to wealth now just as certain as any other business or pursuit. Energetic men, who know what negroes are and were, can use freedmen's labor and get rich. There is a way to work these people which is easily acquired, and it consists in decision and kindness. Treat them well, but make them all toe the mark, and never look over their faults, but correct them. Strict obedience to all orders is enforced on shipboard at sea. Were it not so, many would be the losses sustained by our marine—which attention to duty prevents. On a farm or plantation, all orders should be as strictly followed, and losses will be rare.

There are a great many bad negroes in the South—lazy, worthless wretches—but there are also many good ones. The bad ones will all die, from causes following their own worthlessness. The goods one will improve, and, by the force of circumstances, even these will become scarce. White labor will gradually take their place, but it must be on smaller farms. Scientific agriculture will gradually come into our midst, and the use of labor-saving machines make some amends for the paucity of labor.

Lice on Cattle.—A correspondent of the *American Agriculturalist* says that "knowing larkspur seed would destroy lice on human beings, he collected a quart of seed, ground it fine, soaked it a week in one gallon of strong vinegar, and then applied it with a sponge to all parts of the animals; has never seen louse or nit since." On the same subject, T. F. Haynes, Hartford co., Conn., writes to the *Agriculturalist:* "I keep lice off my cattle by keeping sulphur and salt in winter where they can lick it when they choose; my cattle have had none since I practiced this."

Shengel mentions a rose tree, still living, which is upwards of one thousand years old.

Top-Dressing Lawns and Meadows.

Top-dressing lawns and meadows in spring, seems still to be in vogue, when, to any thinking mind, it must be obvious, that they lose three parts of the strength of it by strong sun and March winds. When top-dressing is to be done, fall is the proper time to do it. At that time all the strength of the manure (liquid) is washed into the ground It also serves as a protection to the grass, and the sun will not burn it up, as is the case in spring; but in either case it is generally a waste of manure, in the manner that it is applied. When top-dressing is necessary, it should be done from the compost heap. This compost heap retains all the ammonia from the decomposed vegetable matter, and dung fresh from the stables. All this ammonia evaporates. When we use manure to plow in, we only spread as the plow proceeds. This in a great measure saves the ammonia. Those to whom manure is an object, (it should be to all,) should sprinkle it as they make it with charcoal dust. If they have not that, use ground plaster, which will absorb all the ammonia.

Those who use manure for top-dressing, should have a tank to receive all the water closets and suds. In the spring, have a hogshead, and pump this into it, and have a box of tin, three or four feet long, and six inches wide at the end, and go over the lawns and meadows. This is much better than any barn-yard manure, and no expense. If they had to pay from two and a half to three and a half dollars a load for manure, they would adopt it; but, in nine cases out of ten, this valuable manure is allowed to run into the common sewers—in fact, it is generally only thought of as getting rid of it in the easiest way. Try half an acre with this liquid, and half an acre with stable manure, and you will find the credit side to the tank manure.

Another good top-dressing is this: Flour of bone—that is, bones ground as fine as plaster. This, on lawn, is a fine fertilizer, and bone dust in any shape is one of our best manures for grass—flour of bone for lawns, as it will not interfere with the scythe or mowing machine. I speak of it as a top-dressing for immediate effect. Coarse bones are better when you are laying down your lawns or meadows, and it will pay to use either, as they last much longer in their effect. When applied, they should be lightly harrowed in. The great drawback I foresee to this flour of bone is, that it is so easily adulterated, which will be done, the temptation being so strong. There is no fertilizer that I should use so much (except guano) if it was not for that reason. To get it genuine will be the main object, and how long

that will be is a question; even what is now called fine bone dust, it is impossible to get unadulterated. For that reason I always use the coarsest that I can get, as I can then see what I get, and if I want it fine, I break it. They cannot adulterate coarse bone, and to prove it you will always have to pay more for coarse bone dust than you will for fine. I would advise some manufacturer to make *pure* flour of bone, and charge according to its worth, and not adulterate, and he will find that it will pay him, and the consumer. Genuine will pay to use; adulterated, at no price.

I have tried all the specialities of the day in shape of manure, and proved nine-tenths of them humbugs, which will be seen by referring to *Co. Gent.* Peruvian guano, when properly applied, is the only fertilizer that can be depended on. The others are generally what I term, cheat the public and enrich the manufacturers.—G. HOWATT.—*Co. Gentleman.*

Habits of Sheep.

They perseveringly follow their leader wherever he goes; but if, in case of sudden alarm, any one of the flock runs forward to escape, and thus takes the lead, the rest generally follow him, regardless of any obstruction. Of this singular disposition, Dr. Anderson once witnessed an instance in the town of Liverpool. A butcher's boy was driving about twenty fat wethers through the town; but they ran down a street through which he did not wish them to go. He observed a scavenger at work with his broom, a little way before them, and called out loudly for him to stop them. The man accordingly did what he could to turn them back, running from side to side, always opposing himself to their passage, and brandishing his broom with great dexterity; but the sheep, much agitated, pressed forward, and, at last, one of them came right up to the man, and fearing it was about to jump over his head while he was stopping, grasped the short broom-stick in both hands, and held it over his head. He stood for a few seconds in this position, when the sheep made a spring and jumped fairly over him without touching the broom. The first had no sooner cleared this impediment, than another, in such quick succession, that the man, perfectly confounded, seemed to lose all recollection, and stood in the same attitude till the whole had jumped over him, not one of them attempting to pass on either side, though the street was perfectly clear. As this took place during wet weather, the man was entirely bespattered with dirt before they had all passed; and it is impossible to conceive a more ludicrous appearance than the poor fellow made on this occasion.

Mulching Fruit and Ornamental Trees.

The past season has afforded a fine opportunity of testing the merits of the mulching of fruit and ornamental trees, and more especially of newly planted ones. Of its utility there can be no doubt. The excessive drought which prevailed during the hottest months, over nearly the whole country, proved very destructive to newly planted trees, and to many that had had the advantage of a years setting out. Where they were not killed outright, many were badly damaged and received a back set, from which it will take them years to fully recover. On the other hand, we have seen young evergreens as flourishing and healthy during the severest prevalence of the drought as though the season had been the most favorable. The same may be said of fruit and deciduous ornamental trees.

But a mulch is not merely useful in summer. Newly planted trees, if set out in the fall, should always be mulched, and to a good thickness at that. The mulch not merely protects the young roots from the injurious effects of alternate freezing and thawing, but it encourages them to shoot regularly in the spring. Those who have young orchards will do well to profit by these suggestions. The results will amply reward the labor and expense required.—*Ex.*

Chloride of Lime for Vermin.

Some years ago I read in a French scientific periodical, that chloride of lime would rid a house of all these nuisances. I treasured up the information until opportunity offered for testing its value, and this occurred some four years since. I took an old country house infested with rats, mice and flies. I stuffed every rat and mouse-hole with the chloride. I threw it on the quarry-floors of the dairy and cellars. I kept saucers of it under the chests of drawers, or some other convenient piece of furniture; in every nursery, bed-room, or drawing-room. An ornamental glass vase held a quantity at the foot of each staircase. Stables, cow-sheds, pig-sties, all had their dose, and the result was glorious. I thoroughly routed my enemies, and if the rats, more impudent than all the rest, did make renewed attacks upon the dairy, in about twelve months, when, probably, from repeated cleansing and flushing, all traces of the chloride had vanished, a handful of fresh again routed them and left me master of my own premises. Last year was a great one for wasps; they wouldn't face the chloride; though in the dining-room, in which we had none—as its smell, to me most refreshing and wholesome, is not approved by all persons—we had a perpetual warfare. And all the comfort for eightpence.—*Cor. Lond. Builder.*

Rinderpest.

We do not realize, till we look carefully at the figures, the terrible visitation to which our English friends have been subjected, and from which we have been, as yet, so happily exempted in the fatal Rinderpest.

The return published by the Veterinary Department of the British Privy Council, for the week ending December 30th, gives an account of the loss of stock by the disease, from its commencement in June to the end of the year 1865, as reported by the local inspectors. In England 48,964 animals were attacked during the whole period, and of them 11,142 were killed as a preventive measure, 27,177 absolutely died of the disease, 3,655 recovered from the attack, and 6,990 diseased animals were remaining on Dec. 30th, whose fate will be recorded in subsequent returns.

In Wales the disease was confined to the two counties of Denbigh and Flint, and the total number attacked was 2,287; of these 93 were killed, 1,565 died, 218 recovered, and 411 remained under observation.

In Scotland 22,298 animals were attacked—2,098 of these were killed, 12,749 died, 3,172 recovered, and 6,381 cases were undetermined.

In Great Britain, therefore, the aggregate numbers stands thus: Attacked, 73,549; killed, 13,931; died, 41,491; recovered, 7,045; and 11,082 (or 15 per cent. of the attacks) are brought forward into the account for 1866.

The *Mark Lane* Express contrasts, with indignation, the trifling of the English, and the energy of the French Government, in protecting their people against the plague, and makes an exhibit of the rate of increase in England to the first of February:

"The French veterinarians came over long ago and so reported upon the nature and course of the disease in our country that the French Government acted at once, and successfully held the plague out of its empire. Our Government 'didn't know,' and yet the French Government had already examined into the whole affair as it existed in England, and thereupon did all that was required for the safety of French cattle as long since as September. Does our Government suppose that, though it must have known what to do, it will be excused because the public generally would not have approved the only efficient measures? If it is not one duty of rulers to take the initiative to ascertain what steps are requisite in great and sudden emergencies, and then to inform its people and thus create an enlightened opinion on the matter, it is about time to give up theories of Government, to expect nothing wise, nothing virtuous, nothing progressive from statesmen, but merely to look for this result, that they shall move when they are pushed, and stop when the popular pressure relaxes.

"The most wonderful thing just now is to see stock owners losing their cattle, and still in a resigned attitude of mind—rosy only with good natured sadness, not with boiling temper. But it is enough to enrage any class, except that of tenant farmers, to take one glance at other countries saved by administrative vigor, and then to look at our own condition.

Here are a few of the figures relative to Great Britain:

Week ending—	No. of attacks.
October 14	1,054
October 21	1,729
October 28	1,873
November 4	1,765
November 11	2,580
November 18	2,669
November 25	3,610
December 2	3,828
December 9	5,356
December 16	6,054
December 23	6,256
December 30	7,693
January 6	9,120
January 13	9,243

"The weekly increase latterly has been at the rate of about one-fifth. Supposing that this rate of progress continues, what will be the number of attacks in half a year's time? It is the old calculation over again of a farthing for the first nail of a horse's shoe, two farthings for the second nail, four farthings for the third, eight farthings for the fourth, and so on till you are surprised at the amount for the last nail of the fourth shoe. Adding one-fifth every week, we get some 40,000 attacks for the first week in March, 97,000 for the first week in April, 202,000 for the first week in May, 500,000 for the first week in June, over a million for the first week in July, by which time the total of cases would amount to no less than six millions. Half the head of cattle in the kingdom would, at this rate, be attacked by the first week in June. We do not say that this disease will spread regularly with this rapidity; we only say that it is actually extending with this speed now, and has been during the last few weeks. If anybody chooses to take it for granted that the totals will presently be found to fall off, and the disease gradually grow weaker in its murderous course, we are equally at liberty to expect that the mortality will increase."

The American Farmer.

Baltimore, July 1, 1866.

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BALTIMORE.

How the Government Teaches Tobacco Growing.

There has been, in the agricultural journals, a great deal of criticism of the Government Department of Agriculture, with which, so far as it is personally unkind or unfriendly to the Commissioner, we do not sympathise. We have reason to think that officer a worthy gentleman, who is doing the best he can, at least, in what the Government has set him to do. He has done much useful service, he has put his department far in advance of what it has been heretofore, and is generally accorded, we believe, the merit, which is no small one, of having secured for himself many able assistants. The miserable business of broad-cast seed-sowing, which makes a department of Government the distributing shop of seeds gathered from everywhere, or anywhere, the Commissioner is hardly responsible for. It has been carried on too long, and is too well established, to be broken up by less than a stronger hand than his. The thousands of little packages made up in the Commissioner's office, with the thousands of potted plants in the gardens, are so many petty "sops for Cerberus," without the help of which, with members of Congress, the department had suffered for necessary funds, or the Commissioner's official head had fallen. When that fine old Maryland gentleman, John G. Chapman, was in Congress, he bought, at a very high price, fifty to a hundred bushels of what, he had reason to think, a valuable variety of wheat; paid for it with his own money, and distributed it in small packages, at his own cost. But this is not the way of modern Congressmen. While they are liberal of affectionate remembrances to their constituents, they saddle the expenses on a tax-burdened people; and the scandalous meanness must be covered by some such device as this distribution of seeds. For this, and the official publications which subserve, in a measure, the same end, we are not disposed to hold the Commissioner to too close an account. They are means to an end, justified in the minds of Government officers, by the high, State necessity, of holding on to their official positions.

But with the character and contents of these publications, we shall deal with candor and freedom. If the Federal Government sets up to teach, it is our duty to know, and our business to inform the readers of "The Farmer" of, the worth of what is put forth, by the head Professor of Modern Agricultural Science.

Our attention is drawn in this direction just now, by, what seems to us, the propriety of rescuing the fame of certain friends of ours, from the somewhat damaging eminence to which the the Commissioner has exalted it. Turning, by accident, to the report of 1862, we find that the Government Professor gets up an essay on how to grow tobacco. Col. W. W. Bowie, of Prince George's, and Mr. Oliver N. Bryan, of Charles county, highly respectable citizens of Maryland, had published in "The American Farmer," valuable essays on the subject, as was well known to the Commissioner; for he was always wise enough to read "The Farmer," and it was his duty to have got one of them, to furnish him the necessary matter for the report on this subject, unless he could command the services of a writer having at least some knowledge of the subject.—But it was necessary, no doubt, to give the job to some one who had a friend in Congress, and knowledge of the subject seemed unnecessary, where the back volumes of "The American Farmer" were at hand. But even these, the writer of the made up essay, which goes out under the auspices of the Government, so mistakes and perverts, that the only wise thing said is, that "those who are commencing the culture of tobacco, should avail themselves of the services of an experienced man, who can supply the knowledge which cannot be learned from books." Meaning, of course, such books as this Government report.

Col. Bowie is made to say, that the tobacco crop should be "liberally top-dressed, every ten days, with a compost of unleached ashes, virgin woods' earth, pulverized sulphur, plaster and salt." Think of Mr. Bowie top-dressing his tobacco field of fifty acres, or Mr. Hill his field of a hundred acres, with a nicely prepared compost of impossible things, put on—"liberally"—"every ten days!"

Mr. Bryan, he says, advises, manuring the crop with Peruvian guano, "at the rate of a thousand pounds to the acre!"—or "hog manure,"—requiring a very big hog-pen to supply it,—"or *well rotted* oak ashes,"—demanding a large consumption of oak timber,—"or well rotted stable manure, with plaster."

As doctors always follow their own prescriptions, let us assume that Col. Bowie has taken his own advice, and make an estimate of what he has done in the way of manuring. We will say he has been a "Patuxent Planter" for twenty-five years,—hoping no offence, if we do him any wrong on this point,—and suppose he has cultivated, each year, in tobacco, a field of fifty acres: A "liberal" dressing of compost would be, say twenty-five horse-cart loads per acre. Put this on "every ten days," up to the first week of August, when the suns of summer might be supposed to repress his energies, and the state of the growing crop might present some obstacles, the matter would stand about thus:—Six applications a season, one hundred and fifty loads per acre: for fifty acres, seven thousand five hundred loads: fifty acres for twenty-five years, ONE HUNDRED AND EIGHTY-SEVEN THOUSAND AND FIVE HUNDRED LOADS OF COMPOST, which he has manipulated in the short period named.

Of course, neither Col. Bowie nor Mr. Bryan have advised any such nonsense, as is ascribed to them. The explanation of the matter is, that their manuring prescriptions was intended for the little plots, in which the plants are raised, which require special nursing and forcing, and the writer for the Government Department of Agriculture, was first too careless to quote them correctly, and then, too ignorant of his subject to see the folly of the mistake he has made.

Let it not be supposed we have misrepresented this essayist. He, very probably, took the gentlemen named to be enterprising Northern men, who had settled in the lower counties, and were teaching the natives wisdom. He, plainly, admired their liberal way of manuring, for he had just been comparing the tobacco growing of Connecticut and Maryland, to the disadvantage of the latter, and quotes these writers to show, that a new light was dawning in this region. The "curse of slavery" being now "wiped out," it will be expected of such men of progress, that they advance these rates of manuring up to the present "situation." Perhaps they will be good enough to let *The Old Farmer* know, what they are thinking, after further reflection, of agricultural matters in general, and of manuring tobacco fields in particular.

What the Government Teaches of the "Destruction of Soils."

In the Report, before alluded to, of the Commissioner of Agriculture, is an item headed "Destruction of Soil," embraced in the article on Agricultural Statistics, from which we quote as follows: "But few greater calamities could befall a nation than the impoverishment of its lands.—Virginia stands as a lesson to other States. Her unskillful tobacco cultivation ruined the finest portion of her territory."

In a grave State paper on statistics, ornament is not looked for, for rhetoric can add nothing to the force of figures. The Commissioner, therefore, might have dispensed with the flourish about Virginia. If it were original, and fresh, and beautiful, as it is stale, flat, and unprofitable, it would still only gratify the base sentiment which delights in the detraction of that brave old State. We pass over, however, a matter of taste, and prepare to notice again the teachings of the Government officer, who assumes the duty of Instructor General in Agriculture. We mean to show, that if his taste is bad, his teaching is worse, and that in making a mean fling at Virginia he has betrayed not a want of acquaintance with facts merely, but ignorance of scientific truth. And we do so, not for the sake of discussion, or to make up an article, but because the truth ignored, not by the Commissioner only, but frequently and commonly, is of very material importance.

He tells us that a portion of the territory of Virginia is "ruined." We deny that any portion of her territory is ruined, in the sense he means to convey, that is by "the destruction of the soil." He says, the "*finest* portion" is ruined. We say, if any be ruined, it is not the finest. He says, it is ruined by "unskillful tobacco cultivation." We deny that what he calls "ruin" is the effect of "unskillful tobacco cultivation."

We will consider these points in their reverse order, and begin with the last. It is a mistake to suppose that tobacco is an especially exhausting crop. It does, indeed, make large drafts from the soil, of its mineral constituents, but of these it leaves behind, in the stalk and waste, a large portion, in condition so available that no fertilizer is more prized than the waste from the tobacco house. Its cultivation demands the most thorough preparation for planting, and the most careful exclusion of weeds, and requires very little exposure of the soil to the summer's sun, before it becomes closely shaded by the spreading leaves. When the crop comes off, the ground is in the best condition for grain, and especially for the clover and grass following, which flourish as after no other crop. Then the degree of care, and

good cultivation, which tobacco demands, educates the most careless farmer into good habits. Whatever the condition of the farm otherwise, there is always before him, in the tobacco field, an example of good cultivation, which has its influence on the general management. It cannot be said of such a crop that, well cultivated, it is destructive of the soil. On the contrary, the necessary manuring, the careful husbandry, the excellent preparation it makes for the cheap improvement by clover and the grasses, has made it a conservative element in our system of cropping.

But "unskillful tobacco cultivation" is the language of the Report; and, paradoxical as it may seem, the remark is as little true of unskillful as of skillful cultivation. In the early history of our tobacco growing, when the present well known means of maintaining fertility were little known, and less practised, it was the very want of skill which characterized it, that preserved the soil.—Skill enables the cultivator to take the largest possible crops, and to continue their production the longest time. The greater the skill, the greater the draft upon the essential elements of the soil. Wanting this, there was a necessity for resorting continually to new surfaces, where the overlying mould would substitute thorough and skilful working; and so while the old lands were not ruined, new lands were constantly opened to cultivation. The harm done was the skimming of the surface soil, the good, the subjection of the forest lands to the plough.

As to the point, that "the *finest* portion of her territory" has been destroyed, as the Report has it, it does not need discussion. So far as the destruction went, such lands gave way fastest, as were least capable of withstanding the treatment they received, and these were certainly, not the finest. Or if it be maintained, that the best were first opened, and longest subjected to hard usage, the answer is, that it is contrary to all experience that the most fertile lands of a new country are opened first. The settler brings first into cultivation such lands as offer least resistance to his axe, and these are not the richest. But the facts speak for themselves. Some of the finest lands which the world knows almost, are those which for four years past have been devastated by contending armies, within the limits of Virginia.—She owns them still, and if she has had any better, destroyed by tobacco cultivation, we do not know of it.

Now, as to the other and most important point, that of "the destruction of the soil:" We deny that there is any destruction, or any material approach to it, in the sense which the Commissioner means to convey. The words he uses, and the kindred expression "worn out," convey a lesson that is inconsistent with the teachings of science. These terms grew, naturally enough, out of the common opinion of times past, that "soil" meant only a few inches of surface earth, mixed with the vegetable remains of the forest, and of the plants that had perished on it, and that these constituted its chief, if not its only, value. This vegetable mould was the measure of fertility; if it abounded, the soil was rich—if deficient, it was poor. It was proper that those who held that opinion, should say, when these original surface recumulations of vegetable material were consumed, that the soil was "exhausted," or "destroyed," or "worn out." That was indeed worn out, which, in their opinion, made the soil. The expressions were the outgrowth of an erroneous notion, and being so, they represent, and uphold, and teach that error still; and that, we maintain, the Commissioner of Agriculture, least of all, has a right to do.

Modern science teaches that the earthy elements are as necessary, at least, as the atmospheric, and as the latter abound and super-abound outside of the soil, and when consumed are readily replaced, we are taught to estimate a soil, by the variety, the proportion, and the condition of its inorganic elements. Well constituted as regards these, it is a good soil, otherwise a poor one, without reference to the quantity of vegetable mould which may happen to be present. The point we make is, that there is no evidence that any such soil has ever, since the world began, been worn out. Its original proportions may have been somewhat altered, by the draft of certain crops on certain elements, and the original balance somewhat disturbed of the presently available portions of these elements, but that this is not destruction, thousands of familiar instances of restored fertility are the proof. It is a present disability, which the intelligence and skill of the cultivator is called on to correct. In some cases, and with the inferior class of soils, he will find occasion to feed his crops, as he would his animals, with food fit for them—special applications to meet special demands; but in well constituted soils, he must bring to bear chiefly, the art and appliances of skillful cultivation, not because the soil has been destroyed, but because of its indestructibility.—He needs to break up combinations, and to set free, and make available, to his crops, the elements which the earth locks up too closely. He must dig as for hid treasure; there must be hard knocks before the door will be opened. All this is inconsistent with the rapid wearing out which the other opinion teaches, and only shows that

the wearing is not fast enough, to meet the wants of cultivation. We might fear the result of these operations, if there were reason to think that there was any material difference between those portions of the soil fit for plant food, and those not fit, except as to their present availability.

That surface skimming of the soil, of all the old States,—of Virginia, no more than any other, has been more the consequence of sparseness of population, and scarcity of labor, than any other cause. It was more convenient, and thought to be more profitable, to open new lands, than to renew the old; and, finally, more profitable still to transport the laboring population to the wealthy cotton and sugar lands of the Southwestern States.

Cats and Clover.

By what manner of con-cat-enation cats and clover are brought into conjunction, many of our readers will wonder. If we make a farmer believe that his crop of clover depends somewhat on the life of his cat, will he not begin to felicitate himself that the cat has nine lives, and take more care that they be not needlessly destroyed?

Mr. Darwin, in his work on "Species in our Domesticated Animals and Cultivated Plants," records some interesting observations and facts, on the fertilizing of plants, by the agency of insects. The tubes of the corollas of the common red and incarnate clovers, (trifolium pratense and incarnatum,) do not appear, at a hasty glance, to differ much in length; yet the hive-bee can easily suck the nectar out of the incarnate clover, but not out of the common red clover. The hive-bee, accordingly, visits the former; and these visits, it appears, from experiments recently made, are necessary for the fertilization of the plant — The common red clover is visited by humble-bees alone, and Mr. Darwin thinks that if the whole genus of humbles became extinct, or very rare, the red clover would also become very rare, or wholly disappear. The number of humble-bees in any district depends, in a great degree, on the number of field-mice, which destroy their combs and nests; and Mr. H. Newman, who has long attended to the habits of humble-bees, believes that more than two-thirds of them are thus destroyed all over England. Now the number of mice is largely dependent, as every one knows, on the number of cats; and Mr. Newman says: "Near villages, and small towns, I have found the nests of humble-bees more numerous than elsewhere, which I attribute to the number of cats, which destroy the mice." "Hence," says Mr. Darwin, "it is quite credible that the presence of a feline animal in large numbers, in a district, might determine, through their intervention, first of mice, and then of bees, the frequency of certain flowers in that district."

This gives us a somewhat striking impression of the singular complication in the relations of natural objects, which we look upon generally as having a very remote connection, and makes us think there was a little philosophy, may be, in the old nursery story, showing how the cat helped the old woman to get an obstinate pig over the bridge—"the cat began to kill the rat, the rat began to gnaw the rope, the rope began to hang the butcher," and so on to the interesting consummation, when, we are told, "piggy began to go."

But Mr. Darwin makes an extreme statement in favor of the bees and the cats, for he overlooks the fact that both the clovers referred to are frequented by butterflies, which have a much longer proboscis than bees, and also by certain day-flying moths; and, as fertilization in these clovers seems to depend on the corolla being moved, and the pollen thus pushed on to the stigmatic surface, their comparatively tranquil visits may suffice for this purpose, as well as the bustling activity of the restless bees.

Humble-bees seem also indispensable to the fertilization of the violet, and Mr. Darwin dreads a similar fate for it, if these insects should be destroyed. The existence of natural objects, however, has seldom been left to so uncertain contingencies. When one mode of propagation fails, another frequently comes into operation, and the violet would increase from off-shoots, even if it scarcely ever ripened a seed; just as mice, especially field mice, would be kept in check by rapacious birds and weasels, even if cats were to fail throughout the land.

Fruit Cultivation.

Being quite satisfied that the cultivation of fruit is a growing, and, destined soon to be, a great interest, in Maryland especially, we shall give greater attention, in future, to this department of "The Farmer," and hope to have it well furnished with original matter from reliable and competent sources.

Mr. Daniel Barker, of the Maryland Agricultural College, a horticulturist of long experience in England, and this country, we are indebted to, for our monthly notes for the Fruit, Flower, and Vegetable Garden. Hereafter, with such other, thoroughly competent assistants as may be needed, we shall enlarge this whole department, and give it increased value and interest.

The Friends of "The Farmer"

Can do us a special service and favor, by making its re-issue known, and by commending it to their friends, as they have opportunity. They may feel perfectly assured that neither cost nor effort will be spared, to give it the full measure of value it had in former years, and to insure, by suitable improvements, its adaptation to the material changes which are now going on, in the system of agriculture of the Middle and Southern States.

Correspondents.

We shall be glad to hear from our friends in all parts of the country, upon topics of agricultural and horticultural interest. Whether designed for publication or not, their communications are interesting and useful to us. We wish especially to be kept informed as to the prospects and results of the crops of the season. Heretofore, we have been able to render valuable service to our readers, by information of this sort, gathered from all quarters.

Discussions of topics of agricultural interest, under proper restrictions, rarely fail to be useful, and usually excite much attention. It is difficult to estimate the influence upon Maryland, and Southern agriculture, of such a discussion as that which was published many years ago, in "The Farmer," between Cols. Capron and Carey, chiefly, upon the subject of land improvement in Maryland, or the subsequent one, between Mr. Edmund Ruffin, Dr. P. B. Pendleton, T. G. Clawson, Esq., and the present editor of "The Farmer," as to the action of lime on a certain class of soils. We invite our friends to such discussions; and hope to enlist many of the ablest, and most intelligent agricultural writers of the day, in this, or other forms of communication with our readers.

MANUFACTURERS AND VENDERS OF AGRICULTURAL IMPLEMENTS AND MACHINERY, and of the many valuable *Fertilizers*, offered for sale, we shall be glad to hear from, as to anything new and interesting in their several lines of business, and to afford them every facility for communicating with the agricultural community.

FRUIT GROWERS AND NURSERYMEN are especially invited to communicate such information as to their specialties, as they deem desirable to have brought to notice.

STOCK GROWERS.—We shall have constant inquiries, from the South, for every description of improved stock, and wish to be properly informed as to the character of the flocks and herds accessible to Baltimore.

AYRSHIRE CATTLE.—There is but one thorough, and well-bred, herd of these valuable cattle in Maryland, that we know of,—that of Ramsay McHenry, Esq., of Harford county. Pure Berkshires, the best bacon hogs of the improved breeds, also, so far as we know, owe their present existence in Maryland to the good taste, in such matters, of the same gentleman. We shall be glad to get information of any well-bred Ayrshires outside of Maryland.

NORMAN HORSES.—Slaughter W. Ficklin, Esq., a noted breeder of blooded stock, near Charlottesville, Va., has just imported two Norman stallions and two mares of the same breed.

Southern Correspondence.

The state of affairs at the time, made it impossible for the notice which we gave of the suspension of "The American Farmer," to reach our Southern subscribers. Having no other means of communicating with them, except so far as a limited correspndence could go, we have received very many letters of inquiry as to what has become of "The Farmer," and when a renewal of its visits may be expected. Most of these are long letters, written out of the fulness of the heart, giving sad recitals of the condition of things around the writers, but without exception in a hopeful and cheerful tone. We give a few extracts, which fairly represent the general character of this corrrespondence.

A gentleman near Richmond, who for twenty consecutive years has held high public positions in Virginia, having heard that "The Farmer" was about to be issued again, says:

"I cannot forbear the expression of my sincere congratulations on the revival of "The American Farmer." I have a few scattered volumes left me, and my delight has been to read and re-read them at leisure times. * * * I have no hope nor desire for public office again, and now, in the middle of life, with ruined fortunes, and a large family, I have to seek a livelihood from the ground. I confidently look to "The American Farmer" to lighten my labors, &c. The old "Farmer" will be a most welcome visitor throughout the length and breadth of the land, especially to me and mine. It was a great favorite in my household. Set me down as a subscriber, and if it takes a cow to pay the subscription, I should consider it cheap."

Of the present situation, he says: "I was unable to get the requisite team and seed to put in, even a few acres of wheat, and with everything to buy and nothing to sell, the prospect is very dark. The total destruction of my wood land

and fences, prevents my attempting any more than will secure my family subsistence. My condition is not singular by any means. I am sorry to say. The Sheriff, who called to-day to collect the State taxes, told me that he had levied, this morning, distresses, on two gentlemen, whose taxable property was assessed at $30,000. Apart from the grain and tobacco, nothing that we could rake up, would supply our great need of money, for if a sale could be effected, it would be at much below real value, or, to secure anything like a fair price, it would be on credit."

Of the wheat crop, he says: "The wheat crop in all this section, is simply miserable. I have not heard of a single lot of good wheat in this whole region, and such is the complaint of friends and acquaintances in other sections of the State. One-third of a crop is the highest estimate I have heard. I had hoped that with the new crop of wheat, I should be able to indulge in "wheaten bread," in the future—but I must hold on to corn bread another term, I reckon."

Of the Freedmen's Bureau, he says: "It is, in all its ramifications, fraught with evil consequences, both to white and black, and can never be otherwise. So far as I know, we have all very kindly relations, not only to our former slaves, but the negro generally, and he reciprocates this feeling, when he is left to himself, free from the influences above referred to, and the continual efforts of Northern emissaries, in the shape of preachers and "school marms." Vast numbers of our old slaves have died, and very many more will have passed away, before the year shall have closed."

This letter was of the date of 31st of May.—From another, written several months earlier, we extract as follows: "After an interval of four long years, I trust my letter will find you in good health, and prosperity.—ready, as "in days of yore," to assist and instruct your friends in old, and, I must now say, *poor* Virginia, and that the political events of the past four years, have not erased from your heart the kindly feelings, you formerly, (as I thought,) entertained for your brother farmers in this old commonwealth.

"You are aware of the prostration and exhaustion now existing within our borders, but the true condition of things must be seen to be understood. In a large portion of our State, shot, shell, and spade, have done the work of the plough and harrow, and a system of *"trenching"* has been carried on, on a grander scale than was ever contemplated, by the advocates of that means of improving land, or than treated of in agricultural journals. It was Mahan *versus* Von Thaer and Jethro Tull.

"Like the majority of farmers, I have suffered severely; my stock reduced to nothing, implements worn out or stolen, &c., I must start afresh. The incubus of slavery, thank God, is done away with forever. I feel that there has been a load taken from my back, as well as from others. I superintend the operations of my farm in person; from morning until night I am with my servants, and, I assure you, with more zest and pleasure than ever before. The negroes in this section of the country, (Albemarle county,) have behaved well, all things considered. Poor creatures,—where you can count a dozen now, in a few years, you will not see one; the emigration that we may expect, and which I hope will come *soon*, and *largely*, will gradually drive them out of the State.

"My object in addressing you is, first, to ascertain if your valuable paper is still in existence, and second, to get some information in regard to stock, grass seeds, &c. My wants are necessarily numerous, while my means are correspondingly small. My first want is "The American Farmer." I want grass seeds, clover, timothy, and red-top: a thorough-bred bull, and one or two milch cows. Devon or Durham; a few Southdown ewes, and one buck, &c. If I had "The Farmer," of a late issue, I need not trouble you for information as to these things, as I have no doubt I could get it from its pages. Glad will I be, indeed, to hear that "The American Farmer" is still in existence, and thrice glad when I see its familiar face once more."

We add the following from one of the most prominent and estimable citizens of North Carolina, dated 5th of June, at Lexington:

"I am fully in a situation to sympathize with all who have suffered in the last five years; have lost two noble sons, the last of five, except the eldest; one hundred and ten negroes; with the usual depredations of three armies, camped near me. Have saved, mostly, my horses, mules, and cattle and sheep, and pretty flat down, trying contrabands to raise grains and cotton. The Freedman's Bureau here is a great drawback upon us. The negro does not expect to be ruled by his necessities, to a system of continuous labor, so important to the farmer; he has lost all care for himself, or others, and considers freedom to consist of an exemption of labor, care, or interest in anything. It will take time and experience to cure him of this, and necessity must teach him self-reliance. Enough of this! We are cheerful, poor, and hopeful, and reconciled to our condition. If we were let alone, and placed under the ægis of our Federal Constitution, we would most faithfully adhere to its provisions.—I think we are the best Union men."

Cultivation and Manure as Fertilizing Agents.

By Henry Tanner, Professor of Agriculture, Queen's College, Birmingham.

[Premium—Medium Gold Medal.]

In order that a clear view may be taken of the relative value of these agencies, it is necessary that the nature of the soil should be examined, and its general properties understood. Soils may be considered as consisting of matter in three distinct conditions. The first has been termed *the active matter* of soils, because it exists in a condition capable of being dissolved in water, and consequently available for entering into the circulation of plants and ministering to their growth. It has therefore received the term *active*, as being ready for the immediate discharge of its duties; and in this respect it differs very materially from the two other portions of the soil. The second portion has been named the *dormant* matter of the soil, not that it is dead or useless, but simply in a state of inactivity, being insoluble in water, and therefore unfitted for entering into plants. It might, however, be said that all matter which is not active must be dormant, and this is quite true; but for the convenience of more clearly explaining the component parts of the soil, a further division has been found desirable, and hence we have a third portion, or the *grit* of the soil. We must, therefore, view the soil not as a homogeneous mass, but as consisting of ingredients congregated into three classes, as—

The *active* matter of the soil:
The *dormant* matter of the soil; and
The *gritty* portion.

By the aid of chemical analysis, each of these may be again subdivided into the several ingredients of which it may be composed. It will at once be evident that an analysis of the entire mass of the soil would give information which must be looked upon with caution, and used with discretion. If an agriculturist wishes to know the composition of any particular soil, it is manifest that he requires, not an examination of the entire soil, but to know the constituents which compose the *active ingredients* of the soil, for these are the materials which influence the immediate fertility of the soil, and regulate its productive character.

If you examine the three classes already named, you will see that they are simply distinct stages, through which the soil has progressed or is progressing. We have the grit or stony portion—the type of the original rocks, from which all soils are produced—and these are the tractured particles which have withstood the disintegrating action of the atmospheric agencies for a longer period than the other portions. But as under the crumbling influence of the air, moisture, and change of temperature, these become broken up into a smaller and finer state, this gritty matter changes into the dormant matter of our soils, in condition and appearance forming part of the soil, but still insoluble, and therefore valueless as food for vegetation. Such then is the matter of the second class, or the dormant portion—viz. the finely disintegrated portions of the rocks and stones, apparently available for vegetable growth, but still not in a condition to fulfil that expectation. When, however, the dormant matter has been more fully acted upon by the chemical agents in the rain and air, then its character alters, and it no longer remains insoluble, but it readily dissolves in water, and consequently assumes the active condition. Thus, each of these stages is a progressive advance.—the *grit* will ultimately become the pulverised *dormant* matter, and this will advance into the *active* condition. For these reasons we may consider—

The active ingredients of the soil as the portion ready for immediate use;

The dormant portion to be rendered useful by cultivation;

The grit which is the store for future years.

We have every reason to believe that each of these portions may be composed of matter equally valuable as fertilizing agents, but differing only in one respect—viz, the time of their being available for use. Dr. Daubeny proposed the two appropriate terms of "*active*" and "*dormant*," for the two conditions already described, and, in a communication to the Royal Agricultural Society, has shown the extent to which this distinction exists in soils. From the analysis given, it appears that about one-half of the alkalies, and one-eighth of the phosphoric acid, were in an active form in the soils examined, and the remainder were *dormant*. If, therefore, a person had estimated the powers of the soil by its full analysis, he would have anticipated the aid of nearly double the quantity of alkaline matter, and eight times the quantity of phosphoric acid, which really existed in a form available for immediate use.

I shall now proceed to show the manner in which bodies existing in the soil in a *dormant* condition can be rendered active, and thereby available for the processes of vegetation. I need not do more than remind you that two agencies are very influential in accomplishing this. These are rain water and changes of temperature.—Rain water is not *pure* water, but as it falls

through the air it dissolves carbonic acid gas existing there It also carries with it some of the atmospheric air, and these gases, being conveyed into the soil, perform very important duties, and contribute to the one which now claims our attention—viz: the conversion of the dormant ingredients of the soil into active condition.

Chemical research has proved that carbonic acid and oxygen co-operate in carrying on a slow and almost imperceptible action upon the ingredients of the soil, thereby changing the insoluble gritty matter of our soils into dormant matter, this again into the more complete and active state, and then they assist in the final appropriation of it by the crop. Thus, the same agents co-operate throughout the entire change, and enable matter to assume these new forms. This action is of a chemical character, but it is powerfully promoted by the mechanical assistance rendered by changes of temperature. The influence of this is to be traced to the fact that bodies when they are hot occupy more space than when when they are cold; hence, by rendering a body hot and cold, you weaken its cohesive power.—This is especially observable when the change of temperature is great, or when water is present in the soil. All have noticed the effects of frost upon the clods of soil in our fields.—how the frost binds them together with the hardness of a rock, and, when it thaws, crumbles them into a powder.—This same action takes place *in the particles of the soil*, in a greater or less degree, according as they may be more or less exposed to the influence, and this breaking up of the soil exposes fresh portions to the action of the chemical agents spoken of. Thus the combined action of these very simple agents accomplishes, by slow but steady action, very material changes in the soil, rendering its fertilizing ingredients available for use, and unlocking the stores which nature has made for our present and future requirements. This is a very hasty sketch of the materials which we have to deal with; but we must go on to show in what manner the processes of cultivation render the soil more fertile by the development of its own resources.

The tillage of the land is designed to prepare it for the germination of the seed, and, finally, the perfection of the crop. For the accomplishment of the former, the land has to be brought into a state favorable for the germination of the seed, or, in more general terms, I should say, into that free and loose condition which is known to be so necessary a preparation for sowing. This condition, which is favorable for the first growth, is equally so for the subsequent perfection of the crop. The operations by which this result is gained consist of plowing, rolling, harrowing, &c., and these are very beneficial in increasing the fertility of the land. In fact, we may view them as so many means for exposing the various parts of the soil to the action of the air, rain, frost and light.

I have already stated that the carbonic acid and oxygen carried into the soil promote the chemical changes which awaken the dormant ingredients of the soil, and bring them into active exercise. In like manner, those parts of the soil which are upon the surface are exposed to these chemical changes, and thus a ceaseless action appears to be going on between them. This change is one by which the mineral matter of the soil is acted upon, but, in addition to this, we have other changes produced—viz. the decay of the *organic matter* of the soil—for the air and moisture promote changes in its character, and thus render it valuable for promoting vegetable nutrition. It is, however, worthy of note that, whilst the organic matter of the soil is undergoing decay or decomposition, this change favors and promotes the conversion of the mineral matter of the soil from a comparatively useless state into a condition suited for the wants of our crops. Any process or operation which stirs the soil, and brings fresh portions under the influence of decomposition, promotes these changes in the organic and the mineral matter of the soil, thereby rendering them available for the nutrition of our crops.

In this manner *the stores of the soil are opened up and rendered useful;* but I have now to show that tillage operations not only accomplish this desirable result, but they also prepare the soil for abstracting from the atmosphere fertilizing matter. The value of ammonia as a manure is well known, and upon its action the beneficial character of many of our manures is based. It is an expensive manure, but still its judicious use is remunerative in a very high degree. We send many thousands of miles for a large portion of our supplies, yet it is found in the atmosphere floating around us, and is there present in a condition available for the use of vegetation. It is not necessary or desirable for me to refer to the sources from whence it is supplied to the atmosphere; it is enough for us to know the valuable fact that there are abundant stores prepared for the cultivator who is ready to receive a supply therefrom. It is with great pleasure that I refer to a very valuable contribution to our knowledge of the principles which regulate agricultural practice by Professor Way. It will be found in the sixteenth volume of the Royal Agricultural Society's Journal. He there proves the presence

of nitric acid and ammonia in the atmosphere; that these bodies are removed from the air in two ways—by the absorptive powers of the soil, and by the rain dissolving them and carrying them into the soil. He very judiciously remarks:—"The atmosphere is to the farmer like the sea to the fisherman, and he who spreads his net the widest will catch the most." It is not that all land derives equal advantage from this magazine of wealth, but land receives and profits just in proportion as the industry and intelligence of man renders it capable of drinking in these fertilizing matters.

Thus, you observe, there are two channels through which the nitric acid and ammonia of the atmosphere become introduced into the soil—the one by the direct absorptive powers of the soil, and the other by the intervention of rain bringing fresh stores within reach of the soil. With regard to the former of them, I may say, that although it does not come properly within the limits of the subject under our notice, still the practical connection is so manifest that I shall not refrain from going into some brief notice of it; but before doing so, I shall notice the agency of rain. This must be viewed as an assistant agent which gathers the accumulations in the atmosphere, and brings them within the influence of the absorptive powers of the soil. If, therefore, such rain passes away on the surface without entering into the soil, it is manifest that its services are lost. Hence land which by natural or artificial drainage allows the rain to pass through it, carries into the soil its hidden treasure, which in any other case would pass away to some other recipient, or to the nearest streamlet. The value of its assistance to any agriculturist simply depends upon its services being accepted and turned to some useful account, or else rejected, and its agency wasted.

We may now notice the absorbent powers of our soils. The researches of Professor Way (published in the *Journal of the Royal Agricultural Society*, volume 15) are of the deepest importance to agriculturists. I will, therefore, briefly bring before you the results of these researches. It was observed that when a solution containing ammonia (or other alkaline salts) was passed through a portion of soil, the soil separated the ammonia from the liquid, preserving it from being again washed out of the soil; and this action was finally traced to the presence of bodies in the soil, known as the double silicates. A silicate is a compound of silica with another body—say for instance silica and soda produce a silicate of soda—but the double silicates are very peculiar, for in these we have silica combining not with one body but with two bodies: for example, there is the double silicate of soda and alumina; the double silicate of lime and alumina: and a third, which is the double silicate of amonia and alumina. But you will observe that alumina is present in each, and the only difference is that soda is present in the first, lime is present in the second, and ammonia in the third. In most soils we find these double silicates present, but their value varies very considerably. We may now observe the difference in their character and mode of action. The double silicate of soda and the double silicate of lime are each capable of separating ammonia when it is dissolved in water, but the double silicate of lime alone has the power of separating ammonia from the air; the double silicate of lime is, therefore, decidedly the more valuable salt of the two. The double silicate of soda is readily converted into the double silicate of lime when lime is added to the soil, consequently the addition of lime to the soil renders it competent to absorb more ammonia from the atmostphere, and thereby gives it greater powers of acquiring fertilizing matter than it previously possessed.*

* The more recent researches of others seem to demonstrate that the retention of ammonia by the soil is due not so much to chemical as to physical causes. Most soil can so far retain pure ammonia, but it is only those which contain lime that can first decompose the salts of ammonia and afterwards allow surface attraction betwixt the two to act.—ED.

[TO BE CONTINUED.]

Cream Cheese.

An inquiry in the London *Field* for a recipe for making cream cheese was replied to as follows by three correspondents:

"We put a quart of cream into a clean jug, with half a teaspoonful of salt stirred in, and let it stand a day or two, till thickish. Then we fold an ordinary grass cloth about six or eight times and sprinkle it with salt, then lay it in a sieve about eight inches in diameter. The sides of the cloth should come up well over the sides. Then pour in the cream and sprinkle a little salt on it. Change the cloth as often as it becomes moist, and as the cheese dries press it with the cloth and sieve. In about a week or nine days it will be prime and fit to eat. The air alone suffices to turn the cream into cheese.

"Take about a half pint of cream, tie it up in a piece of thin muslin and suspend it in a cool place. After five or six days take it out of the muslin and put it between two plates, with a small weight on the upper one. This will make it a good shape for the table, and also help to ripen the cheese, which will be fit to use in about eight days from the commencement of the making.

"Take a quart of cream, either fresh or sour, mix about a saltspoonful of salt, and the same quantity of sugar. Put it in a cloth with a net outside, hang it up and change the cloth every other day; in ten days it will be fit for use."

Sandy Lands and their Improvement.

We have often taken occasion to disabuse the minds of our readers of the very low estimate so commonly entertained of the value of what we call "sandy lands." There are tracts of such lands very common in Maryland and the more Southern States, the intrinsic value of which are entirely lost sight of, under a hereditary impression that as they have been easily 'worn out," they will poorly repay the cost of improvement. We have also repudiated frequently the idea of the so early wearing out of that which was manifestly destined by Providence to last very long. If soils can be worn out so readily as common opinion allows, men would seem to be *nomads* of necessity, wandering over the face of the earth for new fields to exhaust, and to be brought ere long to the goal of the Macedonian warrior, without another world to conquer. It is not, however, for the purpose of extended remark, or to suggest means of improving the class of soils named at the head of this article, but to show rather by example what has been done in this direction, under circumstances far more unfavorable than any our readers are called to deal with, for we have not seen or heard of here, any thing so hopeless by half, as the blowing sands of the Campine plains of Belgium. In the lesson conveyed, we have a striking proof of what can be effected by pains-taking industry, and by a careful saving and expenditure of manure, in reducing to smiling fertility tracts of land, which, from their normal condition of utter barrenness and wildness, may be taken as a type of all that is sterile, and all that is most hopeless, and most forbidding of aspect to the husbandman. We quote from *Notes taken during a Tour in Belgium, Holland, and on the Rhine*, by Scotch farmer:

"The Campine is the name given to the largest plain in Belgium, which extends over a great part of the provinces of Antwerp and of Limbourg. It is impossible by words to convey any idea of the wild and apparently hopelessly unproductive condition of large tracts of this plain. Sand every where—huge mounds of it glistening in the sunlight—sand so thin and fine that it runs down the sides of the heaps in rills, moved by the passing breeze, or driven into clouds under the feet of the toiling wayfarer; long tracts thinly covered with heath, or with marshy plants, and interspersed here and there with pools of water, patches of stunted firs, or miserable brushwood. But every now and then, as if to raise the spirits of the wanderer, otherwise too much oppressed by the desert around him, patches of smiling verdure greet his eye, and, presenting a glad contrast to the barrenness beyond, show what can be done by willing man in wresting fertility from sterility, and in making, most literally, the desert to bloom and blossom like a rose. No contrast, indeed, can be more striking than that presented to the weary wayfarer as he plods along through the wild tracts of the Campine, when he comes across a little farm, the boundaries of which are made up of the surrounding sand, and within which there is a little oasis of verdure and plenty. On one side of a narrow and deep furrow or ditch, you see a strip of rye or of colza; on the other, the sandy desert stretches out in its wildness, and you wonder at the magic which has transformed the glad greenness of the one from the dull dreariness of the other. Proud thoughts possess you as you think of the warfare thus kept up by man with the desert, and you look upon the little farm environed by the desert, the enemy, as the citadel which issues the mandate: "Thus far shalt thou come, and no farther;" and from which will go forth the intelligence and the industry which will ultimately gain other victories, and transform in process of time the wild heaths around, level the sand heaps, fill up the marshes, and make the wild desert a rich garden of delights, to gladden the heart and please the eye of the husbandman. Slowly, but not the less surely, is this process of reducing the desert to fertility going on throughout the Campines. Farms are daily multiplying, irrigation is being rapidly proceeded with, roads, canals, and large tracts of meadows are being formed. One of the great instruments in this work of transformation has been the canals.—These have been formed on a very complete system, and at a large expense. By these canals the practice of irrigation is greatly aided, and they form the high roads, so to speak, by which on the one hand the produce of the farms is taken to the markets, and by which, on the other, the manure is taken from the towns to the farms.—Such, in fact, is the whole essence of a treatise on Campinoise agriculture—"With the water, the grass; with the grass, the cattle; with the cattle, the manure; with manure, every thing nearly which one desires on a farm." Many of the richest gardens and the most fertile farms, in the neighborhood of the towns of the Campine, ten, twenty, and thirty years ago, were tracts of the most barren heath, and stretches of the dreariest sand. Whenever manure has been easily obtained, there it has been the most carefully preserved, and the most prudently applied; and in the history of facilities for obtaining abundant supplies of manure, you read the history of the culture of the deserts of the Campine.

"The white land—of which a large portion of the Antwerp Campines is formed—is so light and

so little retentive of water, that it passes it like a filter, and can only be made productive by mixing loam with it. The white sand hills are generally brought into cultivation on the large scale, by covering them with fir trees and with broom, the cones and leaves of which, as they fall, form in time a richer soil, and consolidate the sand.—In bringing in a tract of white sand on the *petite-culture* system, the small farmer first encloses a certain portion by surrounding it with a ditch. Broom is sown. This grows in the very poorest of soils, and its roots serve to consolidate the land, and its leaves to form a vegetable mould; but when in its third year it yields some return, being then sold for fuel. If manure is obtainable in any quantity, it is applied to the soil, which at this stage is fit to bear potatoes, buckwheat, or rye. A patch or two of clover begins to appear, and with the forage plants and roots come the cows, with the cows manure, and with increased supplies of manure come increased products, and so on in a continually increasing scale of fertility, until at last the sand tract is formed into a rich productive farm.

"The preparation and saving of *manures* form an important part of the labors of the Campinoise. In the care with which every thing is saved which can act as fertilizers, those acquainted with the country say that it exceeds the provinces of East and West Flanders, generally admitted to be at the head of all agricultural countries. The stable or cow-house manure, very much decomposed, is the principal manure, and that which renders the greatest services to the agriculturist. It is composed of the branches of the furze or gerse, of turf, or earth, all these being used as a litter for the stock. Straw also very frequently forms a part of it. Rye straw is most esteemed for this purpose, and is cut in two in order to render it more easily spread. Buckwheat straw is not held in great repute. The management of the litter of the cow-houses while forming it into manure, presents some features worthy of observation. Behind the cattle an excavation is made, into which the litter is placed on being taken from the stalls. This is beaten down by the passage of the animals, and of the workmen over it, till it is in a thoroughly compressed state. This method possesses nearly all the advantages of the "box-feeding" system, and is certainly better than that adopted in East and West Flanders, where the litter is thrown into the court yard, and left exposed to sun, air, and rain."

☞It is proposed in Charleston, S. C., to convert the square of the burnt district into a public garden.

Horse-Breeding.

Remarks of L. T. Tucker, Esq. of South Royalton, Vermont, at the Windsor County (Ver.) Farmers' Club.

The first thing to be done in breeding horses is to select the best animals, and the first indespensible quality in such animals is a good constitution. Without this as a foundation, all attempts to perfect a race of horses will be a failure. The animal that is selected for a breeder should have a deep chest, strong loins, good limbs and feet. The nervous temperament of the animal should by no means be overlooked. The eyes should be wide apart, full, and clear. The ears should set apart, not lopped off like those of a mule, nor pricked forward like the rabbit's. To these points of a good constitution and a fine nervous temperament, add all the symmetry you can. Make sure of good size: never take a mare weighing less than 1,000 to 1,200 pounds, and not below 15 to 16 hands high. The fault with most of the horses now in Vermont is, they are too small. Though we can never compete with the South and West in breeding large horses, we must breed such as will command the highest price in the market. Small horses may do most of our work here among our hills, but they will not sell well. We ought to raise those that will do our work equally as well as the present stock, and then sell for twice as much as those bring us which we now have to dispose of.

The next requisite is *blood*. Having selected your mare, never take any but a fixed blooded stallion. When you have the qualities already described, breed as much as possible for speed. When you produce a fast horse, you will always find a man ready to buy him, and other things being equal, the greater his speed the higher price he will bring.

In regard to *in-breeding*, we must breed near enough to secure the desired qualities, and when once secured, to retain them; but we should not breed nearer than first cousins if we could avoid it. If "in-and-in breeding" is followed more closely than this, and persisted in, your colts will be either stillborn, or if living, they will be cripples. We should never sell the best animals. When a man has disposed of his best breeding mare, he will advance in his work on the same plan that the "frog jumped out of the well"—one step ahead and two backward.

It is poor policy to go to the city and buy a broken down mare, thinking to make a breeder of her. In a great majority of cases you will only breed defective animals. Men should be

careful about breeding from too old stallions. No matter how famous a horse has been, and what his stock has proved, if he has lost his vitality, let him go—he will only work mischief in your herd if you try him.

In this business no one point demands more attention than the kind of a stallion with which the young mare is first coupled, as there can be but little if any doubt now, but that the first union will in a great measure influence all the after progeny. After a mare has been coupled, she should be kept from bad company—away from horses that are badly marked, with a big blaze in the face, a "wall-eye," or "white-stockings"—and she should always have the kindest treatment. Mares transmit more of their good qualities to the male offspring. You seldom if ever knew of a first rate stallion out of a poor mare.

But after you have exercised the best judgment in selecting your animals and coupling them, you will make but little progress in your work without the *best of care*. To raise first class horses, they must have "care first, care last, care in the midst of all things, and care without end." ERIOX.

Winter Feeding Cattle for Beef.

L. TUCKER & SON—Noticing in your last issue an inquiry as to how many pounds of beef can be made with one hundred pounds of corn meal and good hay, I will state what little experience I have had in that direction. I feed usually from two to three hundred bushels of grain to fattening cattle every winter. My plan is to buy good, thrifty three and four years old steers and oxen, that are well started—feed lightly at first, afterwards from two to eight quarts. Feed twice a day, according to size of animal—a fifteen hundred steer or ox four quarts each feed, giving them the best of care, to wit: good hay, fed at short intervals during the day, well carded once at least, and watered twice in the twenty-four hours; stables kept clean and warm, but well ventilated. My feed is usually corn, rye (or barley) and oats—equal parts by measure, well mixed and ground fine. Think I have never failed of one and a half pounds live weight, equal to one pound dressed weight, per day, with four quarts each feed, and have frequently done much better. Much depends upon the animal, and as much upon the care given them. I do not advocate very heavy feeding for profit. You can make more beef at less expense by taking longer time. All the undigested food is wasted.

As an experiment, I last winter took a pair of four years old steers, weighing 3550 lbs; they had previously been feed two months six quarts corn meal each, twice a day; they gained two pounds each per day. Changed to feed of rye, corn and oats, increasing gradually, two weeks, until I had got up to one and a half bushels to the pair per day, and roots twice a week to keep their appetite good. They gained three pounds each per day for six weeks, at which time they were taken to market. Had they been kept six weeks longer, they would not, upon same feed, have gained over two and a half pounds.

My experience is that a little grain increases the appetite for hay, which must be of the best quality, while an excess lessens it, and part of the grain passes off undigested. Where grain is cheap, worth less than good hay proportionally, more grain would be economical, as in some portions of the West. There, undoubtedly, the amount of grain mentioned above, will look small, but here in the old Bay State we have learned to make good beef on hay alone, and with a little grain, some mammoth oxen.—*Country Gentleman*. S. M. C.

North Stockbridge, Mass.

Cattle for Feeding.

There is much good sense in the following extract from a recent writer on this subject:

To ensure success in feeding for the butcher, the great essentials to be provided are shelter, and a regular and plentiful supply of nourishing food. There is, however, another important matter to be attended to, and that is the selection of the animals themselves, as, without the most careful attention, and the cautious and cool exercise of mature judgment, it will be useless to attempt the fattening of cattle with the reasonable hope of being able to realize a handsome profit. The shelter may be very inadequate, and the food not nearly so good as it should be, and yet the beasts will thrive, do well, and leave a profit, if they are well bred and moderately good specimens of the breed they represent. On the other hand, if they are badly bred—that is to say, too much crossed, and more particularly if they are the offspring of a cross-bred bull—bitter disappointment will almost invariably be the result. Place such animals in the best stalls that can possibly be constructed for accommodation and warmth, and pamper them with every conceivable variety of food; yet they will scarcely attain to such a state of ripeness in six months as well-bred animals, (which, although they may still be crossed, are the produce of a thorough-bred bull,) will do in little over half that time.

Eng. Paper.

Use of Mules.

The value of mules on large plantations, where they have been chiefly in the hands of negroes, is very well known. Their endurance and ability to stand hard, rough usage, is acknowledged. But, generally, they are thought "ugly" animals in two senses of the word, and are therefore by no means duly appreciated. Their great docility under kind treatment, the age to which they live, and the economy of keeping, compared with the horse, should be better known. We give the following from a correspondent, at Nashville, of the *Country Gentleman:*

"The fact cannot be too deeply impressed on the minds of farmers, that there is nothing in the shape of working animals that can do the same amount of work in a generally variable climate, for as low a cost to the owner as the mule.

It would be worth the while of any person who has any doubts as to the docility, endurance or capacity for education of the mule, to inquire of a returned soldier, one who has been on the long and hard marches with either of our glorious armies, as to the use which the patient mule has been, and the manner their part of the marches has been performed.

But one opinion can be given: They are the strongest animals for their size, will endure the most hard work, and get along with the least to eat or drink of any animal we use for work. Oh, you cannot kill a mule! I am sorry to say that this last is the idea of too many of the drivers the poor creatures have to control them. The impression that all mules are vicious has also happily exploded, as experience has taught us that among the tens of thousand mules in an army, it is but seldom one kicks or has any vice that has not been taught them. To teach a team of mules to guide perfectly with one line is but the work of a few days; a perfectly green team, one that has never been harnessed, is expected to take its place regularly in the train in less than a week after being first hitched up or harnessed. There are with mules, as with horses, all qualities, from bad to good; and in the purchase of an animal we should endeavor never to get one of an inferior quality; a good one at any ordinary price is cheap, and a poor one for nothing is dear.

Size is desirable, but by no means should great consideration be placed upon height; it does not constitute size proper, although the purchases for the army were based upon the height of the animal. Let your judgment for a mule be in size as for an ox, high from the ground to the top of shoulder, but short legs. Beware of long-legged, slab-sided, small-bellied mules; they are not reliable. Look well to the size of the barrel or body of the mule; don't think you are choosing a running horse; a small body that becomes even smaller at the hind quarters, is not what you want, but rather look for a mule that resembles the best brood mares in shape of body or barrel; they have endurance, and are most easily kept. Being thin is no great objection; it rather assists in picking out the form of the body to build upon.

Much information as to the character, disposition, &c., &c., of the mule, can be gained by noticing the way its head and ears are carried, both when in and out of motion. A fine mule will carry a high head, with ears in motion—is very quick to see and hear all that is passing.

As in the horse, blood will tell; the imported or half-breed Black Spanish Jack will always leave his impress on his offspring, as will others of more humble origin. The mule from the imported jack can be discovered as quickly, and with as much certainty, as a colt from a thoroughbred stallion.

The legs of the mule should be broad and thin; like a fine blood horse, the joints should be uncommonly large in proportion to the legs. The objection of the legs being too light, I have never known to hold good with mules if they were wide. The most durable colors are black, brown, grey, dun, spotted, including roan and sorrels. This is quite a question of fancy, as many persons prefer one above the other; for work there is about the same general difference as in the horse, except the black mules seems to have as good eyes as any other color. The hoofs of most army mules are suffering from a very common disease among horses in our best stables, contraction of the heels. It is as easy to cure this disease in the mule as in the horse, if you can make the blacksmith take sufficient interest in the animal, and not think because it will not show lameness, it therefore does not suffer.

Much good to both classes of animals, and a great saving to owners would occur if the use of the Good-enough horse-shoe, or some other of equally good kind, were more generally introduced. I have already given in a former article the relative value of the mule and horse for work for a term of years, and recommended to our farmers the use of the cheapest and best animal for farm work.

Further, it should be understood that mules are good animals to drive in carriages for pleasure as well as work. They are neither bad looking or bad drivers, and are used by many persons of wealth and taste in this city, because of their ability to endure hard driving on hard roads;

six to ten miles an hour is considered a good gate for a pair of driving mules. If good driving mules are wanted, don't use a whip about them; never let them become accustomed to a continual touching up."

Management of Young Pigs.

"Pigs, young or old, will eat anything, and pigs thrive in muck." During the last fifty years or so of my long life, I have at least thrice fifty times heard that singularly stupid remark from the lips of men whose experience, to say nothing about their possession of at least average common sense in regard to matters and things in general, should have taught them better.—Excepting young humans, I know of no creature that requires for the attainment of its greatest physical perfection, greater attention or more skillful management than a young pig. And, in truth, as to internal structure, there is far less difference than people in general suppose, between the young child and the young pig. Let the child be kept in comparative darkness, and on unwholesome food, and you will have in the result a stunted, weakly man or woman, of a scrofulous body and an intellect to match. In the case of the pig, of course, the intellect is out of the question. What you want to secure in piggy's case, is the greatest capacity in fattening, that it may be the earlier production, as to time, and yield the largest possible quantity of pork in cash. If you would ruin your pig, as to both of those requirements, pray take as your rule of porcine management the profound maxim quoted at the head of this brief paper, but be assured that, in doing so, you will make pig-feeding a mighty unprofitable pursuit, whether as to your larder or your purse.

Remember, young pigs, like young children, find weaning anything but a pleasant process. The former, like the latter, should be weaned gradually, and the gradation should be commenced very early. In my native county, Hampshire, England, we pay so much attention to pig management, that we have obtained the *soubriquet* of Hampshire hogs, and a few words as to our management of our porcine stock may not be unserviceable. We keep our breeding sows, when in pig, in all but actual fattening condition. Her food, besides being good, is always boiled, and always fed to her at about the temperature of new milk; it is given to her at regular hours, so that she may never be so hungry as to fret; it should always have a light sprinkling of salt, and, in addition to her feeding trough, she should always have a small cast iron trough kept scrupulously clean, and constantly supplied with pure fresh water.

I presume the hog and her young family to be comfortably located in a roomy and detached stye, which, like the troughs, should be kept scrupulously clean, for though pigs undoubtedly will "thrive in muck," they will do so not because of the muck, but in spite of it, just as many a dirty and ill-fed boy lives, in spite of dirt and privation, to be a stout man. But who will venture to deny that he would have been still more robust if he had grown up without the dirt and privation instead of in spite of them.

In a good cleanly stye, rather high roofed, and with a ventilator above and behind her sleeping place, our Lady Bessy Hog, well fed, and regularly fed, will support her little family with profit to her keeper, and without visible injury to her own condition, for a full month. Then, let an opening be made at one side of her breeding stye, just large enough to allow of one of her youngsters getting from the stye into a narrow but enclosed adjoining slip, in which a shallow pan or trough of really good stuff, (barley-meal, thinly at first, mixed with milk, warm skimmed milk and water,) should be placed at three regular hours daily. The little pigs will at first feed in a slovenly fashion enough: their paws will be as deep as their snouts in the tempting mess, and their jaws will get more on the outside than on the inside. But *magister artium venter*—the belly is the great master of arts, applies no less truly and strongly to pigs than to men, and after a day or two your young pigs will require a larger supply of their outer stye food. Two great objects are thus accomplished: the young pigs, without privation to themselves, are gradually weaned, and the mother pig suffers the less from their appetite, increased with their growth. I have known in my own management of my styes, at Upton Grey, in Hampshire, a single fortnight to wean a large litter of pigs, both mother and little ones being in really splendid condition.

Let it be remembered that air, sunlight, cleanliness, are as congenial to properly kept pigs as to humans. Pigs thrive in muck, eh? Yes, and so do measles and foot-rot, neither of which would afflict the porcine family if the above brief directions be complied with; the troughs being of cleanly kept iron, and the styes having a Southern exposure.—W. T. H., *Practical Farmer*.

Though rapid growth is desirable in succulent vegetables, this is not the case with most flowering shrubs, which form bushy, and therefore handsomer plants when grown slowly.

Gas Tar for Posts and Timber.

That Gas Tar might be very beneficially used for preserving timber seems probable, yet we do not know that it has been applied to any considerable extent—probably from its not having been sufficiently tested, and from want of a knowledge of just how to use it.

A writer in the *American Agriculturist* gives an account of what seems to have been careful experiments carried through a period of fourteen years. Four pieces of timber were tried, both in and out of the ground: No. 1 received no tar at all; No. 2 was boiled for half an hour in coal tar; No. 3 was coated with hot coal tar with a brush; and No. 4 treated in the same way, and covered with a coat of sand. They were all buried in garden soil to the depth of four inches. At the end of nine years, No. 1, without tar, had rotted away and disappeared; No. 3, coated with tar, had rotted very much, but still retained its form; No. 2, boiled in tar, showed signs of decay; the one coated with tar and sand was still sound. At the end of thirteen years, while the others were all decayed, the one coated with tar and sand was, to all appearances, as sound as when put there.

The same preparation was made of pieces of wood, which were afterwards exposed on the roof of an out-building. At the end of thirteen years the one without tar had rotted and blown away; a portion of the one coated with tar still remained, but rotting rapidly; the one boiled in tar was slightly decayed; the one with tar and sand was perfectly sound.

The writer says: "From these and various other experiments I have made, I have come to the conclusion that, while coal tar may contain little by itself that will preserve timber from rotting, it may be so mixed and combined with other substances as to prevent moisture from penetrating the pores of the wood, thereby preventing or arresting decay."

For a convenient method of making the application to posts, we give the following from the *Country Gentleman:*

"We have often had occasion to recommend the use of gas tar as a protection from moisture and decay. We have known an instance where acrid suostances induced the complete rotting of pine boards in less than two years; when replaced with new boards, thoroughly coated with hot gas tar, they lasted fifteen years, and appeared then to be perfectly sound. The last No. of the *Horticulturist* gives a communication from Mrs. Shimer, of Carroll County, Illinois, who describes an excellent contrivance for applying gas tar to posts. She had previously used a brush, but found this mode too imperfect and inefficient. A tank was made of the best sheet iron, forty inches high, and over two feet in diameter. A grate of oak sticks covered the bottom inside, to support the posts and protect from accidental blows. This tank was set on an old cook stove placed out doors. It was then filled with posts placed on end, supported by a frame to prevent tipping the tank. It was filled with gas tar, a fire built in the stove, and the wood boiled in the tar until well saturated—the time not stated. We may add that the wood should be thoroughly seasoned before the application, in order that the tar may enter the pores. We have no doubt that, were this work well done, (the gas coating extending some inches above the earth,) that posts of white oak or other good timber would last at least fifty years, and perhaps considerably longer.

Raising Calves.

When fresh cows sell from forty to sixty dollars each, is it not time to consider whether it will not be good policy to raise some calves, especially if we have good stock to raise from? Last season I raised two, and this spring I have already started three more; I consider early spring the best time to start them, as grass comes, when they will require but little care until fall.

How I Start them.—A calf that I am going to raise I *never* let suck the cow; it is much easier to learn it to drink before than after. I have had them drink alone, without the aid of the finger, before they were twelve hours old; and, after the second day have but little trouble with them, as they drink freely if they are in good health; beside, the great advantage is, when they are turned with the cows they never trouble them: neither have I to put straps around the nose with long nails in, to prevent their sucking, as *they know nothing about it.*

What I feed them.—The first two weeks I give them milk drawn from the mother of the calf; after that the *cud* comes, then I give them a little cake-meal, bran and salt, mixed with water, about milk-warm. It is better to scald the meal and let it soak twelve hours before feeding. If any is left, feed it to something else, and make fresh for the calves every time, as it will sour. About this time they will eat a little hay—clover is best; as soon as there is grass enough for them to get a bite, I turn them out, and I soon slack off their feed.

A small enclosure, with water and shade, is the most suitable, where horses or cows are not permitted to run.—*Germantown Telegraph.*

Sunday Reading.

God communicates Himself with great variety to His saints, now in this ordinance, and now in that, on purpose that He may keep up the esteem of all in our hearts. Take heed, therefore, Christian, thou neglectest any one duty. How knowest thou, but that is the door, at which Christ stands, waiting to enter into thy soul?

God's commandments hang together; they are knit and woven together, like a fine web, wherein you cannot loosen a single stitch without danger of unraveling the whole. If a man lives in the breach of any one of God's commandments, if he allows himself to indulge in any one sin, none can tell where he will stop. There is no letting any one devil into our souls, without the risk of his going and fetching "seven other devils, wickeder than himself;" and the purer the house may hitherto have been, the more eager will they be to come and lodge in it.

It is noted by the Psalmist, as a wonder of God's mercy, that "He maketh the barren woman to keep house, and to be a joyful mother of children." It is a pity he was ever born, that holds not children a blessing; yet not simple and absolute, but according as it may prove. She hath a double favor from God, that is "a joyful mother of children:"—Many a one breeds her sorrow, breeds her death.

The Lord does not delay, as if He were unwilling to bestow; but that His gifts might increase in their value with the increase of our desires.

A Christian congregation calling upon God, with one heart and one voice, and in one reverend and humble posture, looks as beautiful as "Jerusalem, which is at peace with itself."

Of these sweet ingredient perfumes, (Petition, Confession, and Thanksgiving,) is the incense of prayer composed, and by the Divine fire of love it ascends unto God, the heart and all with it; and when the hearts of the saints unite in joint prayer, the pillar of sweet smoke goes up the greater and fuller.

The holy angels of God are the observers of our *prayers* and good actions on earth, and the relaters and remembrancers of them in heaven. Not but the All-seeing God of Himself knows and takes notice of all the good actions of men, and records them to perpetuity in the most faithful register of His Omniscience; but He would have His holy angels to be conscious of our good actions, not only that they might congratulate our happiness, as fellow-servants and members with us under Christ, their and our Lord and Head, but also and especially, that they might be the witnesses of His righteous judgment at the last day, when His Son shall come in His Glory, with millions of His holy angels, to judge the world.

As if abstinence attracted that invisible influence, and God loved to converse more with persons, that are enemies to pampering of their bodies, than with those that delight in corporal food, and choicer diet. Indeed, the more the body is cherished, the more sleepy will the soul be; and the less it is cockered and pleased, the more active will the spirit be; and I think I may lay it down, as a maxim, that the greatest revelations and inspirations have been most vouchsafed to men that have been most given to abstinence.

The smallest rule we lay ourselves under a necessity of observing, is of great benefit, as it teaches us some part of the government of ourselves, as it keeps up tenderness of mind, as it presents God often to our thoughts, and brings a sense of our religion into the ordinary actions of our common life.

Let us beware of that proud philosophy which affects to inculcate philantropy, while it denounces every home-born feeling, by which it is produced and nurtured. The paternal and filial duties discipline the heart, and prepare it for the love of all mankind. The intensity of private attachment encourages, not prevents, universal benevolence. The nearer we approach the sun, the more intense his heat; yet what corner of the system does he not cheer and vivify?

According to the proverb of the Jews, "Michael flies with but one wing, and Gabriel with two." God is quick in sending angels of peace, and they fly apace; but the messengers of wrath come slowly; God is more hasty to glorify His servants, than to condemn the wicked.

He must be more stupid and senseless than a stock or stone, whose sloth and carelessness in his duty, *torporem et oscilantiam*, is not shaken off by this one consideration, that the government of the Church is the theatre of God and angels.

In the hearing of mysteries, keep thy tongue quiet. Five words cost Zacharias forty weeks silence. In such heights convert thy questions into wonders; and let this suffice thee—the reason of the deed is the power of the doer.

Because men desire to be more great than humble, they are suffered to become vain in their imaginations.

☞ We extract the following from the last annual report (for 1865) of the Baltimore Board of Trade:

"In presenting this, the Sixteenth Annual Report of the Board of Trade of the City of Baltimore, it is fitting that we offer thanks to the Divine Ruler of the Universe, for the return of peace to our torn and lacerated country, as well as to invoke a continuance of His favors, until strife and the spirit of passion shall no more be known in the land; and that henceforth we may dwell together, as did our fathers, dispensing justice to all.

"Commerce, with its healing wings, has been outstretched everywhere, and our city has apparently awakened, as from a deep slumber, resolved to be no laggard in the race for the golden prize.

"Since the return of peace, numerous steamship lines have been organized and put in successful operation.

"We have, through the commendable enterprise of the executive department of the Baltimore and Ohio Railroad, a regular semi-monthly line of good and substantial steamers plying to Liverpool; which, with the support and encouragement of our merchants and importers, cannot fail to add largely to the general interest and prosperity of our city. This is, now, the only American line of steamers to Europe, and this fact, alone, should enhance the interest of our citizens.

"The Havana New Orleans Line, more recently organized, is equally worthy of commendation to its projectors, and, we believe, there is every encouragement for its complete success, under the energetic management of those in charge of the enterprise.

"To Southern ports we have numerous lines established—such as to Savannah, Ga.; Charleston, S. C.; Wilmington, N. C.; Richmond and Norfolk, Virginia. Others, much needed, are contemplated; but no further organizations have been perfected. It is all-important that every facility should be afforded to accommodate the growing trade with the South. Our merchants have superior claims, over those of other cities, for a large increase of the Southern trade—geographically nearer, and with an outlet for its productions, both by sea and rail, together with an alliance of sympathy and feeling, and with more moderate charges, generally, for the handling of merchandize and produce, than is experienced elsewhere. In return, we claim it as our natural field for distributing our dry goods, both imported and domestic; our bacon, corn, flour, &c., as well as our manufactured articles, in many of which our city excels, especially such as relate to agriculture, steam machinery, house furnishing goods, furniture, and the like. And, whilst we enumerate these urgent claims for Southern trade, we are not unmindful that we have equally striking advantages, by reason of the same geographical position and our great railway system, which, stretching forth North and West, with innumerable connections, brings our city nearer, by several hundred miles, to all the leading Western markets and distributing points, than any other city on the seaboard; and there is no reason why a large increase of trade, by the interchange of commodities, may not be anticipated from this vast field; and it was for this that our great railway system was first inaugurated, and to it the prosperity and wealth of Baltimore is chiefly due. We may well felicitate ourselves, then, in thus contemplating these great highways of our city's enterprise, and we should regard with gratification the promised extension, in lateral roads, whenever the wants of the trade demonstrate them as feasible and practicable."

The Tournament and Fair in Prince George's County, Md.

The fair and festival held by the ladies of the Forest, Prince George's county, Md., on the 29th and 30th of May, at Elverton Hall, for the benefit of the destitute people of the South, was a decided success. It was the intention of the managers to open the fair by a tournament on Tuesday, but owing to the inclemency of the weather, it was postponed to the following day. The following "knights" entered the lists:

Knight of Misfortune, H. B. B. Bowie; Knight of Ivanhoe, George N. Walker; Knight of Desdecardo, Wm. I. Berry, Jr.; Knight of St. Mary's, J. Frank Smith; Knight of the Lost Cause, W. A. Jarboe, Jr.; Knight of Spaldings, T. Semmes Tolson; Knight of Marlborough, A. T. Brooke; Knight of the Branch, Norman Hill; Knight in Grey, Francis Jenkins; Knight of Northampton, Albert Andrews; Knight of the Forest, William Roberts; Knight of P. George's, Upton Brooke.

Col. Odin Bowie was the chief marshal, and W. W. W. Bowie, Esq., delivered the opening address.

Two tilts were allowed each. At the end of which trial there was a tie between the Knight of St. Mary's and the Knight of the Lost Cause, when the contest was continued between them for three tilts more, which resulted in the Knight of St. Mary's being declared victor, and entitled to crown the Queen of Love and Beauty. The Knight of the Lost Cause, as second in the day's tourney, was declared by the judges entitled to crown the first Maid of Honor; the Knight of Marlborough the second Maid of Honor, and the Knight of Misfortune the third Maid of Honor.

The Knight of St. Mary's crowned Miss Maggie H. Bowie, of Vansville district, as Queen of Love and Beauty; the Knight of the Lost Cause crowned Miss Alice M. Hopkins, of Washington, D. C., as the first Maid of Honor; the Knight of Marlborough crowned Miss Alice Harper, of Marlborough, second Maid of Honor; and the Knight of Misfortune crowned Miss Rose Beall, of Marlborough district, as third Maid of Honor.

On Wednesday night there was a grand ball at Elverton Hall; previous to the inauguration of which Mr. George C. Merrick, orator of the occasion, delivered a very eloquent address. It is expected that about $3,000 will be realized by the efforts of the ladies of Prince George's county, for the destitute people of the South.

Hale's Early Peaches.

We have received from the grower a sample of very early peach, and think the matter sufficiently worthy of attention to publish the following letter in relation thereto:

Hightstown, N. J., June 5, 1866.

Messrs. Worthington & Lewis:

Gentlemen: I send you by Adams' Express, a small box of Hale's Early Peaches, raised in my orchard house. This is a comparatively new variety, but is already creating a great sensation in the pomological world, on account of its earliness. I have fruited it for the last four years in the orchard house, and also out of door, and find it all of two weeks earlier than the Troths, which has been heretofore the earliest market variety. In point of growth and hardiness, it compares favorably with the standard market varieties.—The past winter, in New Jersey, was unusually severe with peaches. The Hales is the only variety in this section that escaped even with a few blossoms.

In the August number of the "Horticulturist," of 1863, there is an engraving of the Hales, with some remarks of mine concerning it. I then stated that it was from six to ten days earlier than the Troths. As it was then an entirely new variety, I wished to be perfectly safe in my statements. A longer experience with the peach, has convinced me that I was under the mark as to its relative time of ripening.

The Hales promises to be a valuable acquisition to the list of peaches, as it lengthens the peach season two weeks. Yours truly,

Isaac Pullen.

The Dove.

The form and manners of this bird so nearly resemble those of a pigeon, that a particular account of her is unnecessary. They are only different species of the same family, and exhibit the same general character, although they differ in some particulars. The voice of the turtle is hoarse and plaintive, and heard frequently in the woods. It is pleasing to the ear of the husbandman, and to the lover of nature, because it announces the arrival of spring, so dear to the tenants of the forest. The sacred writers occasionally refer to the dove. "Rise up, my fair one, and come away; for lo, the winter is past; the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle heard in our land." The turtle dove never admits of a second mate, but lingers out her life in sorrowful widowhood. To this remarkable circumstance, these words of David are thought by many to refer: "O deliver not the soul of thy turtle dove into the multitude of the wicked; forget not the congregation of thy poor forever." As the turtle cleaves to her mate with unshaken fidelity, so these interpreters say, Israel adhered to their God.

The dove is a harmless and simple creature, equally destitute of skill and courage for combat, and smallest of the family. She is the most proper emblem of the national imbecility into which the people of Israel had sunk, in consequence of the numerous iniquities with which they had long provoked the God of their fathers.

J. Jacob Bower.

The Culture of Fish in England.

A writer in the London *Field*, in treating the subject of the culture of fish at Stonnontfield, a fish-breeding establishment in England, on the River Tay, gives the following details in relation to the capacity of the establishment and of the breeding process. "The establishment of Stromontfield, with 300,000 ova each, has increased the rental of the Tay 10 per cent. Before the experiment, the annual average take of salmon and grilse was 70,000; it is now 80,000, and is still on the increase; 10,000 fish—the increase—are worth £3,000. But when we come to consider the very small number of fish from which this great increase is derived, the result can be considered nothing short of wonderful. The number allowed to escape for reproduction in the Tay is 40,000. Of these, only about 25 females are required to stock the Stromontfield breeding boxes; a proportion so small, that were they destroyed, or even ten times their number, they would not be missed. It must, indeed, be a small salmon river in which you cannot capture 25 females salmon; and these, if properly managed, can be made to produce 10,000. This gives us some idea of the dormant wealth of our salmon fisheries. I am aware that there are many difficulties in the way, but these may be overcome when the subject comes to be thoroughly ventilated and understood. It is erroneously supposed that the great destruction of frey takes place in the sea; the destruction which takes place there is undoubtedly great—perhaps 90 to 95 per cent. of the smelts which are bred in the river; but this is as nothing when compared with that which takes place in the river, where from each thousand ova not more than *ten fry* are reared to the migrating stage. By cultivation, 500 smelts can be raised from 1,000 ova. A salmon of 10 lb. weight produces in its wild and uncultivated state, five grilse or salmon; in its domestic or cultivated stage it will produce 200 to 250.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, June 12, 1866.

BUTTER.—Ohio, in brls. and kegs, solid packed, 25 cts.; Roll, 28; Virginia and Pennsylvania in kegs and tubs, 25 to 28; Glades, 35; Goshen, 40.

BEESWAX—42 cts.

CHEESE.—Eastern, 22; Western, 18 to 20.

DRIED FRUIT.—Apples, 14 to 16 cents, and Peaches, 16 to 22 cents per pound.

EGGS—In barrels, 24 cents per dozen.

FEATHERS—95 cents for good Southern.

LARD.—Brls 22, kegs 23, jars and other country packages 25 cents.

TALLOW—12 cents.

Baltimore Markets, June 12.

ASHES.—Pot, $7.50a$7.75; Pearl, $15 per 100 lbs.

COFFEE.—Rio, 16 to 20¼ cts. gold, according to quality. Laguayra and Java—no sales reported.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Orleans.*
Ordinary	32	33
Good do	34	35
Low Middling	36	37
Middling	38	40

Prices were maintained under the enhanced premium on gold last week, although European advices continue discouraging for shipment.

FERTILIZERS.—Peruvian Guano, $100 pr ton; Patapsco Company's Soluble, $63; Rhodes' Standard Manure, $55 (bbls.,) $57.50 (bags;) Baugh's Rawbone S. Phosphate, $55; Dissolved Bone, $55; Fine Ground do., $45; Plaster, $18. The ton of 2,000 lbs.

FISH.—*Mackerel.*—No. 1, $19 50a20; No. 2, $18a18 50; large new, No. 3, $16a16.50. *Herrings*—Shore (split.) $5a6; Labrador, $8a9; Potomac and Susqueh'a, $7.50a8. Codfish, new, $4a4.50.

FLOUR.—Howard Street Super and Cut Extra, $10 25a $10.50; Family, $14.50a15.50; City Mills Super, $9.50a 9.75; Baltimore Family, $17.50.

Rye Flour and Corn Meal.—Rye Flour, new, $6.25a 6.50. Corn Meal, $4.50a4.75.

GRAIN.—The general tenor of the advices indicate a short supply of Wheat.

Wheat.—Inferior to fair Red, $2 50a2.75; prime to choice Maryland, $3a3 07. White, $3.25a3.50 per bushel.

Corn.—White, 96a98c. for good; prime, $1. Yellow, 87a90c. per bushel. Market active.

Rye.—Small offerings. Held at $1 10 per bushel for prime Maryland.

Oats.—Heavy to light—ranging as to character from 70 a77c. per bushel.

HAY AND STRAW.—Good supply. Timothy $19a20, and Rye Straw $20 per ton.

MILL FEED.—Brownstuffs, 27a28c.; Middlings, light, 43 a45c.; heavy, 45a48c.

PEAS AND BEANS.—Scarce. Last sale prime New York State at $1.85a1.90 per bushel.

POTATOES.—In good supply. From vessel's side, $1.40 a1.45, for Maine and Peach Blows.

PROVISIONS.—*Bacon.*—Shoulders, 15a15½c.; Sides, 18 a18½c; Hams, plain bagged, 23c.; sugar cured, 24a25c. per lb. *Bulk Meat.*—Shoulders, 14c; Sides, 17½c.

SALT.—Ground Alum, $1.90a2; Marshall & Worthington's Fine, $3.25; Turk's Island, 58a60c. per bus. Rock, $32a35 per ton.

SEEDS.—Clover, held at $6a6 50; Timothy, $4.25a4.50; Flaxseed, $3.

TOBACCO.—Receipts continue good of both Maryland and Ohio Leaf, but the market is unsettled, owing to the political and financial troubles in Europe. We give the range of prices as follows:

Maryland.	
Frosted to common	$2.50a 4 00
Sound common	4.50a 6.00
Middling	6.50a 8.50
Good to fine brown	10 00a15.00
Fancy	17 00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a12.00
Ohio.	
Inferior to good common	5.00a 8.00
Brown and spangled	9.00a12.50
Good and fine red and spangled	14 00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.30a2.32 per gallon, in barrels.

WOOL—Demand very good, and prices are better. We quote: Unwashed, 30 to 33c. per lb.; Tubwashed, 45 to 50 cts.; Fleece, common, 40 to 43 cents; Fine, 43 to 48 cents; Pulled, No. 1, 32 to 36 cts.; Merino Pulled, 42 to 45 cents per lb.

CATTLE MARKET.—Common, $6a7.50; Prime Beeves, $8a9 per 100 lbs.

Sheep—5a6¼ cents per lb. gross.

Hogs—$13.25a14 per 100 lbs., net.

CONTENTS OF THE JULY NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . *Virg.*

Sixth Series. BALTIMORE, AUGUST, 1866. Vol. I.—No. 2.

AUGUST.

"While bowers and groves and orchards round me waved,
What verdant banks my winding streamlet laved!
How dear my flow'rets, and my cooling shade!
What fattening flocks along my pasture strayed!
All laughed around me, and my fancy dreams
O'erflowed with fields of corn, and milky streams!
Short-lived chimeras!—impotent and vain!
The broils of state, that o'er my country reign,
Have left me nothing but my sylvan reed.
Adieu, my flocks, my fruits, and flowery mead!"

Farm Work for the Month.

The press of the summer's work will now be abated, and the farmer may afford to give himself, and his laborers, an occasional respite on Saturday, and at midday make the hour of rest somewhat longer. The corn will now be dependent only on the state of the weather, as all will have been done that industry and skill can do in the way of cultivation. The wheat and other grains will have been secured, ready for the threshing machine. The hay will have been made, and put out of harm's way in mow or stack. The care of tobacco, potatoes, turnips, and other such crops, will be light work.

TOBACCO FIELD.

It is an important month to the tobacco crop, and mainly determines its character. In the early stages of its growth, it should be ploughed deeply, to encourage it to strike its roots well into the ground. Otherwise, the hot and dry weather will force it to a rapid, upward growth, and make a light crop. The ploughs and hoes must be kept diligently at work, during the month, until the leaves so interlock, as to make them liable to be broken.

Topping.—This work should be done as the tobacco comes into bloom. Early in the season top down to leaves of six inches in length, and at a later period still lower, to give the upper leaves the chance to ripen before housing. The plant will, usually, be fit for the house about three weeks after topping.

Suckers.—As soon as the plant is topped, suckers will begin to grow from the foot of each leaf.—These consume the juices that would otherwise give weight and body to the leaves, and should be taken out before they make much growth.—Especial care must be taken to destroy them before cutting the plants, as they continue to grow after the tobacco is hung in the house, and, if frozen, will stain and damage the leaves.

Saving Seed.—Some of the most perfect plants must be left, from which seed may be saved.—When the leaves are thoroughly ripe on these plants, they should be stripped off and tied up to cure, while the stalks are still left for the thorough maturing of the seed.

Worms.—All that can be done with the worms, is to watch for them in their first approach, and, as far as possible, destroy them while young. If a great many eggs are observed, and a prospect of a large glut, great diligence should be used in destroying them before they begin to crawl about, when they hide themselves from view. Turkies, though very useful when the plants are comparatively small, cannot be relied upon when they get large, if the worms are numerous.

POTATOES.

Work the late potatoes well until they bloom, and then give a light earthing with the hoe, and leave them thoroughly clean.

RUTA BAGA AND OTHER TURNIPS.

Sow ruta bagas at once, if not already done, and white turnips from the 15th to the 20th.—The first in slightly raised drills, two and a half feet apart, with about one hundred weight of good superphosphate sowed in the drill. White turnips sow broad cast.

RYE.

If rye is to be sown, the ground should be got in readiness this month, and everything be prepared to sow not later than the 1st of September. This is not a favorite crop on any ground that will grow a tolerable crop of wheat, but on light soils it may, with a light manuring, prove more profitable. But under almost any circumstances a small lot should be sown for early green food in the spring. It is fit for cutting two weeks before clover, and no one who puts a proper estimate on green food for stock, in early spring, would be willing to dispense with it. For such a purpose it should be well manured and sowed thickly—say at the rate of two bushels of seed to the acre.

TIMOTHY.

This valuable hay grass is most commonly sown in a rotation with grain, which is the best practice. In that case, it is to be sown whenever the wheat is: but if a lot of ground is to be appropriated exclusively to it, let it be got in thorough readiness, and sown the latter part of this month. If seed enough be put on the ground at that time, there is no reason why a heavy crop should not be cut the first season.

It may be sown as early as the middle of August, and in that case, a crop of white turnips may be sown with it, scattering the seed very thin upon the ground: or mixing a quarter of a pound of turnip seed, with a peck of timothy, before sowing.

If it is the purpose to grow timothy unmixed with other grasses, in a rotation with grain, the proper place for it is with the wheat crop that is sown on a clover fallow: this would of course lengthen the ordinary four-field rotation in proportion to the number of crops of timothy.

CATTLE PENS.

It is a convenient method of manuring the thinner portions of a field, or any part that wants heavy manuring for a special purpose, to make movable cattle pens, the bottom of which should be covered with coarse litter, of any sort that may be got together. If such pens are moved once a fortnight, much ground may be manured before the time to take them into the yards. It is a favorable season now to gather material of every description that may make manure.

THRESHING GRAIN.

It is always advisable to thresh the grain early, to be in readiness for market, and the most convenient time is generally that between harvest and wheat seeding. Prepare at once, and use every possible precaution against the dangerous accidents that often occur.

PREPARATION FOR WHEAT.

The preparation of the clover field, or the oat stubble, for wheat, should be begun at the earliest possible time, that the condition of the ground will permit. All experienced wheat growers are aware of the advantage of early ploughing: and the uncertainty of the state of the weather allowing it, at this season, makes it especially incumbent to be prepared for the first opportunity to do so. If well turned now, a superficial working at seed time will be all that is needed to put into the best condition. Then the necessity for early seeding becomes yearly more apparent, and some good varieties of red wheat admit of sowing the 1st of September.

There need be no fear of making this first ploughing as deep as three good horses will turn it, unless there be good reason to suspect some poisonous ingredient in the subsoil, which should be turned up, very cautiously, late in the fall.—There is seldom any reason for apprehension on this point.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER, Maryland Agricultural College.

AUGUST.

BEANS.

Early Six Weeks and Valentine, may still be sown during the first two weeks of the month, being careful to select a piece of ground which has received a liberal coating of manure, and well spaded, or deeply ploughed. Late beans, upon poor, thin soil, should the fall be dry, will be very stringy.

CUCUMBERS AND MELONS

Frequently suffer from the effects of drought, at this season of the year. A surface dressing of half rotted manure will benefit them, and be the means of prolonging their bearing until frost destroys them.

CELERY.

The early planted will now require earthing up about every ten days, being careful not to add too much earth at a time, as by so doing it is likely to get into the heart of the plant, and cause it to rot.

LETTUCE,

For a fall crop, may be sown about the middle of the month upon a piece of well enriched ground. The *true* Early Paris Silesian* is the best kind, all things considered, we have ever cultivated. Out of some twelve different kinds cultivated here this season, we have nothing to equal the above.

SPINACH,

To come into use before winter, may be sown about the end of the month. Sow in drills about two feet apart, and work well with the hand, or horse, cultivator, as soon as the plants are well above ground.

WEEDS.

Keep them from every part of the garden, as they are great robbers, and not to be trusted,—the seeds from which, if allowed to mature and fall upon the ground, will cause hard fighting hereafter. Fill every vacant place in the garden, from which early peas, potatoes, &c., &c., have been taken, with cabbage, turnip, spinach, &c. Never allow any land to lie vacant during the growing season. Continue to give all crops of carrots, onions, parsnips, late beets, corn, &c., good cultivation between the rows, until all the land is covered with the foliage of the plants.

* We can testify to the superiority of this variety, as cultivated this season by Mr. B., at the Agricultural College.—ED.

The Fruit Garden.

STRAWBERRIES.

August and September, we consider the best time of the whole year to make new beds, in order to insure good bearing next year. If good rooted runners are plentiful, select the best only, taking up the plant with a good ball of earth, and transferring them with great care to their newly prepared bed. With such careful management they will barely feel the removal, and with ordinary care will become very strong plants and produce a good crop of fruit next spring. This extra care can, of course, only be given to plants which have to be removed a short distance.—When runners are plentiful, we always destroy the weak ones; but any varieties it is thought desirable to propagate to the utmost, we select all the strongest, and plant them in beds for bearing, and the late ones in separate beds for stock. These will not, as a general thing, produce much fruit until the following year, and then will be, under ordinary circumstances, very strong plants. Strawberries, to fruit in pots next spring, should by this time be well established, and in need of shifting into four-inch pots, into a compost of good, strong, turfy loam, well chopped over with good rotten cow-dung, and potted firmly.

Peaches, Nectarines, Grape Vines,—hardy and exotic,—attend to directions given last month.

INSECTS.

Do not omit to watch for *aphides*, (plant lice.) &c., &c. We have found strong soapsuds very effectual for destroying them, (plant lice.) by applying it through the nose of a watering pot or syringe.

RASPBERRIES,

As soon as the bearing season is over, should have all the old canes cut out, and the new ones thinned out to about four, unless wanted for making new plantations.

NEWLY TRANSPLANTED TREES

Should have the ground well worked between them, and a good coating of mulch applied as a top-dressing to every tree, covering a radius of not less than four feet from the stem. Frequent applications of soapsuds to all newly transplanted fruit trees, grape vines, strawberry plants, &c., will be of great and lasting benefit.

MILDEW

Will show itself in all close damp places, and do incalculable mischief if not checked. Sulphur dustings are the best remedy we know.

ARREARS.

At this time of the year we generally find ourselves in arrears in regard to some departments of our work, but as much of the planting is done, and little watering is required, and there is a momentary lull in the activities necessary during the early spring months, we would now pipe all hands to give an effectual working of the ground wherever the hand or horse cultivator can be used; the pruning and tying grape vines; working old, and new, strawberry beds; pruning old and neglected orchards; eradicating borers; with many other odd jobs which present themselves from time to time to the observant cultivator, and which are "too numerous to mention."

☞ "It is a mark of want of intellect to spend much time in things relating to the body; as to be immoderate in exercises, in eating and drinking, and the discharge of other animal functions. These things should be done incidentally, and our main strength applied to our reason."

☞ "Demand not that events should happen as you wish; but wish them to happen as they do happen, and you will go on well."

The Flower Garden.

ANNUALS,

To stand the winter, should be sown from the middle to the end of the month, in ground not too highly manured. The sorts to sow now, are white and purple Candy Tufts, the beautiful varieties of Nemophilas, Erysimum, Clarkias, Convolvulus Minor, the pretty Godetias, new Rocket Larkspur, Lupines, Escholtzias, French and German Poppy, and the beautiful varieties of Schizanthus.

STOCKS.

Intermediate, Queens, and Brompton, for flowering early next spring, should now be sown.—After about one inch high, they should be potted singly in small pots, and kept shaded until they make fresh roots. The soil should be good, turfy loam, not too rich, or the plants will become too sappy to stand the winter well. They are among the most beautiful of our early spring flowering plants.

PANSIES,

Towards the end of the month, should be propagated in quantities for planting out in beds, and for early blooming in pots next spring.—When well rooted, those to stand in open beds, should be planted in a good loamy soil, with a liberal admixture of good decayed cow-dung, sand, and a small quantity of charred rubbish, if there should be any on hand.

ROSES.

Prune Pillar roses, so as to remove a moderate amount of both old, and new wood. All that is left to be of its full length and at regular distances, that there may be good symmetrical heads next season. Short cuttings of Chinas and Bourbons will root now in the open ground, planted in a shady situation.

Notices of New and Rare Plants.

BY D. BARKER, MARYLAND AGRICULTURAL COLLEGE

NEW ZONALE GERANIUMS.—This most splendid class of flowers, alike adapted for the adornment of the green-house and flower garden, and one of the best for cultivation as a window plant, deserves from their great improvement to be more generally cultivated. They vary in color from pure white, through every shade of rose, pink, and salmon, to the most dazzling scarlet, with form almost perfection. We have in our possession the entire stock of some from Europe, which we hope to describe with other novelties, both fruit and flowers, in forthcoming numbers of "The Farmer."

Fascination.—Flowers, a beautiful rosy salmon, with a margin of bluish white; a fine and beautiful variety, with good form and truss. Foliage, light green, with dark zone. Very effective.

Madame Vaucher.—A pure white Geranium; fine large truss, well up in the centre, giving it a fine, flat, even surface, and in form and color almost equal to the old double white camellia.—Habit, dwarf and compact. A beautiful variety.

Brilliant.—Light scarlet; an immense truss.—Light foliage, with dark zone. Habit, robust, well adapted for planting in the flower garden, or grown in a pot for green-house decoration.

Bel-Demonia.—A beautiful, rosy salmon color, of dwarf compact habit of growth; the trusses very large, and the petals of great substance, remaining in perfection for a lengthened period.

New "Mimulus Monstrosus."—This variety is a decided advance on all that we have hitherto cultivated. Habit, very robust and compact, producing its blossoms in the greatest profusion, and of gigantic size. Color, varying from a beautiful soft canary, to bright orange, with large broad blotches of claret maroon, of a velvety appearance; throat and lower lip densely spotted with the same color.

NEW LOBELIA.—*Lobelia Alba-cærulea.*—This very distinct and beautiful plant, alike adapted for the flower garden, planting in vases, or for a hanging basket, will be found a great acquisition, being a very profuse bloomer. The flowers are very large, being from half to three-quarters of an inch across, with conspicuous, white centre, edged with blue. Splendid habit;—annual.

Homemade Manure.

Twenty hens will furnish enough excrements in a year, if well cared for, to give an acre of corn a good start, equal to a liberal supply of the patent materials. The privy for six in a family, if well attended, will produce enough for the hill for two acres of corn; and then, if more is needed, clean up all the fine manure in the yard and in the barn cellar, mix three bushels of ashes to a cartload of thirty bushels, and immediately use it, putting a pint in a hill. It costs no money, but needs a little time and attention. I have never found the farmer yet who did not acknowledge that $10 is better used in making manure at home, than in the buying of others' manufacture. I believe this rule may generally be applied. Some exceptions exist. But that it is a bad policy to waste fertilizers at home, and buy foreign ones, is a fact too plain to be disputed.—*N. H. Mirror.*

[CONCLUDED.]

Cultivation and Manure as Fertilizing Agents.

By Henry Tanner, Professor of Agriculture, Queen's College, Birmingham.

[Premium—Medium Gold Medal.]

In addition to this benefit, another desirable result has been attained by the use of lime—viz: that, as nearly all soils contain ammonia in them, in a dormant state, the use of lime displaces part of this ammonia, and thereby this fertilizing matter becomes available for the plants growing in the land.

Thus it is seen that in the soil there are bodies capable of separating ammonia from the rain as well as from the atmosphere, and afterwards preserving these fertilizing stores until required for the crop. We have in the use of lime a double advantage; it not only gives the soil superior powers of acquiring that valuable fertilizing matter, ammonia, but it also renders the existing stores of dormant ammonia ready for active service in promoting vegetation. It is, however, of no practical value to us having in our soils the means of accumulating fertilizing matter, if at the same time we place it in a position in which this power is rendered inoperative; consequently we have two means by which to promote the accumulation of ammonia in the soil, and these are—1st, increasing the capabilities of the soil to absorb ammonia; and 2d, giving the atmosphere a free access to the soil, so that these powers may come into full operation. The addition of lime to the land has in this respect a double action—viz: it sets part of the ammonia in the soil free, and available for promoting vegetable growth, and it also renders the soil more competent for accumulating a store which will maintain the fertility of the land; and thus we have, in the use of lime as a manure, a valuable means of realizing the first requirement—an increased absorbing power. The attention may now, however, be advantageously directed to the facilities for the increase of these powers, and these are manifestly twofold—viz: the exposure of the soil fully to the air, and the passage of rain through the land. The tillage of the land is therefore just the agency required to accomplish this desirable result; for as I have said before, the inversion, stirring, and crushing of the soil by the various operations of ploughing, cultivating, harrowing, and rolling, each and all promote the exposure of fresh portions of the soil for atmospheric action; and whatever capability is possessed for the secretion of ammonia, the soil is thus furnished with the opportunity for its exercise.

If you view our field labor as so many means for exposing every portion of the surface soil to the air, you will at once realize the value of many operations which we have hitherto only considered as of mechanical value in preparing the land for seed, by rendering it light, and giving the roots freedom for their growth and extension. But the advantages are double; for not only is it necessary for the luxuriant growth of a crop that it should be so placed that its roots have a freedom of action for searching after the food which the crop requires, but, as I have already explained, the means we adopt for attaining this result equally facilitate the success of the crop by the accumulation of fertilizing matter which is being simultaneously made. This free and loose condition of the soil is equally favorable for the passage of rain *into* the soil; and when this is properly assisted by an efficient underdrainage, then alone is the full advantage derived from the rain, and its fertilizing contents.

With a knowledge of these principles, if you review that old established practice of fallowing, you will not fail to detect the reason for past success in this practice, and you will see another instance of that true union which exists between practice and science, which every lover of agricultural progress hails with feelings of pleasure. The true principle of fallowing has been to expose the land to the wind, rain, frost, and heat, and to keep the land moving as much as possible. Manifest have been the advantages derived from extra ploughing, which *to the eye* appeared at the time productive of little change or benefit, but the succeeding crop has in many such cases given evidence of increased capabilities of production, which, until lately, has been set down as simply resulting from the mechanical condition of the soil being more favorable for growth, instead of its being also referred in part to the increase of food for the crop which was thus obtained.

The use of lime for fallows is an old established practice loudly decried by some as exhausting to the land, but still the practice was continued, because it was found to succeed; and now the practice has, by its successful results, survived the period of its condemnation, and entered into one of more honor, in which both practice and science agree to sanction and advise its use. Here let us all take a lesson for our future guidance, and remember that old established and successful practice has truth for its foundation, and although there may also be some error intermixed with it, yet we shall be unwise to condemn any successful practice as useless, which our present imperfect knowledge cannot exactly approve of.

We have now to notice the influence of tillage

operations upon the organic matter of the soil: and, without going into any unnecessary detail, I may remind you that the passage of rain water (and its associates from the atmosphere) into the soil, very materially assists in promoting the decay of these organic matters, and renders them serviceable for the support of vegetation. Thus every portion of the soil derives advantage from the tillage operations to which it is subjected.—The mineral matter of the soil which is in an active condition, is thus enabled to pass into the circulation of plants. Those portions of the soil which are not in an advanced stage, but lie *dormant* in the soil, are by the same power awakened to action, and transferred into an active state; whilst the insoluble grit of the soil has also gradually progressed into the next stage, or the dormant condition. The stores of ammonia which the atmosphere contains are gathered by the soil and subsequently liberated when required by a growing crop: whilst the organic matter of the soil is also, by the same agency, prepared to minister to vegetable productiveness. Thus we have nearly all the requirements of our crops supplied from natural sources, and these are rendered available by our various tillage operations.

The conclusion to which we are brought by these facts is, that tillage operations render free and available for vegetation certain fertilizing matters which are essential for our crops, and that the degree to which the resources of any soil are developed is proportioned to the extent of these observations. Practically, it matters but little whether so much alkaline matter, ammonia, and organic matter is added to the soil by nature, or converted from a dormant to an active condition. It is manifest that in both cases the soil is equally enriched by equal quantities of the same materials: but there is this advantage in favor of the tillage operations, that whilst the two methods may be equal in a chemical point of view, yet the mechanical conditions are in favor of cultivation as a substitute for manure. The food being the same, equal results would be obtained, provided other conditions were equal: but if the mechanical condition of the soil is very much improved, it will enable the crop to grow more freely, and this is so much the more advantageous for the increase of the crop, resulting from our tillage operations.

But what are the practical inferences we are to draw from these principles? Are we to consider our farms independent of our various manures? This would certainly be a premature conclusion. We see how advantageous the use of lime is, and our arguments are certainly in favor of its frequent employment in moderate quantities. It is equally clear that there is a great difference in soils as regards the mineral matter they contain: for if they do not possess the several ingredients which the crops require, our tillage operations cannot develop them, and hence such soils will still be dependent upon the supply of manure for fitting them for being productive.

These soils which possess rich stores of mineral matter required by plants will be enabled to yield them to vegetation under the assistance of good cultivation. But as the majority of our soils are very deficient in phosphates, and as these valuable fertilizers, even upon well-managed farms, are being continuously removed from the land, and do not in regular course of farm management find their way back again to the land, it is evident that few soils could withstand the removal of this important group of manures without some return being made periodically, and hence we may fairly anticipate considerable advantage from the continued employment of phosphatic manures. The value of farmyard manure will still be equally great, and its economical value will not be depreciated because of tillage operations being in some manner a substitute. They must rather stand side by side as valuable co-operators in the same service, and not to be looked upon as competitors. We must not prize our manures less, but value cultivation more highly: and I have no doubt that thus the standard of our crops will be materially raised, especially if an active cultivation of the land is supported by a well-managed homestead, in which food is economically consumed, and the manure carefully preserved and prepared for the use of the farm.

You may, however, justly require of me some practical results in support of the principles named. This I can readily furnish. In fact, I have already based my arguments upon the success which has generally attended the practice of fallowing, and upon which most conclusive evidence is to be obtained throughout the country. I should, however, be guilty of a great oversight if I omitted to make reference to the "Lois Weedon" system as another illustration of the principles I have already specified. Much as this has been a bone of contention both among practical farmers in different districts, as well as amongst scientific men, as to the principles involved, still I feel that I must not avoid making reference to it. Whatever may be our preconceived ideas respecting the nutrition of plants and the exhaustion of the soil, still here we have a fact established beyond a doubt that wheat may be grown year after year upon land of moderate fertility: and notwithstanding that the soil has not been enriched by the use of manure, still the land has

progressively increased in fertility, and the crops become more abundant and of superior quality. It is desirable that I should briefly notice some of the peculiarities of this system. The plan adopted by the Rev. S. Smith, at Lois Weedon, in Northamptonshire, is to divide the field into lands five feet wide. In the centre of these lands, the wheat is dibbled at the rate of two pecks per acre in three rows, one foot apart, thus leaving a space of three feet in width unoccupied. When the plant is up strong, the whole of the land is dug with a fork and allowed to lie rough for the winter. In the following spring the land is levelled and well cleaned by the use of the horse-hoe, and this implement is freely used until the wheat is coming into blossom. The rows of wheat are then earthed-up with a mould-board, and in the furrows thus made the subsoil plough is used tolerably deep. To overcome the injurious influence on the wheat, which is found to arise from the land being too loose, the Crosskill roller is used before the ground is sown, and also in the following spring. In this manner one-half of the ground is occupied in producing wheat, whilst the remaining half is under preparation for the next years crop. Under this system the produce of this land (not worth 30 shillings per acre,) has been raised from 16 to 40 bushels per acre.—The crops from 1847 to 1856 inclusive, averaged 34 bushels; the crop of 1857 produced 36 bushels; the crop of 1858 equalled 40 bushels; and thus the land, instead of showing any sign of exhaustion, gives proof of increasing fertility.—The question naturally arises, To what source are we to trace these anomalous circumstances, that with the repeated removal of these crops, without any compensation by manure, the soil advances in fertility? It can be referred to no other causes than those I have already named—the conversion of the dormant matter of the soil into an active condition, whilst at the same time, and under the same agency, the soil feeds upon the nitrogenized matter of the atmosphere, and secretes a store of food for the growth of the succeeding crop.*

With facts before us like these, it is folly to doubt the possibility of such being done, or to set it aside as an incredible story. It would, however, be equally wrong to entertain the idea that the same results would be attained under other circumstances. Doubtless, there is much land upon which equally satisfactory results may be realized, but there are also many districts in which the system could not be followed out remuneratively. A moment's consideration will prove this. To produce a crop of wheat, the land has to yield up not only nitrogen in a state fitted for assimilation, but also mineral matter, and without these supplies a luxuriant crop cannot be produced. The nitrogen may be derived from two sources, the soil and the air: but *the mineral matter can only be supplied from the soil*. If by any plan we can render these supplies available with greater rapidity than the crops draw upon the land, then the productive powers of the soil are not reduced from the loss; but under other circumstances, the land must gradually become less productive. The plan adopted at Lois Weedon succeeds in maintaining the productive character of the land, and its success may be traced to two circumstances.

1st. That the soil contains the necessary supplies of mineral matter ready for being brought into use; and,

2d. That the tillage operations are capable of rendering these supplies available.

The absence of either of these conditions must produce a failure: for if the required mineral matter were absent from the soil, no amount of tillage could produce it: and so, also, if the mineral matter were present, but under circumstances which would not allow of its being rendered available, it could not be of any service to the crop. This is a system which can only be fully carried out upon soils possessing certain mineral ingredients required for the wheat crop, for its chief merit consists in *the development of hidden or dormant stores of fertility*, which may exist in soils when little expected. In the case of the Lois Weedon soil, we have a thorough wheat soil, and hence its powers are brought into action; but whereas you cannot develop properties which are not possessed, you must not expect to carry out this plan upon soils of an opposite character. We must not, however, reject it entirely, even for these soils, for there is a most valuable lesson to be learned from it, which will *always* be of service, and that is the proof it gives of the fertilizing results of tillage operations. The Lois Weedon system may have its special districts for its successful or unsuccessful adoption, but the lesson we gather is of universal application—viz: that the culture of the soil is a most powerful and valuable cause of fertility.

We may, in conclusion, add a few remarks to what we have already stated as to the extent to which tillage operations are a substitute for manure. I have already shown that they are valu-

* A good deal might be argued in favor of the chief supply of nitrogen in Mr. Smith's successful practice being obtained from the decomposition of the organic matter in the soil, rather than by the soil absorbing it from the atmosphere. And also it may be argued, that in this case the wheat plants are placed in conditions favorable to their absorbing ammonia or nitric acid by their leaves, from the air.—Ed.

able promoters of fertility in all our soils, by the conversion of the dormant organic and inorganic matter they contain into fertilizing materials, fitted to support and nourish vegetation, and that at the same time the soil is rendered more competent for absorbing from the atmosphere nitrogenized matter. These results, though evident upon all soils, will be more manifest upon soils already possessing a fertile character, and upon such soils tillage might to some extent supercede the use of manure; but upon inferior soils, although beneficial results will be evident, still the advantages will not be equal, and there will be greater necessity for the use of manure. Upon whatever soil the trial is made, the result must of necessity be regulated by the composition of the soil. If a soil is being cultivated which requires a free supply of the phosphates, and there is a natural deficiency in the soil, it is clear that the use of some phosphatic manure will be desirable, for no extent of tillage can compensate for the absence of such a body. It is just the same with the other ingredients required by our crops. If the soil is fertile it possesses these stores, and then culture brings them into use. It may, however, be said, cannot a chemical analysis of the soil at once indicate whether or not a soil is competent or not for the successful application of this system? I reply, it may be a safe guide in some cases, but the indications of nature, by the general products of the land, will be a safer guide in the majority of cases. There is, however, one important advantage which will result from tillage operations, and that is the storing away in the soil much of the ammonia of the atmosphere. This will take place upon all soils, but upon rich clays and loams more especially so. This is another powerful inducement for stirring and exposing the land—we have seen how valuable lime is in producing this result, and that it is an important co-operator in the action. Hence tillage operations in no way supercede the use of lime, but render its action more beneficial; neither does the cultivation of the land supercede the supply of manure for the crop when the land is deficient in one or more of the ingredients which the crop requires.

It is for these reasons, that whilst we value tillage operations as *most important* agencies for promoting the fertility of the land, we must not allow them to supercede the use of manure. We shall still find an economical use of our manures equally imperative and remunerative, and our higher appreciation of the great value of tillage operations will result in an increase of the average produce of our soils, rather than in depreciating the value of manures. Extremes are at all times dangerous. Whilst, therefore, we may more highly value tillage operations, and upon many soils realize thereby similar results to those attained from the use of ammoniacal manures, we must at the same time be cautious not to overlook the important results we obtain by the use of our various natural and artificial manures, and look to them as valuable promoters of fertility, which will always produce profitable results in proportion to the skill and discretion with which they may be prepared.

Prof. Mapes' Theory of the Progression of Primaries.

In geological investigations it has been ascertained that the first animals that were created on this earth were of very simple structure—a mere sac, like the clam or oyster, in fact, more simple even than they. Afterward animals of more complex structure were created—such as sharks and other low orders of fishes; after these the first amphibians made their appearance; next in order came forth reptiles—the lowest form of land animals; after the reptiles mammalians were created; and last of all, man—the most complex organism on the globe. Through immeasurable ages the animal creation advanced by progressive improvement "from the monad up to man.

The same progress took place in the vegetable creation. In the oldest fossiliferous rocks no remains of vegetables are found except those of exceedingly simple structure—sea weeds without flowers or other organs; while the upper and newer rocks are filled with plants of more complicated structure, constantly becoming more complex, till, in the present age, we have the modern tree, with its plumule and radicle, its trunk, branches, leaves, calyx, petals, pistils, stamens, anthers and pollen—a structure with numerous organs for its own growth and the propagation of its species.

Water is a compound substance, made up of other substances, oxygen and hydrogen, which can be separated. Iron, on the other hand, is a simple substance, which cannot be decomposed. There are about eighty simple or primary elements at present known, though only about twenty of these exist on the surface of this earth in any considerable quantity. Sixteen of the primary elements are used, by nature, in building up the structure of plants and animals—twelve being employed in minute quantities only, while the principal portion of all organized beings is formed of the four organic elements, oxygen, hydrogen, nitrogen and carbon.

Now, Prof. Mapes' theory was that these ele-

ments had, in the long ages of creation, gone through the same progressive improvement as the plants and animals which they combine to form. He contended that before carbon could enter into the structure of an oak or a lily, it must first pass through sea weeds, acrogens, cycads, and the other low and simple forms of vegetable life—being itself modified and improved with the general advance in the vegetable creation. He asserted that a rose could not be nourished with potash direct from the feldspar rock, but that the potash must first go through its series of progressive improvement in mosses and other low forms of vegetables.

This theory has received a great deal of ridicule; the only objection that we make to it is the absence of evidence in its support. Had Prof. Mapes devised and conducted an experiment which should have proved that a rose would not assimilate potash from feldspar, he would have been regarded as the author of a great discovery that would have made his name immortal; but the theory, without evidence, is to be ranked among the thousands of unsupported suggestions that are constantly coming from the teeming brains of mankind.—*Scientific American.*

The Poultry Yard.

French Fashion in the Poultry Yard.

We give our lady friends notice that they are to have French fashions in their poultry yards, and that they must be on the *qui vive* if they would not be behind the times. Black Spanish Chitagongs and Bramahs, are to be superseded by *La Fleche*, *Houdans*, and *Crevecours*. Not that they are any better, though there is strong testimony to that effect, but better than that, they are new and fashionable; they are going to be "all the rage." Why need they be better than the old. any more, good madam, than that your new bonnet should be more comfortable, or protect your head better than the old one, which you lay aside with disdain. "Worth makes the man," as you know, "and want of it the fellow," but not so with chickens and bonnets. Go to your garret and you will find, maybe, some of the most ridiculous old "frights" of bonnets, and yet you'll acknowledge you once thought them perfect "loves." Yet the bonnet has not changed, nor have you,—only *the Fashion*. So with the chickens, the fashion is demanding a change, and the agricultural papers are echoing the call. The following is from the London *Field:*

"All poultry fanciers are aware that the best breeds of French table fowl are coming into favor in England. The Crevecœurs have now been introduced some years, and twenty pens made their appearance this week at the Birmingham show. The La Fleche are also established as a favorite variety. But less is known of the race now under notice, the Houdans, and we have, therefore, thought it desirable to illustrate the breed by a drawing made from living specimens.

The Houdans are eminently table fowls—large in size, with fully developed breasts, short legs, and little offal. The feet are five-toed, the crests large, and the combs very strong and peculiarly developed. The plume is white, irregularly spangled with black, giving them a very showy appearance. The sickle feathers in the cocks are black, and the saddle feathers black, tipped with white. Should these fowls become as great favorites in this country as their merits, in an economical point of view, entitle them to be, doubtless they will be bred to a standard as regards plumage and comb. This has already been done with the Crevecœurs, in which breed uniformity of color and size of crest are, along with great size, essential to success in a show pen.

Respecting their merits as poultry for the table, we think very highly. The pullets come under Shakespeare's definition of "a short-legged hen," and, with "the joint of mutton and any little tiny kickshaws," would form as desirable a dinner in this the nineteenth, as in the seventeenth century. In fact, the Houdans are an ancient race, and may be seen figured amongst the most prized designs of the poultry yard by Hondekeeter, and the other older animal painters.

The fowls which have been so characteristically drawn by Mr. Wells, are the property of the National Poultry Company; we shall, therefore, hardly do them full justice without we insert the following description from the report of their manager, Mr. Geyelin:

The Houdan fowl has a very bulky appearance, its plumage invariably black and white spangled, a crest of the same color; comb, triple, the outsides opening like two leaves of a book, and the centre having the appearance of an ill-shaped long strawberry. With the cock the comb is very large, while with the hen it ought to be scarcely perceptible. The legs are strong and of a pale lead color, with five claws, the two hind ones, one above the other. Strongly developed whiskers and beards both in cocks and hens. This is one of the finest races of fowls, but its qualities surpass even its beauty; besides the smallness of their bones, the fineness of their flesh, they are of an extraordinary precocity and fecundity; they lay large and white eggs, and the chickens are fit for the table at four months

old. It is, however, observed that they are very indifferent for hatching. The weight of adults is from 7 lb. to 8 lb., in which the bones figure for one-eighth. The chickens, when four months old weigh, without intestines, about 4½ lbs each.

Feeding Poultry.

Onions are said to be an admirable food for fowls, or rather an adjunct to their ordinary food. If given regularly, it is said that they will prevent the attacks of the more ordinary diseases of poultry.

Meat is said by some authorities to be an essential food for poultry, especially in the winter, when they cannot get the worms they pick up in summer. Others, again, maintain that the habit of giving meat to poultry is productive of grave evils—the cause of many of the worst forms of disease which affect them. By these authorities it is called an unnatural food, inasmuch as the digestive organs of the birds are not fitted to assimilate them. There must, we think, be some mistake in all this; for we know of a surety that fowls do eat when they can get it, and entirely of their own accord, an enormous quantity of animal food; here it is not cooked; the game found in nature's garden is raw. If meat is an unnatural food for poultry, they certainly have a most unnatural appetite for it. Throw in *one* lump of meat amongst a lot of fowls: if not literally a *bone* of contention, it is something vastly like it, so eager are all to get a grab at it. We believe the habit of giving much food in a short space of time to poultry is a very bad one. If you notice their habits you will perceive that the process of picking up their food under ordinary, or what we may call the natural condition, is a very slow one. Grain by grain does the meal get taken, and with the aggregate no small amount of sand, small pebbles, and the like, all of which passing into the crop, assists digestion greatly. But in the "henwife's" mode of feeding poultry, a great heap is thrown down, and the birds allowed to "peg away" at such a rate that their crop is filled far too rapidly, and the process of assimilation is slow, painful and incomplete. No wonder that so many cases of choked craw are met with under this treatment.—*Mark Lane Exp.*

☞ "I am rich enough, and can afford to give away £100 a year. I would not crawl upon the earth without doing a little for truth. I will enjoy the pleasure of what I give by giving it alive, and seeing another enjoy it. When I die, I should be ashamed to leave enough for a monument, if there was a wanting friend above ground.—*Pope to Swift.*

Grass or Grain.

In one of its articles on "the Meat Manufacture," the *Agricultural Gazette* draws a comparison between the products of Grass land and land under the plow. In this comparison the estimate is not based upon the yield of what really ranks as the *best* grass land,—as it is taken for granted that that which produces 12 to 15 tons of green food per acre, yearly, say 2½ to 3 tons hay, "without any labor but that of repairing the fences which divide it, destroying the docks and thistles which invade it, and supplying manure to maintain it, is producing more at less expense than perhaps it could do in any other condition." But with poorer pasturage or meadow, on which 8 tons of green food, or say 1½ to 1¾ tons of hay, is the highest average yield, the opinion is expressed that a rotation with grain crops could often be substituted to great advantage. Under good English management, and the writer speaks from his own experience, such land with a six course system of rotation, has been made to yield, *beside the grain harvested*—1st year, 25 cwt. wheat straw; 2d year, 24 tons mangold wurtzel; 3d year, 25 cwt. wheat straw; 4th year, 18 tons Swedish turnips; 5th year, 20 cwt. of barley straw; 6th year, 10 tons of clover (green.) or a total of 52 tons green food and 5½ tons litter, in addition to grain,—while under grass, at 8 tons a year, the total product would have been only 48 tons green food. As to the practical results, he says:

"On the farm I write from, three-quarters of which was formerly grass, a stock of about 40 head of oxen, fattening to 60 or 70 stones, and between 200 and 300 sheep, fattening to 24 lbs. a quarter, with 50 or 60 pigs, are now kept during winter, and about half those numbers during summer, where formerly a herd of 25 cows, and about 20 yearlings and two-year old heifers, with a few pigs, were maintined in store condition: while in addition to the above, the land now permits an annual sale off it of about 4,000 bushels of wheat."

POUNDS OF GRASS TO A POUND OF MEAT.—It is stated, on good authority, that an acre of the best of the Lincolnshire grazing land—and it is a county famous for its grass—will carry an ox and a sheep "from New May-day till Old Michaelmas," and that while grazing during this period, the former will gain 280 lbs. and the latter 40 lbs. in net weight of meat when slaughtered.

The acre will thus yield 320 lbs. of meat. Its produce of grass may be 16 tons—perhaps more. This is one pound of meat for every cwt. of grass, but we must remember that the grass of such land differs from the average in the quality as well as in the quantity of its produce.

Fruit Department.

Black Knot.—Our Maryland readers are very familiar with the *Black Knot*, which, within some years past, has made havoc especially with the morello cherry trees. We have seen within a small compass, morello cherry, and damson trees, completely destroyed by this fungus, while a valuable red cherry, of which we do not know the name, but which has a good many of the characteristics of the morello, was entirely untouched by the disease. This cherry is valuable for preserving,—larger, and lighter colored than the morello; a healthy and vigorous tree, and an abundant, and sure bearer. Why it should be exempt from a disease, which is destroying the morello everywhere, we do not understand.

A correspondent of the "Gardener's Monthly" says of this disease: "I am inclined to think that some ingredient in the soil is the cause of the mischief, and that a remedy can be discovered, by which the evil may be avoided. The wild choke cherry, in some places, is nearly dispatched by its ravages, and the worst infected of this shrub, are found near old stone walls, where vegetable mould accumulates. Salt, lime, and *sulphate of iron*, (copperas,) have been used as topical remedies, applied to diseased limbs. Perhaps these elements are needed at the roots. Sections of such diseased branches exhibit accumulations of deformed *buds*, crowded together in the tissue as if produced by repletion. By cell growth this unusual form rapidly increases when the sap is most active; and a succumbent, spongy mass, is the consequence. By extraordinary pressure the bark or cuticle bursts, and the timber weeps and bleeds, inviting first the weevil, which mistakes it for an unripe fruit, and next the cynips, which deposits its eggs in the hatched larva or maggot, and finally, the invisible spores of the spheria, which rapidly vegetate, and crowd the surface with opaque black sphærules, containing within a whitish flesh, filled with myriads of seeds, to spread, and be dissipated by the atmosphere, when ready to fall from the deadened and brittle branch."

Plant Winter Pears.

Planters of pear orchards, in making their selections, will often take six or eight trees of summer varieties, thirty or forty of autumn sorts, and, perhaps, one or two of winter. When the trees come into bearing, the summer varieties furnish a fine supply, when most other fruits cannot be obtained, and are, consequently, very acceptable. The autumn sorts ripen with peaches, plums, grapes and apples; and all taken together yield, perhaps, a great surplus, to a family that does not wish to go into marketing. When winter arrives, these fruits are gone, and can be enjoyed, only by recollection. The few dozen winter pears, from the single tree or two, do not last long. Perhaps they are eaten before half ripe, in the eagerness to enjoy something of the kind at this sparse season of the year; and the owner concludes, as a consequence, that winter pears are hard, tasteless and good for nothing. Instead of coming to this summary conclusion, he should plant enough for a crop that need not be eaten until it has ripened up into its golden color, melting texture, and rich and excellent flavor. We have found nearly all long-keeping varieties to mature into all the excellence of which they are capable, by giving them a good, cool cellar and plenty of time to ripen.

Among some of the best—which, so far as our observation has gone, have uniformly turned out of excellent quality—are the Lawrence, Winter Nelis, and Beurre Gris d'Hiver. There are several other sorts that ripen very nearly but not quite as well.

Now if we number our trees, according to the length of season they are to fill, we should have as many of late sorts—to extend, say, from the first of November to the end of January, or later, as for all summer and autumn, or from the first of August to the first of October. There should, indeed, be more, for these autumn fruits have now disappeared.

Birds, Insects and Fruit.

Fruit growing, in the abstract, is a charming pursuit, but practically it is beset by many perplexities. Not only is the cultivator disappointed by unfavorable seasons, but the insects destroy his foliage and the birds eat up his fruit. In a state of nature matters are better arranged, and we do not often find any one insect or bird sufficiently numerous to seriously injure our native plants. The small birds keep the insects in check, while the birds of prey prevent an undue increase of the fruit-eating birds—bird, insect, and plant, have a fair chance in the "struggle for existence," and all goes on harmoniously. Civilization has destroyed this natural balance of things, and now fruit culture is in good part a fight with birds and insects. We have dropped a cog-wheel somewhere in the machinery, and it is running badly. This interference in the natural balance between the different departments of vegetable and animal life found a striking illustration a few years ago, in one of our large cities. New water-works were built, and the reservoirs were carefully furnished with strainers to keep out the smallest fish, and

no one was in danger of finding a minnow in the tea-pot. All went well for a while; but the water gradually acquired an unpleasant taste, and finally became intolerable.

Science took up the microscope, and found the water full of animalcules, little oily fellows, which imparted the taste to the water. These, in the absence of their natural enemies, the fish, had bred to an inordinate extent. The obvious cure was to let in the fish, and it proved effectual. The indiscriminate shooting of birds, formerly so common, allowed insects to get a fine start. The agricultural press, ours among the rest, joined in the cry "spare the birds." The appeal had its effect; insects are much less destructive than they were a few years ago. But the birds will eat fruit as well as insects, and now the cultivator is in a dilemma to decide whether it is best to let the insects feast on the foliage of his vines and trees, and thus destroy his crop of fruit, or to allow the birds to check insect depredations, and take the fruit for their pay for doing the work. The question comes up: are all birds the fruit-grower's friends, and if not, which shall be killed and which spared? The manner in which birds will dispose of strawberries, grapes, and other small fruits, is something astonishing to one who has never seen it. In some places it is impossible to get a bunch of ripe grapes of any of the nicer kinds, for birds are excellent judges of quality in fruit. We are glad to see that the subject is attracting the attention of horticultural societies. At a recent meeting of the Alton (Ill.) Society, a report and discussion upon birds formed a part of the proceedings. It is hoped that other pomological associations will discuss the matter in order that some general laws may be established. We give the conclusions of the Alton Society, which may serve as a basis for the action of others.

It was voted to destroy the Baltimore Oriole, Cherry Bird, Cat Bird, Jay Bird, Sap Sucker, and his kindred. The Robin was not placed in the list, though he received a very bad name and should take warning. Our own belief is that he is as bad as the rest. One gentleman stated that the Oriole had, during the past season, cost him 250 gallons of wine. The birds reported as not destructive to fruit, and to be fostered, were:—Wren, Swallow, Martin, Black Bird, Meadow Lark, Pewee, Blue Bird, Chip or Snow Bird, Red Bird, Ring Bird, Cuckoo, Quail, Owl, Hawk, and Dove. We notice also that the Massachusetts Horticultural Society has appointed a committee to consider the case of the Robin, and to report upon his value, or otherwise, to the fruit grower. *American Agriculturist.*

Fruit Trees for Ornament.

When we pass the turning point of the winter, we leave behind the things of the past, and look forward to the sunny days of spring. We see in anticipation the many colored beauties of the flower-garden, and the varied fruition of the orchard, almost as glorious. We begin, in fact, to think of flowers and fruits; how we shall get them, and what we shall do with them, and in the mind's eye we have a real, present enjoyment, of things that are to be.

Now, meditating, we are happy in the image of a glorious old apple tree we know of, whose sturdy trunk, with just the least inclination from the upright, bears up its wide-spreading branches, while they wave aloft, in breeze and sunshine, ten thousand thousand blossoms—apple blossoms,—each one of which has a separate and special beauty.

Now, we have a cherry tree, which has sprung up by hedge row or fence side, like a willow by a water course, and without help of pruning knife, but prospering rather by neglect, has, by the hidden principle of an orderly life, developed an organism of perfect symmetry. Its towering top is covered as with a mantle of snow, and every snow-flake has a starry brightness and beauty of its own.

These, and very many others, glorious in their spring-time beauty, and precious in the autumn fruits which crown them like the good deeds of a good man's life, come back to us now from the far-off scenes of childhood. We sit by the winter fire and commune with them, almost as with glorified spirits of the departed.

Speaking of spirits, here is a matter we would fain talk about to Mr. Downing—the great Landscape Downing—who has taught us to enjoy and love so much the beautiful in nature We would protest against the principle inculcated by some writers upon taste, and upheld, if we remember aright, by him, that in adorning a landscape by planting, fruit trees are not admissible, because the idea of utility mingles with and mars that of the beautiful. This sentence condems our apple and cherry tree, and every other like beautiful object, to the straight line of hedge or fence, or the right angle of a stiffly ordered orchard. We do not appreciate the argument. We do not see that a tree is any the less beautiful for the fruit it bears, than that a face is less fair because the spirit of kind and gentle deeds beams through its loveliness. With no disposition to exclude our old friends of the shrubbery, or any of our trees that are merely beautiful, we do favor the idea of making the useful contribute when they may to ornament as well as use. We would have

them planted and arranged with a view to beauty in the landscape. Especially should this be done in small country places, where little expense may be afforded. Many of our fruit trees are very beautiful, and all sufficiently so to make them serve the purpose well in spring with their wealth of flowers, while in the fall they offer us a more substantial interest in their abundance of fruit. With these views, we commend the following remarks from a cotemporary to the same effect:

"Apple and pear trees should be in more general use as ornamental plants, and we wonder why they are not more frequently planted in places of moderate, or even limited extent, as suburban and villa residences, by intermixing them with common shrubbery plants. The great beauty of the bloom of some varieties of apples and pears would of itself entitle them to a place in our grounds solely as ornamental plants, and I wish I could persuade nurserymen to make a selection for this purpose, I imagine many country gentlemen would be induced to purchase them for their homesteads, if good sized plants could be procured, and that proprietors of small places would be glad to introduce them. I say nothing of the Chinese apples and pears, which are just now in bloom, and are worthy of all the admiration they call forth; but having noticed for several seasons how really beautiful the bloom is many varieties of apples, I venture to suggest the matter to your readers. As for the pear, it is, when old, one of the most picturesque trees to be met with, and invaluable as an ornamental tree when in bloom. I strongly advise planters try the Beurre Rance pear, and three or four other new varieties; these have fine foliage, and flowers, and a strong habit of growth, which, as they grow old, would prove useful ornaments to landscape scenery."—*Weekly Sun.*

Cultivation of the Blackberry.

Soil.—The blackberry delights in rich, rather moist soil. It would be almost impossible to get a soil too rich. We have seen a portion of a blackberry patch receiving the wash of a barnyard, and the canes grew to an immense size, and produced the largest berries we have ever seen, while the quantity borne was almost incredible.

Preparation of the Soil.—The soil should be deeply ploughed and trench-ploughed in the fall. By trench-ploughing the soil is deepened, and a portion of the subsoil is brought to the suaface, where it is subjected to the ameliorating influence of the frost, air and sun. In February or March the ground should be ploughed, and the subsoil or lifting plough used, which breaks up the subsoil, without bringing any of it to the surface. We are satisfied from our own experiments that this preparation of the soil will be amply rewarded by the increased amount of fruit produced.

Time and Manner of Planting.—The best season for planting the blackberry is autumn, if the soil is in a proper condition. The blackberry commences growth very early in the spring, and if disturbed at this period by transplanting, is very liable to die. None of the small fruits so imperatively demand planting in the fall or very early in the spring. If the plants can be set out early in March, or in the first opening of the spring it will answer, but if the planting is delayed, it will be at a sacrifice of a large portion of the plants.

The plants should be set out in rows eight feet apart, and the plants should be set two feet apart in each row. Give the ground between the rows good culture the first season, and the second keep all the weeds down, not working deeply between the rows. Strawberries may be grown between the rows the first two years, if preferred. Let the plants come up thickly between the rows, but cut off with a hoe, even to the ground, all suckers that come up between the rows, treating them as weeds. The plants coming thickly in the rows form a kind of hedge, the canes mutually sustaining one another, thus rendering stakes and trellises and the trouble of tying unnecessary.—We have practiced this system with great success, and those who have seen our patch in fruit say the yield was enormous. There is no care or labor required in training by this method.—Those who go to the expense of procuring stakes and setting them, and tearing their flesh to pieces in tying up the canes, would avoid the trouble after trying the plan we recommend.

Pruning.—The only labor required by this method of treating the blackberry is in pruning. This is done in summer. When the plants send up the canes four or five feet high, go over the patch with a corn-knife, and cut off the tops of all the canes to the height of about four feet.—This will then cause them to throw out laterals, upon which the fruit is produced. The plantation must be gone over several times during the season, as new canes are raising themselves, and their tops must be cut off as before recommended. If the laterals get too rampant, and in the way, as they will, they must be shortened in. The only implement required for this work is a corn-knife, and one man will prune several acres per day in this manner.

I would particularly recommend that after the plantation is established the ground between the

rows should not be disturbed. It will break the roots, and cause an immense amount of suckers to put forth and greatly weaken and lessen the productiveness of the bearing canes. The best plan is to spread a heavy mulching of straw, or, what is better, coarse manure between the rows, thus keeping down the weeds, rendering the soil moist and enriching it at the same time.—*N. J. Colman, before the Horticultural Society.*

Plea for Permanent Grass Lands.

Observation and experience from my youthful years convince me that lands natural to grass, and desired for its production, should never be disturbed by the plow, but their fertility kept up by top-dressing of animal manure, ashes plaster, muck, earth, or whatsoever enriches—pastures at almost any time; mowing lands soon after the hay crop is removed, that the surface dressing may act upon the grass as the earth does upon other crops under cultivation; also affording protection and warmth during the cold and winter season

Natural meadows—that is, the level land bordering on streams and rivers—are undoubtedly best for mowing, and can usually be made smooth without even a first plowing, and are sometimes found self-sustaining; also, lands receiving the wash of hills, roads and barnyards, often keep up their fertility without any direct application, though the hay crop is continually taken off. Lands less favored naturally, must be treated artificially, and strengthened and replenished by irrigation, or some fertilizing substance applied to the surface.

Plowing seems to destroy the life and take away the heart of the land for grass which almost always soon runs out after it, and must be richly manured and thickly seeded, and the process often repeated, in order to keep it up.

The custom with farmers here, is to plow annually a small piece in their mowing lots—we have but very little natural meadow land—put on the entire manure of a large stock, get a good crop of corn, followed by oats, with new seeding, then a fair hay crop for about two seasons.

If the grass has been improved, it has *not* been done by the cast-iron plow, but by the liberal manure. A less portion put on as a top-dressing would have resulted in a greater and more permanent benefit, besides the labor of getting off the stones and preparing it for the mower.

It is also the custom to plow a piece in the pasture, sow to buckwheat, followed by oats, with new seeding, and is then assumed that the land is made better, been *enriched*, while in fact it has been made *poorer* to the amount of the two crops taken off, besides otherwise injuring it for the production of grass, as a few years will show.

This unnatural method of *improving* old pastures by *repeated* plowing and cropping, has, in many instances, been fairly "*run into the ground*," and many of these naturally fertile and *grassy* hills have become poor and waste places, while others near by, which have never been poisoned by the plow, nor too closely fed, still, to a good degree, maintain their productiveness.

If an old pasture could be spared a few years to rest, and to grow up to white birches or other trees, whose roots should penetrate and pervade the compacted soil, while their limbs and leaves would give resting and shade in the summer, and warmth in winter, and altogether rarifying, and aerifying, ameliorating, and renewing its condition, then cutting off the young growth, and you have the best kind of new ground and good pasture for years, enriched by shade and rest, fallen leaves, and decaying stubs and roots. The *first* plowing is the beginning of evils, and should never be done where grass is desired.

To hear an old farmer, in passing over his deteriorated mowing or pasture lands, say "the grass has run out here, this needs plowing," is strange logic to me. I believe in Cincinnatus *and the plow*, but on *grain* and *not* grass land.

The sage saying of the Scotch minister—(our friend John Johnston will agree in this)—when taken by his parishioners, in time of drought, around with them from field to field, to pray for rain and the blessing of Heaven upon the parched and feeble crops, coming to a very poor and neglected field, he said to his brethren, "Pass on, pass on; it will be of no use to *pray* over this land—*it needs manure!*" This was common sense and philosophy, as well as piety.

It is somewhat of *plowing* as of praying to make grass grow on a poor or run-out field—*plowing will do no good; it needs manure.*—*In Country Gentleman.*

A. P. VIETS,
Hancock, Mass.

☞ "Men are not disturbed by things, but by the views they take of things. Thus death is nothing terrible, else it would have appeared so to Socrates. But the terror consists in our notions of death, that it is terrible. When, therefore, we are hindered, or disturbed, or grieved, let us never impute it to others, but to our own views. It is the action of an uninstructed person to reproach others for his own misfortunes; of one entering upon instruction to reproach himself; and of one perfectly instructed, to reproach neither others nor himself."

Erroneous Teachings.

Those who are willing to accept and profit by the teachings of agricultural science are often misled, and in consequence disheartened, when they follow those who assume to be teachers It is difficult to guard against this evil. It is not only that the wisest and most knowing are often themselves at fault, and teach theories which they afterwards have occasion to correct, or teach a false application of a true principle; nor that the learned differ very essentially as to the most important theories, as exhibited in the celebrated discussions of Baron Liebig and Lawes and Gilbert. This is to be looked for until we have an agricultural science better established. But our trouble, ordinarily, is with those who, in their zeal to be teachers, run ahead of the teachings of science, and proclaim for truths what are rather their own hasty inferences than legitimate inductions from well-ascertained facts. Hence we have had a great deal of so called agricultural science, the tendency of which has been to discredit and bring into contempt all theoretical instruction.

Writers of this class should not be dealt too gently with, because, perchance, they mean well, and imagine they are doing the world service.—We cannot always call them truly pretenders, because, perhaps, they deceive themselves as well as others; but their blunders are nearly allied to crimes, and they should be, if possible, brought to a proper sense of their shortcomings. The only complete remedy for the evil is in such diffusion of general, and thorough, instruction of farmers, in the principles of agricultural science, that the class of writers alluded to will realize that their occupation is gone. There is a real desire for such information now which gives importance to any one who professes to be able to impart it. When farmers are better instructed, such teachers will find their proper level in popular estimation, as they now have it only in the opinion of the few who can criticise their productions.

We will illustrate what we say by noticing a few instances from a writer standing even above the class alluded to.

"It is the ammonia," he says, "that escapes from putrefying substances that causes their offensive smell." How many ignorant, or even careless readers, would accept this for a truth.—Ammonia is indeed generated in the putrefaction of animal substances, but in the odor perceived it is mixed up with others which disgust us—the compounds of carbon, phosphorus and sulphur. That ammonia of itself is not offensive we may readily understand if we are familiar with the use of the smelling bottle, which a lady finds both pleasant and refreshing. There is nothing at all offensive in it.

An evil consequence from this error is, that the farmer who accepts it for truth is troubled with the thought that he is suffering serious loss of the most valuable element of his stable manures whenever he perceives this odor. He resorts to methods and practices which, to say the least, are unnecessary, in order to protect himself against a loss which is little more than imaginary. In the fresh manure of the stables, where this odor is strongest, there is really little free ammonia, though that little may be distinctly perceived.—Yet it was the fear of losing ammonia which has, through so many years, impressed practical men with the idea that they must bury such manures in the soil at the earliest possible time. Intelligent observers have more recently raised themselves above the influence of the old theory, and in defiance of it put their stable manures on the surface.

The same idea that the odor arising from Peruvian guano, even when perfectly dry, indicated the waste of ammonia continually going on, induced an intelligent gentleman to put his guano bags carefully under cover, and then to cover them up entirely with sulphate of lime. He acted under the influence of two errors; one that perfectly dry guano is losing largely of ammonia, and the other that sulphate of lime any more than other dry earth would have protected it from waste.

Again this writer says: "It is the ammonia in rain water that imparts to it its peculiar softness in washing the hands or clothes." It is true that rain water contains more or less ammonia, but that it makes it what is called "soft" may be questioned. In that case cold water should be softer than hot, because it absorbs ammonia when cold, which is driven off by heat. Yet we find hot water always preferred for washing. The "hardness" of water is caused, in fact, by some of the salts of lime or iron, which it dissolves from the soil it passes through, and rain water is soft because it contains none of these.

The use of charcoal is recommended, and its value explained thus: "It will absorb ninety times its bulk of ammonia, and will give it out slowly to the vital attraction of the roots of plants." This would seem to give this substance a much higher value as a fertilizer than it has ever had the credit of. The "vital attraction" spoken of will not reach beyond the points of contact of the roots, and the ammonia shut up in the pores of the charcoal will not be very available, perhaps, to the rootlets. Besides, it is only when dry that the charcoal absorbs ammo-

nia, and the advantage to growing plants would not extend beyond the supply absorbed before the charcoal was covered up in the soil. It is only when applied on the surface, where the "vital attraction" of the roots cannot affect it, that it is likely, we think, to be very beneficial. During dry weather, it will absorb ammonia from the atmosphere, which ammonia will be washed out and carried down to the roots of plants by the first rain that falls upon it; for water has a much stronger attraction for it than the charcoal has; again being dried in the sun, it goes through the same process. This is repeated as often as the charcoal is washed and thoroughly dried.

Another of the teachings of the same writer is, that the growth of wool is to be increased by "keeping the animal warm in winter, and stimulating with the elements of wool the organs which secrete the valuable covering of the sheep." There is no reason to doubt the economy of keeping the animals warm, so far as the consumption of food is concerned, yet it may well be doubted whether such treatment will tend to the increase of wool, if we consider nature's first intention in covering the animal with such a coat. It is to protect it against cold; and thickness and closeness of the covering, other things being equal, is likely to be proportioned to the degree of cold to which it is subjected. We know that other animals have their coats thickened up by the approach of cold weather, and that some degree of exposure in fall is deemed advisable to effect this purpose These facts seem to teach the very contrary of the writer's instruction that "the growth of wool is increased by keeping the animal warm."

Again, the same writer says: "The atmosphere and not the earth, is the great storehouse for the animal and vegetable food designed for immediate use." It might, perhaps, be quite as correct to class the constituents of plant food as atmospheric and earthy, as to call them organic and inorganic; and to say that a very large proportion of this food is atmospheric would be true enough. But the meaning of the writer, when he calls the atmosphere the "storehouse" of plant food "designated for immediate use," seems to be that they are furnished directly from the atmosphere with such elements as are not strictly earthy or mineral.—To admit this would oblige us to acknowledge that in our attempts at fertilizing the soil, or supplying food for plants, we need only supply the very small amount of mineral elements needed, and that as to the great bulk of plants, more than ninety per cent of the whole, they can furnish themselves at pleasure, without our help, directly from the great "storehouse," the atmosphere. We are not prepared to make such an acknowledgment.—*Weekly Sun.*

Theory of Land Drainage.

A plant, though spreading its roots to a certain distance all around it in the soil, is stationary, and must have its food brought to it. That is the first main fact on which the need depends for a current of water through the land. Water, a powerful solvent, brings substances out of the air which the plant requires as food, and these substances increase its powers as a solvent of other matters in the soil which the plant also needs as food. Moreover, water brings from the air materials of use in the soil in manufacturing food for the use of plants. On all these grounds, then, it is of importance that water should go through the soil after going through the air. It becomes laden with vegetable food by passing through the air, and it becomes still more laden with vegetable food by passing through the soil, till, when traversing the soil, it passes stationary roots, and enters them, and feeds the plants to which they belong. And there are special reasons why rain water should be induced to pass through the soil rather than lie stagnant on it.—In the latter case it is not only useless to the plant, but it is directly mischievous. By evaporation it cools the surface, whereas by percolation through the land it carries the warmer temperature of the surface into the subsoil; and of what value this is to the growth of crops may be gathered from the experience of the last autumn, which has been so productive of growth in our pastures to so unusually late a season—not so much from the increased temperature of the air during November and December, which has been only about two or three degrees above the average of the last thirty years, as from the increased temperature of the soil and subsoil at one and two feet deep, which has been five and six degrees above the average of the past thirteen years, during which observations have been made near London.

And not only is it of importance that the rain, by passing through the land, should carry the temperature of the surface, warmed by the direct rays of the sun, downwards, rather than, by evaporating from the surface, it should carry the heat away and cool the soil; but the percolation rather than the stagnation of the water is desirable, because in the one case air is made to permeate the land, in the other it is excluded.—The chemical changes which air produces on and in the soil are desirable, and result in the preparation of useful food for plants; while by its exclusion, substances of a poisonous nature, especially where iron and vegetable matter exist together in the soil, are formed.—*Morton's (Eng.) Farmer's Calendar.*

How to Make Thick Osage Orange Hedges.

It is very well known that the only difficulty about making good live fences is, that the tendency to grow thick at top and thin at bottom, is too strong to control without much labor and more skill. The whole object of intelligent trimming is to reverse this nature of things. The hedge is trimmed severely towards the top in June, just after the young shoots have grown, and before they have become woody, which somewhat weakens the upward growth; while the side shoots are encouraged to grow as strong as possible, without any, or very little trimming until the fall of the leaf, when pruning rather strengthens than weakens the subsequent vegetation.

While traveling westward recently, we met an intelligent western farmer who had found live fences "no humbug;" but rather an invaluable blessing to the prairie man. He spoke of his hedges, and those of his neighbors, who mostly followed his plan, as so thick and compact that a starved hog would hardly dare attempt to break through to a good feed of corn on the other side. He told us his plan. We have never seen any done after his system, but it is so reasonable, that we have full faith in the plan, and are sure our readers will find it to their interest to try what merit there may be in it.

The mode consists in nothing but this:—The hedge of course is cut down pretty low when first planted, and it shoots up, perhaps, two or three feet the first season. These are cut down to about nine inches the following winter; and the following spring they push forth numerously, and with great vigor. About June or July they are cut square off about eighteen or twenty inches from the ground, and the prunings raked up and placed along *on the middle of the squared top, along the whole line of the hedge.* Here they in time wither and die, and of course shade the leaves and buds immediately beneath, which weakens their strong upward tendency more than the pruning of the green shoots would do; and the shoots turn, as it is well known they will do, to the strongest point of light, which in this case will be the sides. *The whole course of the shoots will be, in fact, towards the sides*, just where we find the usual difficulty is to make them grow.

He did not explain to us in this way how the plan operated; the explanation is our own. All he vouched for was, that the hedges so treated were thick and bushy at the bottom, just where thick and bushy branches are most desirable to be,—and it is so much in accordance with what we know to be the result in similar cases, that, simple as the idea is, we felt we had gained a great amount of valuable information for our diary of that single day.

The square form of trimming is not continued beyond the first year's time; after that the hedge is gradually reduced to a sort of conical shape; but the trimmings are laid on for some years afterwards.—*Gardeners' Monthly.*

Clean Pigs and Dirty Pigs.

Pigs enjoy the reputation of having a real liking for dirt; and, certainly, the way in which they are kept on some farms would show that their owners are determined to give them ample opportunities for carrying out this liking. No notion can, however, be more erroneous than this, as none is certainly so productive of loss to the keeper. Let any one not convinced of this try the two modes of pig-keeping—the dirty and the clean—the food in both cases, and other general treatment, being the same; and the result will show him which of the two is the best in the end. A great deal depends upon the mode in which they are housed.

Mr. Raines, of Mills, adopts the following: A large out-house is inclosed at the sides, so as to be warm and dry. The floor is paved, and sprinkled over with burnt clay, and ashes obtained by burning weeds. In this the pigs are fed; while for resting and sleeping they have a compartment railed off at the other end, and which is amply provided with clean straw. In another case, the principle of box feeding has been applied; the pigs being kept in a pit, into which the manure from the horse, ox, or cow-stables, is put. The pigs tread this down, and enjoy themselves amazingly. In one case, where this plan has been adopted, the farmer states that his pigs "have given him a profit by their meat, and left the dung—as good as guano—for nothing." *Mark Lane Express.*

A Giant Radish.

The Pall Mall Gazette says: "The last new thing in vegetables is really quite a startling wonder. Think of a radish with seedpods about three feet long, and sometimes growing five or six inches in four-and-twenty hours. We can think of nothing like it except Jack's immortal beanstalk, which authentically described plant is nevertheless not spoken of as good to eat, whereas this radish is said to be as palateable as it is monstrous. The plant comes from Java, but we are told that it has been fairly tried in the open ground in England, and succeeds perfectly well. To add to its merits, its pods are ready for use in less than three months after the seed is sown."

The American Farmer.

Baltimore, August 1, 1866.

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Old Friends to the Old "Farmer."

We cannot consume the space that would be occupied in making extracts from a tithe of the letters we are receiving from old friends. We select from the first that have come to hand, as showing the kindly feelings evoked by the re-appearance of *The Old Farmer*, after years of absence:

CULPEPPER C. H., VA., JUNE 22.

"I can scarce find words to convey the heart-felt pleasure which I experienced on the receipt of "The American Farmer."

KINSTON, N. C., JUNE 23.

"The "American Farmer" has come again to hand like an old friend. I had taken it a number of years before the war, and do not think I ever received a number, but was worth the price paid for the whole year."

EDGE HILL, AMHERST CO., VA., JUNE 28.

"Most heartily did I welcome the old familiar "American Farmer" for July. Only one who, like myself, loves farming, and loves to read the "Old Pioneer" on that, and all other subjects on which it treats, can realize the loss I have sustained from its suspension. It has been my constant companion, ever since I began to farm, and I feel as if I could not do without it. At any rate, it is a luxury I do not intend to do without, for when I get too poor to pay for the "American Farmer," I will be too poor to farm."

ATHENS, GA., JUNE 26.

"Allow me to congratulate you on the revival of the good old "American Farmer," and the excellent taste displayed in the number received."

CHARLESTON, S. C., JUNE 25.

"To-day's mail brings to me the "American Farmer," a long absent friend. The "Old Pioneer" is indeed welcome. I will try and extend its circulation, for so valuable a work ought to receive the patronage of the entire country, and live forever."

COBHAM, ALBEMARLE CO., JUNE 21.

"I can hardly find words to express the pleasure I received, when returning from the field last evening, I found upon my table a copy of the "American Farmer." I thank you most sincerely and heartily for your kind remembrance after so long a separation. I welcome "The Farmer" as an old, and *valued* friend. I send two dollars to pay for my yearly subscription, and the name of my friend and neighbor, ——, who wishes to become a subscriber. He will pay for his subscription in a few weeks, but if he cannot, *I will*."

SCOTTSVILLE, ALBEMARLE CO., JUNE 24.

"I received to-day, with the greatest pleasure, my old friend, "The American Farmer." You don't know what pleasure it was to me, to see again the old familiar face of a friend of ten to fifteen years."

EUTAW, GREENE CO., ALA.

"I am glad to know that my much valued friend, "The American Farmer," is not dead, but has been only sleeping, to revive with more vigor and lustre. Of course, put me down as one of your subscribers and contributors.

"Do not let us talk of the past—it makes me sad. I was in the war, on battle fields, and in prison, and could many a tale unfold, that would bring tears of sorrow, and storms of wrath, but "*cui bono*,"—let these things sleep the sleep of death. Talk we now of soils, of animals, of crops, manures, machines, and scientific agriculture. Of the how to redeem the agriculture of the South, from the darkness that envelops it.—How to infuse new life and new ideas into Southern farmers.

"Industry, and personal knowledge, and attention to what goes on in field and stable, is what we want, coupled with draining, manuring, and circumscribing our ideas. We want men who cultivate their own land, to find out practically, that one acre, well drained, manured, and tilled, is worth five poorly managed, as is most Southern land now.

"I have beautiful steel ploughs, sulky cultivators, cotton planters, reaping machines, beautiful wagons, &c., and am working myself to death on 600 acres poor land, showing, with eighteen full hands, what can be done; have 300 acres

orn and 300 of cotton, and it has rained so much, that I have to fight grass harder than I used to fight Yankees—but, thanks to machines, I shall be victor."

The following we can afford to give entire. It is rare to find so much said, in so few words:

ANCOLA P. O., Loudon Co., Va., June 26.

Dear Sirs: The enclosed two dollars is for the "American Farmer." We are all ruined.

Your ob't servant, S. A. B.

LANCASTER C. H., Va., July 9, 1866.

Messrs. Worthington & Lewis:

Gentlemen: You cannot imagine my joy, when calling at the postoffice a few days since, I found so unexpectedly, in my mail matter, the July number of "The American Farmer." It looked as natural and familiar as the face, and was as welcome as the visit, of an old familiar, and long absent friend. Indeed, I felt very much like I had once again met with a dear old friend, who used to visit my house monthly for years, in other and better days, so much to the delight of all the household, and now, after a long and painful separation, had come back, in order that we might talk of our mutual afflictions, and give mutual consolation.

Messrs. Editors, since we last met and conversed through the medium of your excellent periodical, what mighty changes have taken place, and what sad memories and recollections crowd in upon us, when we think of other and better days in the past! You say truly, in your leading editorial address to your "old friends," the last four years have been "sad and dreary to every human heart; ruinous, desolating, deathful." And well did you say, "We come again with the feelings of one who visits the house of mourning." Cruel war has spread mourning, desolation, and poverty, all over our once joyous, prosperous, and opulent, sunny South.

But we must not yield to despondency or despair. We must not fall prostrate upon the earth, like children bereft of their toys, and weep over their loss; but like *men*, we must rise superior to our adversity, and grappling giantlike with our troubles, we must with brave hearts and stalwart arms, address ourselves hopefully to the work of regaining our wasted fortunes—gathering up our wasted energies—developing the agricultural, mechanical, mineral, and commercial resources of our country, and building up the waste places.

There is no need for despondency, much less for despair. When the smoke of battle has passed away, and we calmly look among the smouldering ruins and debris, which war has made, to see what of value remains to us, we see that we not only have left to us our lands, (though some of them are ditched, fenceless, and houseless,) but we find something infinitely more valuable remains. We have saved our *honor*, our *self-respect*, and much of our *intelligence*, *virtue*, and *chivalry*, though much of these were lost in the gallant and noble dead sleeping in the soldier's grave on every battlefield. Let us then be hopeful and cheerful, for with such a *country* as ours, with such a people as ours, with industry and economy, we may yet make dear old Virginia the Eden of America.

I am convinced that we must rely mainly on the agricultural interest of the State and South, to restore it to prosperity, and even wealth.—Upon the success of the agricultural interest depends our future prosperity. Then let us devote ourselves to this interest with might and main. And what needs first to be done? With your correspondent of Alabama, Dr. Hinkley, I say, "We want *smaller* farms—less pride—fewer stores and clerks—more industry—more laborers:" and, I will add, more economy. We of Virginia, especially of tide-water Virginia, with which I am better acquainted, have always owned and worked too much land. The consequence has been that we have not been able to improve our lands, and have had to work a large surface to make, in many cases, the grain necessary for family consumption. This was a most natural, if not necessary, consequence of our former system of labor and domestic slavery. Many masters, having a large number of slaves which had descended to them by inheritance, prompted by a humanity and attachment for his servant, as one of his own household,—to which the abolitionist is wholly a stranger,—would neither sell nor hire out any portion of his slaves, and in order to give them all employment, as well as support, it seemed to be necessary to cultivate large surfaces. This was even then, I think, very impolitic; but under our present system of labor—if we can be said to have any system—it is tenfold more objectionable. Let the landholders reduce the size of their farms by selling off a portion, and by a proper system of cultivation and improvement, they will, in a short time, raise more produce, and make vastly more money, on a part, than they have been making on the whole.

Let us in other respects at once cheerfully adapt ourselves to the new state of things, and thus make a virtue of necessity. Our young men and young women must be more industrious and more economical. Hundreds and thousands of intelligent young men who are now opening a little country store at every cross-roads, or seeking employment as clerks, or agents, for almost anybody, or anything, in order to avoid the farm and

the field, ought instead to be engaged in the noble and ennobling work of tilling the ground—man's normal condition and employment, in his innocence and holiness, before the fall. The old theory that educated and scientific men are needed for the professions of law, medicine, &c., &c., but that education is not necessary in the farmer, ought long since to have been exploded. I hope yet to see the profession of farming take its appropriate and merited place—first and foremost of all the professions—and the most learned and scientific men of the country uniting and bending their energies, of mind and body, to bring this profession to its wonted perfection. It is for this, gentlemen, you are laboring, and I bid you God speed.

Another great mistake we of tide-water Virginia have made, and which we ought *now* to correct, is this: We have too much neglected the raising of the grasses, and consequently the improvement of our stock. Laboring under this great disadvantage myself at this time, and seeing my error, I now propose to turn my attention to growing grass and raising stock, in connection with the cereals; and I write now, Messrs. Editors, to you, to gain some information on these subjects. Will you in your next issue give your readers some information relative to the merits of the various grasses, such as timothy, red top, orchard grass, &c.; the best time for seeding, whether spring or fall; whether best to sow the grasses separately or mixed, and if mixed, how and in what proportions; the quantity to be sown to the acre, and the best mode of seeding and preparing the ground. Such information will be gladly received by a large number of your subscribers, I have no doubt.

I would like very much to purchase a young, thorough-bred bull, one or two years old, and would like to be advised as to the best breed, where such a bull can be had, and the probable cost.

Before closing, I comply with a general request you make of your correspondents, to give you information in regard to the crops in their respective localities. In this, and the adjoining counties, the corn crop is very backward, owing to the cool spring; but the stand, I think, is generally good, and if the season should prove long warm, and wet enough, good crops may yet be made. Quite a large surface has been planted in this valuable grain. The wheat crop, which has now all been harvested, may be regarded as a failure. Very little was sown; no guano or other fertilizer was used; it was badly killed out by the winter's severe frosts, and what little remained was seriously damaged by the rust. I am satisfied there has not been as much reaped in my county this year, as was sown in 1860. The oat crop, which is large, has been unusually promising; but lately it has been attacked with the rust, and the quantity as well as quality of this crop will, I think, be seriously affected. These are our principal crops in this region. Very little tobacco or hay is raised. Fruit is very scarce, of all kinds, being killed with late frosts.

But I will close this communication by saying, I have but little money to spend in my poverty, and must practice a rigid economy in its expenditure, and must see to it, that when it is spent, I get a "*quid pro quo*;" spend it first where it will pay best, and I therefore enclose two dollars, for one year's subscription to "The American Farmer," whose monthly visits we hail with delight.

Yours, &c., THOMAS S. DUNAWAY.

LINDEN, WESTMORELAND CO., VA.,
July 14, 1866.

To the Editor of the American Farmer:

I welcome the reappearance of the "American Farmer" as the return of an old friend after a long absence. Though not a very old man, I am old enough to have read with interest its first number, which appeared more than forty years ago, and took my first practical lesson in agriculture, by aiding a learned and intimate friend, who studied in its pages Cobbett and his ruta bagas, in thinning his first crop. Having just returned from school to spend a vacation, with my mind fully imbued with classical learning, its beautiful and appropriate motto singularly impressed me—and in all the eventful scenes through which I have since passed, as lawyer, politician, and private citizen, the inspiring sentiment, *O fortunatos nimium sua si bona norint Agricolas*, has not ceased to animate me.

I am glad to see that you propose to devote much attention to fruit growing. It will be a prevailing interest in Eastern Virginia in a few years. We need instruction as to the most economical and safest modes of planting and manuring large orchards. Another subject which greatly interests us, is the use of fertilizers. A writer quoted in your last paper, from the *Country Gentleman*, expresses the opinion that nine-tenths of the "specialties" are humbugs, as proved by actual experiment, and that Peruvian Guano is the only reliable bought manure. Will you be so good as to publish the entire article alluded to from the *Country Gentleman?* I incline to think this remark too sweeping, but it is a subject on which the farmers of Virginia anxiously desire correct information, and they rely upon the candor and impartiality of the agricultural press of Baltimore to furnish it. I have

now under careful experiment ten different fertilizers, of the result of which I propose to make an impartial report to the Agricultural Society of Virginia, with the view to test the important practical question, "will they pay?" I hope the result may be satisfactory, for no man of common sense can suppose it possible to cultivate profitably poor land with hired labor, and under our new system fertilizers must be used to a much greater extent than formerly. Fortunately, there are some things that will certainly *pay*—lime, clover, plaster, and domestic composts, and these the Virginia farmer can apply almost *ad libitum*. I do not concur in the opinion often expressed, that all the venders of fertilizers are cheats and imposters. I believe some of them at least, to be honest and patriotic men, and sincerely anxious to promote the interests of agriculture, and before condemning their compounds, we should give them a fair and impartial trial.

I may have occasion sometimes to express my views to the liberal minded business men of your city, on subjects equally interesting to them and the farmers, and for that purpose, with your permission, shall avail myself of your columns. But essays of a general nature, I shall feel constrained to communicate, in the first instance, to our "Virginia Farmer," which is struggling into existence under the editorship of one of our best citizens, and most zealous friends of agriculture.

Wishing you great success in your renewed enterprise, I remain very truly yours,

WILLOUGHBY NEWTON.

We need not assure Mr. Newton of the pleasure it will give us to hear from him often, on any topic of agricultural interest.—EDS. AM. FAR.

NORTH EAST, PA., July 14, 1866.

To the Editor of the American Farmer:

I am, by your politeness, in possession of the "American Farmer," July number, for which please accept my thanks; also please send me other numbers to the end of the year, when I hope to be able to remit my subscription. I regret I have not time to remark upon the contents of this issue, or at least to indicate my appreciation of the high character of your journal, as realized in this July number. I was much interested in what you said regarding the worn-out lands of Virginia. Such "worn-out" lands are common here; that is, a single crop of wheat, two crops of corn, and one of barley, wears out our soil in the same sense, compelling the use of manure, red clover, &c. to restore it, when it is found to be again "as good as new." The article on "Cultivation and manure as fertilizing agents" (to be continued), is a bid for many subscribers that cannot be resisted.

My time is almost wholly given to grape culture, and testing the different varieties for the production of American wines. It seems to me your section must be favorable for grape culture, or at least that portion of Maryland and Virginia along the sea-shore is capable of producing fine grapes.

I am glad to see that you are hopeful regarding the future of our common country. The wicked schemes of designing politicians have cost us much of treasure and blood—has covered all our territory with mourning and filled all the land with graves. May God have mercy upon us and grant that our brethren may never more strive together, but the rather that they may continually vie with each other "in every good word and work." WM. GRIFFITH.

What We May Live On.

Those who are standing face to face, with rinderpest in cattle, small-pox in sheep, and trichina in pigs and rabbits, are taking comfort from the example of Irish laborers, who live on next to nothing, as they say, not "smelling" meat, unless on some great festival, and yet being all the time "strong to labor."

E. Curling, Esq., seventeen years agent for the Devon estate, in Ireland, testifies as follows:—"There are six thousand, six hundred and eighty persons on the estate. They are energetic, moral, and well behaved. I do not remember a crime in seventeen years. They are a contented, grateful people—grateful even for fair play. Out of six hundred farmers, deduct fifty, and the rest do not see a wheaten loaf, or smell meat, except at Christmas and Easter. They have been brought up to this custom. One tenant on the Devon estate, I have seen sit down to potatoes, buttermilk, and Indian meal, who purchased at a recent sale £10,000 worth of land, and did not have to borrow a shilling to pay for it. I believe this to be the usual mode of living in Limerick."

Unhappily, too many in our own country have been brought to even a worse diet than this. Yet it is some comfort to know how we may dispense with meat, and many other things we have, in times past, thought necessaries, and still live and labor. A Confederate soldier says, a man may live on fifty dollars worth of food, at present prices, and be strong and healthy. That is his estimate of the yearly value of Confederate rations, which he worked and fought in, for four years, without failure of strength. Let all take heart, who find themselves reduced to short allowance in these times of taxes and troubles.

A Word for our Homes.

What we would now say of homes, is not of adorning and beautifying, but of having and holding them. A terrible and ruinous conflict of arms, spreading death and devastation in its path, has ceased. Men have returned to such homes as are left them, but thousands, inside, and outside, of the track of war, find a new struggle there awaiting them. They have saved their lives, now they must save their homes.—Death, indeed, has finished his harvest, but gaunt Poverty stands "armed at the door."

Those who have, for years, struggled under the loss of their slaves, the contributions to military necessities, and the burden of taxes, and the many who have come back, weary and worn with the long strife of arms, find themselves too ready, perhaps, to abandon further struggle; too much tempted by "a morsel of meat," offered by those who have prospered in their ruin, to barter their birthright in the fairest heritage of God's earth.

Is not this a danger worth grappling with?—Are not these homes worth struggling for? They stand not so grandly indeed as those of old England, amid their ancestral trees, but they are still Our Homes: the pleasant places of our childhood, where our fathers and mothers lived in all holy offices of Christian love and duty, where they died, and where we buried them: familiar scenes of the glad young lives of brothers and sisters: the green pastures, the still waters: all blossoms for beauty: bee and bird, and babbling brook for music: the brave old oak, whose hundred arms have tossed in, and defied a thousand storms: the moss-covered roof that sheltered us: the fire-side; the family altar:—what wealth of happy, holy, thoughts, cling and cluster about these dwelling places of the heart, our old Homes! Are they not worth the striving and struggling for? There is not a man's heart but would meet an armed enemy at the threshhold, and die there to defend when the enemy takes another shape, is it manly to surrender them?

But laying aside sentiment, let us consider the material, money value, of these lands we seem too ready to sell. Taking all of Maryland, and the same area of Virginia, which we have now more particularly in mind, is there, any where, territory of equal extent, which compares favorably with it in value, when we take into consideration its temperate, genial, healthy climate, its fertile and easily cultivated soil, its facility of access to great and fast growing markets, its noble waters, its position in the very centre of civilization and Christian culture? Are there anywhere to be had, more suitable habitations for a Christian people? As they have been in the past, the best and the happiest, we believe that in the future, they are destined to be the most productive and prosperous homes of the country. We would not have them lost to their present possessors.—We would have the people of Maryland and Virginia of this day, to be the people of Maryland and Virginia still, they and their descendants forever.

Nor is it only that this people are kindred and friends, that we would have it so. On that account indeed we would urge them by every argument to hold on to their inheritance. There is even a higher reason for it than that: it is because of our deliberate opinion, that there is no where on the continent a people fitter to possess so fair a land. Nowhere a people, more refined, and cultivated, and true hearted; or more favored of God in the attributes and graces which should characterize His people.

We have not the same opinion of those who would buy them out. We think they are enemies of God's truth and of His people, and have the least claim, therefore, upon such homes.

But what is to be done? Some of our people are ruined, and must sell; and almost all are involved in greater or less embarrassment, under the loss of their slave property, burdensome taxes, and the complication of pecuniary difficulties peculiar to the present state of affairs. They have land, and almost nothing else. Money is wanted to settle up their affairs, and pay their debts—Capital and enterprise are needed to develop the intrinsic value of their lands. Effective labor must be had, at reasonable prices. All these are common wants, and our people should make common cause in satisfying them.

That their lands must be divided, and, to a great extent, sold to outsiders, is very clear; but at how great a disadvantage do they sell, unless a special effort is made to advertise them well, and to have something like a due estimate of their worth presented to those who may want to buy. A very wise suggestion is made in one of the counties, to have landholders associate for the purpose of aiding one another in advertising their land. Such an association might do valuable service in kindred matters, and in giving mutual aid wherever needed.

The leading thought in such case should be, to have our people, in all possible cases, to keep their homes, and so much land as they can occupy and improve. They can hardly estimate too highly the value of these, when the remainder shall have been sold to men of means and enterprise, and when they themselves should have used liberally the means they may thus command.

to improve what is left them. They will find more than realized the story of the old Roman, who, as he gave each daughter a marriage portion of one acre, from his little estate of four, made what was left more productive than the whole.

But whatever value we may put upon these, let us not be tempted to hold the rest so high as to drive off purchasers. Let it be understood, that we mean to sell at what it will bring in a fair market, after having used diligently all proper means of making its value known.

We would not be understood in the remarks made in this connection, as seeking, in any degree, to cherish feelings of unkindness or prejudice against Northern people as such. To all who are willing to be with us and *of us*, we would hold out a hand of welcome. We want Northern capital, and energy, and stir, and such Northern men, as will mind their own business, and not interfere with ours. We would invite and induce such to come and occupy our spare lands. But the Yankee proper,—the peeping, prying, meddling Yankee, sniffling and canting, and preaching through his nose, we have no word for while he is away, but *Procul! O, Procul!* and when he comes, only cuffs and kicks, or, if need be, so much rope as was meted to old Brown. It would be the crowning triumph of this tribe, after robbing us of almost all else, to possess themselves of our Southern homes. To give them over to these, would be our lowest depth of humiliation.—Whether we are to escape this, is a question yet in the future. Let us, however, be cheerful and hopeful. Let us possess our souls in patience.—Let us believe surely that God still reigns, notwithstanding his present allowance of Stevens, and Sumner, and Beecher; and that what was said of old time, may shortly be said again: "I have seen the wicked in great power, and flourishing like a green bay tree. I passed by, and lo! he was not!"

Literary and Reformatory!—"There can be no doubt that swine are a *good gift*, but there is exceeding great doubt of their being *good to eat*. The Bible forbids their use, and in this thing, at least, the Jews are wise. But whatever Providence had in view in the gift of swine to man, the Lord used them as a receptacle for devils, at their (the devils') request. It is recorded that the whole herd ran down a steep place into the sea. We certainly cannot regard this circumstance as having any particular bearing upon the subject, but I cannot help considering it as remarkable that *swine* should be selected for the purpose, and selected in such a manner, with such a result."—*Ext. Correspondence of Country Gentleman.*

Horse-Shoeing.

The following valuable directions with reference to this important matter are sent us by a friend, who takes especial interest in all that concerns a good horse, and is, therefore, not willing to trust one in the hands of every smith who professes to be able to nail on a shoe. He gives his personal attention and directions always, and has thus, no doubt, saved many a good horse from lameness:

For the American Farmer.

Messrs. Editors:—Having raised a few, and owned a number of horses, in the last forty-five years, not one of which has ever suffered with corns or lameness, in any manner, by bad shoeing, I send you the directions which I always give the smith.

I take nature as my guide, and follow her, as near as possible. I do not allow the smith to take more off the hoof than would grow in the time the horse has had his shoes on. I do not allow him to pare the heels, but when he has finished the foot for the shoe, I allow him to rasp the heel gently. The shoe never should be put on so hot as to burn the hoof. The shoe on and the nails clinched, never permit the smith to file above the clinches of the nails; nature is not interfered with above the clinches, the friction of the sand and earth is doing all that is required, and any interference by the smith is unwise, for every time he files the hoof the wall of the hoof becomes thinner, and is less able to resist the concussion, the cause of so much lameness in horses. I frequently, during the winter season, if there is snow on the ground, take off my horses' shoes and drive them until they wear the foot to the natural shape. I have done the same in the city. When I find their feet sufficiently broken down, I have them shod, and the horse finds that he is much benefitted by it, and so will his master.

It is necessary to have the feet of city horses stuffed two or three times a week; it keeps the horn soft, and causes less jarring to the many delicate membranes of the foot. Anything that will keep the horn soft, answers the purpose. I use a mixture of one peck of cow manure, half peck of ashes, and about two table spoonfuls of salt, mixed together, which will last for some time, by adding each time it is used, water enough to make it of a consistence to adhere to the sole of the hoof. By filling up to the level of the shoe, it generally remains until the horse is used.

When I think my horses require shoeing, I have their feet stuffed two or three nights in succession before I send them to be shod, so as to make it easy for the smith to pare the feet.

Commissions.

Our friends have begun to send us orders for stock, fertilizers, &c., as formerly. We beg to say to them, that the proprietors of "The Farmer," do not propose to fill orders of this description. They call attention, however, to the advertisement of Mr. Edwin A. Lewis, who occupies our office, and who means to give his special attention to this business. We shall to afford him every facility, and give him all the assistance, in the way of information and advice, which our experience may enable us to do, and it is hardly necessary to say, that our friends and correspondents may rely, fully, on having their orders punctually and properly attended to.

Neither of the proprietors of "The Farmer" have any personal interest in this business, beyond their wish for Mr. Lewis' success, and their desire to see their friends faithfully served, in whatever they may entrust to him in the way of commissions.

Our Exchanges.

We are greatly gratified with the friendly and appreciative notices of the daily and weekly press, (the monthly we have not had time to hear from,) on the re-appearance of "The American Farmer." We should take pleasure, if space allowed, in transferring them all to our columns, to be pleasant reminders hereafter of the friendly spirit that meets us, on every hand. We give but a few brief extracts which will sufficiently indicate the character of the whole.

"That old and well known agricultural journal, "The American Farmer," has just been revived by its proprietors, Messrs. Worthington & Lewis. This favorite old friend of the farmers of Maryland, Virginia, and all the border, as well as Southern States, re-appears in handsome octavo form, with interesting and varied contents of most practical value, and particularly adapted to all the region indicated. We do not know when we have looked into an agricultural journal, that struck us as likely to be so useful, as this first number of the new series of 'The American Farmer,'" &c.—*Balt. Daily Sun.*

"Messrs. Worthington & Lewis have revived the well known and popular agricultural monthly, "The American Farmer." Its re-awakening is bright and cheerful. Its articles, both original and selected, show culture, and discrimination, and its claims to the recognition of the class whose interest it is designed to promote, are not likely to be forgotten."—*Balt. Daily Gazette.*

"The public will be delighted to greet once more the familiar face of "The American Farmer." ..... We trust its old and new friends will rally to the support of this admirable and time-honored agricultural journal."—*Balt. Eve. Transcript.*

"This, before the war, one of our standard agricultural magazines, has again made its appearance. ..... It shows added excellence, and is certainly a valuable publication of its kind."—*Balt. Daily Commercial.*

Like notices from our country friends in Maryland, Virginia, North Carolina, and other Southern States, meet us on all sides. Our acknowledgements are due to all, for their friendly offices.

For the American Farmer.

Profits of Sheep near Richmond, Va.

My flock of sheep, reduced to a score by "casualties of war," (eh?) have decided on positive and speedy "reconstruction," and encourage me to active exertion in the like direction. Seventeen ewes produced twenty-seven lambs, and the yield in wool, unwashed, of twenty sheep, was one hundred pounds. Such lambs as I sold, netted me $6.50 apiece in money, leaving me the heads, which make fine soup, and the pelts. F.

SHEEP STEALING.—"I can buy a pair of Cashmere goats, brought from the South by some of the "boys," who "confiscated" them. Can they be raised profitably? What is it safe to pay for them?"

The above extract is from a Northern agricultural paper. The English of it is, that a man calling himself a soldier, robbed some one of these goats, while in the United States service, and is not ashamed to offer them for sale; while another, who wishes to turn an honest (?) penny by the purchase, calls the thief, endearingly, one of "the boys," and uses falsely the honest word "confiscate," to cover up the rascality. A respectable editor, publishes the letter without reproof, and treats the writer with the civility due to a Christian or a gentleman!—ED. AM. FAR.

☞Our friends will please observe, that we have forwarded our July number to all old subscribers, and if any have failed to receive them, it is owing probably to some accident of the mail, or their change of office. It will be a great accommodation to us, if in all cases when they write, they will name distinctly their present postoffice, and if they have made any change in four years, their former one also.

☞Replies to several correspondents as to fertililizers, grasses, stock, &c., we are obliged to defer for next number.

Value of Fertilizers.

In the communication of Mr. Newton, allusion is made to an article taken from the "Country Gentleman, in our July number, which speaks of nine-tenths of "the specialties of the day in the shape of manure," as proved to be humbugs It is not in our power just now to publish the additional article, as requested by Mr. N., in which, according to the writer, this is proved.—But it will be observed that the writer is in New York State, and it is not likely his proofs, whatever they may be worth, embrace other fertilizers than those offered in New York markets. We *know*, that if intended to include really "all," the remark of the writer is far too sweeping.—We have had quite a number of the Baltimore fertilizers brought under our immediate observation, and notwithstanding a good deal of prejudice against them to start with, and a very decided conviction of the great superiority of Peruvian guano to anything offered as a substitute for it, we are quite satisfied that there are some of them, in which the purchaser need not fear a failure to get the worth of his money. Men of intelligence and capital, have given their minds and their means to the subject of improving these fertilizers. They should know, and, we think do know, now, what our lands mainly need, and they have so much money in the business, that, even if they were disposed, they cannot well afford to sell a worthless article. Intelligent farmers should, however, continually test the value of these fertilizers, and make public report of them. We are glad to hear that one of so much experience, and ability to test them fairly, as Mr. Newton, has now ten sorts under trial. It will be a great additional stimulus to the utmost care in their manufacture, if it be found, that intelligent farmers, are taking notes of their value, and are determined to know whether they *will pay*.

Good Fruit.

In all this growing disposition we find now for fruit cultivation, let it be distinctly understood that what is wanted is *good* fruit. The public taste is being fast educated, and we find already that what is really good, never goes a begging in the market, but brings always a high and remunerating price. When the market is glutted, it is only with inferior sorts. As Mr. Webster said of the crowded profession of law, there is "room enough in the upper story." There is room enough always for good grapes, good strawberries, good blackberries, good fruits of every sort. Because the crowd in the lower story *will* produce only poor sorts, in a poor way, and because, as we remarked before, the public taste is fast improving. Thousands are looking for good fruit, who were formerly satisfied with what was very poor, and the taste for the good grows faster than the ability to produce it. Let any one but observe the extraordinary difference of price between the miserable little strawberries which overrun our markets, and the magnificent specimens of the finer sorts, which are cultivated with some degree of care.

Then, as to the manner of putting fruit into the market, much is to be learned. A great many of our fruit dealers do not yet understand the impression made upon the purchaser, by the exhibition of carelessness in putting up fruit, and presenting it for sale. A very successful grape grower, who, while he grows good grapes, takes special care to show them to the best advantage, says that no fruit pays, for a little extra attention to this point, better than the grape. "Good grapes," he says, "neatly packed in fancy paper pockets, will always sell at remunerative prices, however much the market may be glutted with fruits put up in a slovenly manner."

Bears Malice.—A former subscriber, somewhere north of us, does not mean to take "The Farmer," he says, because he remembers that somebody connected with it, wanted to "destroy the Government." This is not true. We never wanted to destroy or damage the Government, nor did we want the Government to damage or destroy anybody else. He judges, too, by our words of kindness to old friends, that we are still "of the same stripe." We are at least not of his stripe, if it be a black one, and can part company with him, with perfect equanimity.

Somebody else will please send us a respectable subscriber in his place.

☞In sending "The Farmer" to all old subscribers, it was expected, of course, that there would be those who would not wish to renew their subscription. We have been more than gratified with the cordial reception it has met with. Of those who for any reason do not wish its continuance, we beg that they will notify us as promptly as possible, otherwise we shall continue to send them future numbers, awaiting their convenience for payment. We know that many of them need even this small accommodation.

☞Correspondents whose communications are designed for publication, will oblige us by sending them early in the month. It is always an accommodation to have them some time in advance of the date of publication, and sometimes important.

The Supposed Exhaustion of the Soil by the Modern System of Agriculture.

BY PROFESSOR ANDERSON, EDINBURGH.

When the progress of any art is examined, and the successive steps by which the improvement of its practice is accomplished are carefully traced, its development is seldom found to be the simple and peaceful occupation of our fields It most generally involves, not merely a succession of conquests gained with greater or less difficulty, but a constant and watchful struggle to maintain the vantage-ground which has been attained.—Every difficulty which has been overcome carries new difficulties in its train, opens up new problems to be examined, and entails the more minute study of facts and phenomena, which in a less advanced state of knowledge may have appeared of little moment, but which acquire increased importance as a means of fortifying us in the position we have gained.

All this is very forcibly illustrated in the practice of agriculture, in which we may be said to maintain a constant struggle with nature, for we seek to obtain from the soil an amount of produce greater than it yields in its natural state; and when it has been brought into a condition in which this result is obtained, there is a constant tendency to revert to its original state, which must be resisted by artificial means; and this object is arrived at, not by forcing nature, or attempting to run counter to fixed and immutable laws by which the universe is governed, but by studying the principles on which their action depends, and thus learning how to modify the conditions under which they operate, so as to suit the ends we have in view. It is only in the later stages of agriculture, however, that this phase in its progress is arrived at, a great part of our practical knowledge being, in the first instance, acquired by purely empirical observations; and it is astonishing how much information can be, and has been, thus accumulated at a very early period; but there is a limit which cannot be passed, and after it has been reached, although the art may not stand still, its progress becomes exceedingly slow. Judging from the writings of the classical authors on agriculture, it would appear that the husbandmen of ancient Rome, nearly two thousand years ago, were well acquainted with all the important operations of agriculture, and their practice appears to have been little inferior to that in use throughout Europe seventy or eighty years since. In some respects, indeed, they were in advance of that period, for their manure-heaps were carefully attended to, and they drained their land; as a proof of which, it may be stated that the instructions given by Columella for making a covered drain with stones, might be transferred almost unaltered to any modern work on agriculture.

The reason why agriculture advanced so slowly after the time of the Romans, is due to the fact that they had nearly reached the limit which could be attained by merely empirical trials.—They had learned almost all that can be easily and quickly acquired in this way, and advanced to the point at which it became a very slow, laborious, and costly method of adding to our knowledge, and whence further progress can only be made by studying the cause of the phenomena with which we meet. Agriculture, therefore, stagnated for want of an explanation of the facts which had been observed; and we find that the commencement of its recent rapid progress was simultaneous with the development of those wonders of science which afford these explanations. So soon as we began to understand that the mechanical treatment of the soil acted by admitting the atmospheric oxygen to disintegrate it, and liberate its useful elements, a new stimulus was given to the contrivance of machinery by which these operations might be more effectually accomplished; and when it was further ascertained that a manure acted by supplying those substances which are indispensable to the plant and form its food, and when their nature had been explained, we were enabled to use many substances which empirical agriculture would never have employed; and the word manure, which was formerly synonymous with dung, acquired a new and much more extended signification. Up to a comparatively recent period, the views which were entertained, both by agriculturists and chemists, regarding the nature of the food of plants, were very indefinite and erroneous. It was universally supposed that their main nutriment consisted of the humus of the soil, which was believed to be directly absorbed and assimilated by the plant; and that their inorganic constituents were unimportant and altogether fortuitous, and existed in them only because they happened to be absorbed along with the humus. It is scarcely necessary to observe that this opinion is now no longer maintained, incontrovertible experiments having shown that plants can grow and reach maturity where they have been entirely deprived of humus, but that they cannot exist without an adequate supply of inorganic matters, ammonia, carbonic acid, and water. As the substances which the plant specially requires form a very minute fraction of the weight of the soil, the establishment of these facts has directed attention very prominently to the possibility of exhausting the supply

of them; and the question has been raised whether the system of cultivation now in use is calculated to prevent this exhaustion, or whether it may not ultimately impoverish the soil.

It is quite clear that this is a question of the most vital importance to the country at large; for if it can be shown that we are gradually reducing the fertility, the sooner a change is introduced the better. It may no doubt be alleged that, to a farmer, all this is a matter of no interest, because his connection with the soil is a terminable one, and his object is to obtain from it as much produce as he possibly can, irrespective of those who are to come after him. And it has been maintained that modern agriculture is actually founded on this principle; and that while we pride ourselves on the increased produce which we now obtain from the soil, we have forgotten that it is produced at the expense of future diminution of the crops, although sooner or later this fact will inevitably be brought home to us.—Modern agriculture, in fact, has been described as a system of spoliation, and the necessity for an immediate change been very strongly urged upon us.

It is my intention on the present occasion to consider how far these views are founded on fact; and the subject is one not unattended with difficulties, for it must be discussed in a broad spirit, and viewed, not in relation to a single field or farm, but to the general effect over the whole country.

In order that we may have definite data to go upon, let us in the first instance consider the cause of the exhaustion of a soil, and the different modes in which it may be brought about. It is to be observed, then, that all plants require for their growth an adequate supply of carbonic acid, ammonia, nitric acid, water, potash, soda, lime, magnesia, phosphoric acid, sulphuric acid, chlorine, and silicas, which are all indispensable, although some of them are required in larger quantities than others. They are divisable into two classes, one including the first four substances, which, being all either gaseous or volatile, are found not only in the soil, but in the atmosphere; the remainder are confined, at least in quantity, to the soil. These two great classes are usually distinguished as the organic and inorganic elements of the plant food, by which it is to be understood that the former, though they are in a chemical sense inorganic, are the source of the organic or combustible part of the plant, while the latter supply the constituents of the ash. They may also, however, and with more advantage, be described as the movable and the immovable elements of the plant; because the former, existing in the air, are conveyed backwards and forwards by the wind, while the latter, being fixed in the soil, cannot be removed and replaced by ordinary natural causes. It is sufficiently obvious that if a crop be grown for a succession of years, and be systematically removed from the soil, the quantity of these substances must be gradually diminished, and, if this course be persisted in, the soil must eventually become incapable of supporting the life of plants. The period at which this will occur must necessarily differ very greatly in different soils, and depend on the quantity of available plant-food which they contain. It is to be observed, also, that the exhaustion of the soil in such a case is not due to the deprivation of all the elements of plant-food, for the air, constantly shifting, is always prepared to yield a practically inexhaustible supply of the movable elements, so that the exhaustion must in all cases be due to the removal of the fixed or mineral substances; and, consequently, when it is wished to restore to the soil its power of supporting vegetation, it is not *necessary* to add to it all the elements of the plant, but it will suffice to give those which it cannot otherwise obtain—that is, the fixed substances—and leave it to depend entirely on the air for a supply of those which can be derived from it. We do not mean to discuss here the question whether this method would reproduce the highest degree of fertility, but only to point out that a soil thus treated would regain more or less completely the power of supporting plant-life, of which it would have been deprived by the supposed system of management.

In point of fact, then, the complete exhaustion of a soil in its natural state must always be due to the want of mineral matters, because practically, no method of treatment can deprive it of those which the air supplies. As far, also, as these matters are concerned, it must be obvious that they would rarely, if ever, be all exhausted simultaneously, but that, in general, some one substance being present in relatively small proportion, the soil becomes incapable of supporting the life of plants, when it is entirely withdrawn, although there may still be an abundant supply of all the others. If, for example, a soil contain a sufficient quantity of potash to yield, say, twenty full crops of wheat, and of the other constituents of that plant enough to yield forty crops, the excess of the latter will be unavailing, and the soil would be exhausted by twenty crops.—If now we added to such a soil a supply of potash, it would again become capable of producing a crop, and would go on doing so until some other substance had been entirely consumed,

when it also would have to be added; and so on until, all being removed, the soil would at length end in a complete infertility, which would only be retarded, and not prevented, by this mode of operation. To maintain during an unlimited series of years a uniform amount of produce, it would be necessary to add, year by year, a quantity of the elements of plant-food equal to that which the crop removes; and the necessity for doing this is so obvious that it cannot be controverted, and it may be safely asserted that it is a point on which all scientific and practical men are entirely at one.

This being the principle on which the exhaustion of the soil is to be avoided, we have only to carry it out a little further to draw the conclusion, that if we add to it a larger quantity of the elements of plant-food than is requisite to replace what has been removed, its productive capacity must be increased, and it will become capable of yielding a larger crop than it did in its original state. This is in fact the foundation of the use of manures, and if it were possible to carry out these theoretical principles in their integrity, the soil might be made to produce, during an unlimited succession of years, a crop greatly exceeding anything known in actual practice. Practically, however, there is a limit which cannot be exceeded, and this depends upon several circumstances. In the first place, the effect of a manure is not due to its composition alone, but is dependent, to no small extent, upon the different constituents existing in it in a state in which they are readily available to the plant. And in the second place, the composition of manures is not entirely under our control. Although farmyard manure, which is, and will always continue to be, the foundation of agricultural practice, is a mixture containing all the elements of plant-food, and generally in proportions not very far removed from those in which the plant requires them, yet it is impossible not to recognize the fact that differences occur in it, and that part of its constituents are not directly available to the plant, but only become so by virtue of certain changes which occur in it after it has been deposited in the soil, and do not necessarily proceed exactly as we could desire. It is a familiar fact that, owing to these decompositions proceeding in an imperfect manner, manure may, and often does, accumulate in the soil, and remains there in an inert and dormant condition. If from this or any other circumstance the supply of one or more of the substances required by the plant is deficient in the manure, then either the crop is thereby limited, or it is forced to derive the requisite supply of that substance from the natural resources of the soil itself In fact, a manure which is deficient in any one element of the crop, does not improve the soil; and though it may produce a greatly increased crop, its effect is merely temporary, and eventually it only causes its more rapid exhaustion. In the case of farmyard manure, which necessarily contains all the elements of plants, this is, of course, less likely to occur than in special manures containing only one or two of these substances. Thus, for example, the opposite effect would be conspicuously seen in the case of a soil manured during a series of years with a salt of ammonia. In that case, though the crop might be greatly increased in any one year, the total amount of produce would be no larger than it would have been without that addition, but it would have been obtained within a shorter period of time.

The general conclusion to which all these considerations lead is, that we can only maintain the fertility of the soil by returning to it all the substances which the crop removes, and that we can increase it by applying these in larger quantity; but when the mixture supplied is deficient in any one substance, it does not prevent, but hastens exhaustion.

It was formerly believed that another great source of the deterioration of the soil was to be found in the removal from it of the valuable matters in the drainage-water. But our increased knowledge of the properties of the soil, its power of withdrawing the most important constituents of plants from their watery solution, and the composition of the drainage-water, have shown that any loss accruing in this way is so small as to be quite unimportant. It appears from the analyses of drainage-water, and from knowing the quantity which passes off by the drains in the course of a year, that the maximum amount of potash thus removed does not exceed two or three pounds to the acre, and is often much less, and the quantity of ammonia is usually under a pound. On highly-manured lands there is sometimes a considerable loss of nitrogen in the form of nitric acid, but on ordinary soils this also appears to be inconsiderable. When it is borne in mind that one per cent of potash amounts on the acre of land to at least ten tons, it will be seen that the loss of two or three pounds does not merit notice, for it must be a very poor soil which does not contain from a quarter to a half per cent of any of the constituents of plants. So far, then, from there being any loss of those valuable matters which the plant requires, there is a conservative influence constantly at work, by which they are safely stored in the soil, and preserved for the use of the crop; and when its exhaustion takes place, it is never due to natural causes, but may be safely attributed to the injudicious method of cultivation to which it has been subjected.

Monthly Agricultural Report—Condition of the Crops Throughout the Country.

The monthly report of the Department of Agriculture is published. The apprehension of a scarcity of crops, which might threaten compulsory economy of consumption, or warrant extraordinary prices, are groundless. From an actual analysis of statistical returns, with due regard to the usual average product and present losses of each State, the prospect, on the 1st of June, was for seven-tenths of a crop. With favorable weather, and absence from casualties before harvesting, the indications point to three-fourths of an average. The total yield of wheat in Ohio and Indiana appears to have suffered most from winter-killing. A prospect for 34 per cent of a crop of winter wheat in Indiana is sufficiently discouraging. An increase of four-tenths of the average growth of spring wheat will afford some relief, and ought to bring up the average to half a crop. Ohio is reported at four-tenths for winter wheat, with two and a half-tenths more for spring wheat than usual. A very little better prospect for winter wheat than Indiana, and not quite so large an increase of spring wheat, will give about the same result—half an average crop. Illinois, now our greatest wheat-growing State, promises seven-tenths of a crop of winter wheat. As the spring wheat, which is the main dependence for a crop in portions of the State, is nearly as good as usual, at least three-fourths of a crop of that should be expected in this State.

In Wisconsin, the winter wheat is reported at six and one-third tenths with one and three-fourths more spring wheat than usual, which should secure three-fourths of an average crop for the State.

In Iowa, the appearance of winter wheat is nine-tenths; spring ten and three-fourths tenths; breadth of the latter sown twelve and one-eighth tenths. This should give at least an average crop for Iowa.

In Pennsylvania, the wheat crop is eight-tenths.

In New York, winter wheat eight and four-ninths tenths; spring wheat nine and three-fifths tenths, or about eight-tenths for the crop as a whole.

In Missouri, a prospect for a full crop of winter wheat is reported, with one-half tenth or five per cent more than the usual breadth of spring wheat, looking nearly as well as usual at this season of the year. Kentucky is reported at five and two-thirds of a tenth; Michigan, seven and a half of a tenth; Minnesota, ten and five-ninths of a tenth for winter wheat, and nine-tenths spring wheat; Kansas, fourteen and one-third of a tenth for winter, and twelve-tenths for spring wheat. In New-England, except in Massachusetts, a full growth of spring wheat is sown, looking better than an average in Maine, and a fraction lower than an average in the other States. Winter wheat, when it is grown at all, has suffered to the extent of one and two-tenths, and in Vermont and Connecticut three-tenths. N. Jersey is placed in the same list with N. York and Pennsylvania, at eight-tenths, and Delaware, Maryland and West Virginia will each average about six tenths. The section west of the Missouri, comprising Minnesota, Iowa, Missouri and Kansas, taken together, promises more than an average crop of wheat.

Winter Rye.—The winter rye shared the fate of the wheat, but in a less degree. The injury was greatest in Ohio, West Virginia, Maryland, Kentucky, Michigan, and Indiana. Delaware, Connecticut, Massachusetts, and Vermont, come next in order. Kansas, Nebraska, and Minnesota, are the only States above the average, while Missouri and New Hampshire are reported at ten-tenths.

Winter Barley.—Ohio promises little more than half a crop; Vermont and Illinois, six-tenths; and Connecticut, Iowa, and Illinois, eight-tenths; N. Hampshire and Massachusetts, ten-tenths; Kansas, thirteen-tenths; Nebraska, fifteen-tenths.—The spring barley, while varying in promise in different States, will average ten-tenths.

Oats.—The average of this crop is larger than usual in nearly all the States. The appearance of the crop is, in Indiana, 10; Illinois, 8½-10; Ohio and Michigan, 9-10; in other States, ranging from 9-10 to 13-10. Rhode Island, Kansas, and Nebraska, are above the average. The crop indicates an average yield.

Clover.—More clover was sown than usual, and it is reported in a full average condition. In Delaware and Missouri the appearance is worst,—though the increased acreage will make up the deficiency. Maryland, New Jersey, Massachusetts, New Hampshire, Illinois, and Kansas, fall a little below the average; Maine, thirteen and one-sixth of a tenth.

Pastures.—Returns have not been favorable for the dairy interest. A very general falling off is observed in the condition of pastures, except in the States beyond the Mississippi.

Maple Sugar and Molasses.—This product will average nine and three-quarters of a tenth; New Hampshire, Massachusetts, and Delaware, ten-tenths; the other New England States, nine and a quarter tenths; the Middle and Western States, from seven to nine-tenths.

Sheep.—Sheep took the field this spring in better condition than usual. In some places neglect and consequent disease and death, are reported, arising from a depreciation in prices of wool.

Fruit.—A medium crop of apples is indicated, though there is variation in the appearance in different localities. In New England and the extreme West, the prospect is better than usual; in the Central States, worse. Peaches have suffered from winter-killing generally. In Ohio, scarcely a third of a crop is expected; in New Jersey, less than half a crop; in Delaware and Maryland, about six-tenths. Pears will not prove an average crop.

A Vermont Cow.

We do not attach great importance to the accounts we often meet with of extraordinary crops or products. Very often they are mere extravagancies, and as often altogether exceptional; but when almost, or altogether, true, they are indications of what may be done, and, therefore, of what ought to be done in the direction to which they point.

Vermont, as the writer of the following says, is famous as the birth-place of big stories of "sheep, cattle, hogs, and horses," but which, he says, are all true. We remember many years ago, that a Mr. Barnum, of that State, claimed to have made a thousand bushels of potatoes on an acre. The statement was never denied, but no one, that we know of, has ever since made such a crop. Be this as it may, none of us make anything like maximum crops, of such things as we are most familiar with. Apart from the statements of results in the following, there are several suggestions worthy to be noted. We copy from the "Country Gentleman:"

"Mr. Scott said he first became satisfied that he could make as much butter from a cow in a warm stable in winter, as he could from the same cow in pasture in summer, and so had a cow 'come in' for the experiment. The first nine days she churned 23 pounds; 26 days filled a tub of 52 pounds, and sold in Boston for 75 cents per lb., making $39. From

Dec. 20, 1864, to April 20, 1865, 200 lbs. sold.....	$120.00
April 20 to August 20, 180 lbs.....	54.00
August 20 to September 20, 40 lbs.....	16.00
September 20 to October 20, 34 lbs.....	17.00
October 20 to November 20, 30 lbs.....	16.50
November 20 to December 20, 1865.....	11.00
Sum total for one full year, 504 lbs.....	$234.50

"She 'comes in' again April next. Last winter she was fed on hay *only*, cut in June, and again in August, which makes the hay as good as grass, and kept in a stable that does not freeze in the coldest nights, and so ventilated that I can keep it at an even temperature all the time. She was fed regularly, three times a day, what she would eat, and eat it *all* up; the hay was weighed, and did not vary one pound from 25 pounds per day. The next four months she run to grass, but did not make so much butter by five pounds per month, as when in the barn. In the fall she had three or four quarts pumkins cut up and fed in the morning, which I think adds some to the *quality*, but not to the *quantity*, of the milk.

"She is the common native stock, brindle, nine years old, and good size. The first year I owned her, I called her a very ordinary cow, indeed.—What she has gained is by the treatment. I milk her at 6 o'clock, night and morning, with very little variation, and she is watered in the shed night and morning, but stands in the stable day and night."

"After thus giving the particulars in regard to the cow, which I think worthy of full credence, he goes on to state the way he manages to have such good hay, by premising that "you can as well cut four tons of hay to the acre, per year, as two tons, as most do on their best land!" He says, for three years he has ploughed the land in the fall, spread on the manure and harrowed it in; then in the spring, as soon as the snow is off, sows on equal parts, by measure, of herds-grass and clover seed, at about the rate of one and a half bushels per acre; has cut the same the 3d of July, "and weighed the hay and got two tons per acre; mowed again the 7th September, and got a little over two tons. For two seasons since has done the same thing, with same success."

"Another experiment: I mowed off the grass on a piece of ground, the 15th of June, that cut about a half ton to the acre. Twenty-two square rods of it I turned over, spread on a coat of manure, harrowed it in, sowed on the seed and harrowed that in, picked up the stones, picked up the few loose sods, and packed them in the crevices, and then rolled it. This was the 20th of June. I cut the hay the 7th September, and got 700 lbs. of as good hay as ever grew out of the ground—at the rate of over two and a half tons per acre." He mentions another experiment similar, where he cut about one ton per acre, June 15th, and in just six weeks mowed over two tons per acre! He cuts the grass "just as the clover is beginning to blossom, and before the herds-grass puts out its heads," and in that way "doubles the quantity and quality of hay, and that doubles the quantity of butter," or flesh, if fed to fattening stock. He says, and mentions a pair of steers fed the same as the cow, that were sold at 23 months old, in Boston, for $220, when ordinary steers, same age, sold for less than one-half as much.

"He thinks "farming only in its infancy yet," and well he may if he thinks it possible for the rest of us to make the attainments he has.

"Is it possible for ordinary cows, which aver-

age about 175 lbs. butter per year to be so *treated* as to *triple* that product? I once bought a 5-year old cow in June, for $25, not considered equal to even an *ordinary*, in the *best* of the first season only giving about 15 lbs. of milk per day. She gained till 12 years old, equally good at 14 years, was milked till 18; for eight years she produced all the milk, cream and butter used or wanted in a family of eight persons. For curiosity, during one week, her milk was weighed, and averaged a fraction less than 44 lbs. per day. She was native breed, common size.

"Is there any kind of feed equal in value for growing, fattening, or milking stock, to early cut, well cured clover and herds-grass hay? Is there any better way of getting it than that described above, or is there any better way of applying manure?

"Is there any *conclusive* proof that any of the imported breeds of cattle are better for the *dairy* than our *native breed?*

"Is a *moderate* and *even* temperature for our stock in the winter, worth the effort for its attainment?

"Is *regularity* in milking and feeding of any consequence?

"Is 25 lbs. of hay per day a common amount for milch cows? RUSTICUS."

Marketing Grapes.

The question is often asked why certain lucky vineyard men receive from twenty to forty cents per pound for their entire crop, while others less favored are glad to accept eight, ten, or twelve cents? The answer must be, "Diligence is the mother of good luck." The best grape raisers, after they have selected the best sorts and the best soil, still give assidnous attention to three great points, viz:—1. Good and constant cultivation. 2. Careful and judicious pruning, and thinning out defective fruit. 3. Careful gathering and the most careful packing.

Among all our grape raisers, none, as far as we know, have been more successful than E. M. Bradley, of East Bloomfield. In answer to some inquiries, he has kindly furnished us the following statement of his management:

"Permit me here to say, that the *market value* of the grape is *more dependent* upon *judicious handling*, than that of any other fruit with which I am conversant. Whilst the grape is a fruit peculiarly constituted to endure almost an *unlimited amount of abuse* in handling, yet no other fruit so richly pays every iota of *care* that may be expended upon it. The most casual observer of our great fruit markets cannot but have noticed the wide range of prices, in all kinds of fruit, produced by a *difference* in *method* and *style* of handling. And no fruit with which I am acquainted, suffers more from neglect in growing and marketing, or more amply repays thorough husbandry.

"Thorough pulverization of the soil to a liberal depth *every week* during the *growing season* of the vine, a systematic thinning of fruit, and shoving off all superfluous growth, will secure a well matured crop of grapes. As soon as fully ripe, (not before,) the fruit should be carefully picked, and laid in shallow, well ventilated, drawers, carried to the packing house on a spring wagon, and placed in racks or cribs over registers so constructed as to afford plenty of fresh air, but not exposed to light, or artificial heat.—Here the fruit may remain for months in safety, and retain its plumpness and bloom perfectly.—When desirable to send to market, the drawers are taken from the rack in the store room, and placed upon the tables in the packing rooms, where the fruit is carefully assorted, all green berries and the superfluous stems removed, and packed closely in paper pockets or wooden boxes, and immediately shipped. The packing rooms should be well lighted.

"Small paper pockets, containing from one to three pounds, snugly packed in wooden cases, two dozen pockets in a case, are found to carry the fruit more safely to market than larger packages. The cases should be as nearly air-tight as possible. I have sent many tons, packed in this manner, to Charleston, S. C.: Nashville, Tenn.: Quincy, Bloomington, and Dubuque, on the Mississippi River, and many other towns, over equally hazardous routes, with entire safety.

"Good grapes, neatly packed in fancy paper pockets, will always sell at remunerative prices, however much the market may be *'glutted'* with fruit put up in a slovenly manner."—*Co. Gent.*

Preparation for Preserving Leather.

We translate from the "Gerber Courier," a receipt for a preparation which is said to insure great durability to leather, and to make it very pliable and soft. It consists of four articles, tallow, soap, rosin, and water, prepared as follows: Twenty-one parts of tallow are melted in a vessel, three parts of rosin added, and the two when melted mixed well together. In another vessel, seven parts of good washing soap are dissolved in seventy parts of pure rain water. After it is dissolved, and the mass heated to the boiling point, we add the part prepared before, let it boil once more gently, and the preparation is ready for use. It is especially adapted to boots, harness leather, and belting.—*Shoe and Leather Reporter.*

When to Cut Timothy.

"J. A.," McKean county, Pa., writes soundly: "One says 'cut timothy hay early,' and another says 'cut it late.' I have tried both ways, with working cattle and milch cows, and I value one ton of early hay above two tons of late cut hay. The stock eat the early cut hay clean, waste none, and thrive much better, and do a vast deal more work, than on late cut hay. If the season is favorable, I am generally nearly through haying when others commence. Late cut hay may last longer, and bass-wood chips would last longer still. This question would be settled forever, if men would try the experiment fairly."

GRAPE AND WINE INTERESTS.—Mr. Wm. Griffith, whose letter we publish on another page, is one of the most extensive and successful grape and wine producers in the country. He means to attend the Paris Exhibition in 1867, and will represent there the *Lake Shore Grape Growers' Association*, and desires specimens of wines made from native grapes, sent to him by those who may wish to have their products exhibited. He may be addressed, as will be seen, at North East, Pennsylvania.

NATIONAL EXHIBITION OF HORSES.—We acknowledge the receipt of an invitation to attend the National Exhibition of Horses, to take place at Kalamazoo, Michigan, beginning on the 2d, and ending on the 5th of October, 1866. The premium list is $6,000. The first trotting premium, $2000; the first running premium, $500; entrance free. The premiums embrace every description of horse. Hon. C. E. Stuart, President of the Association, and Geo. F. Kidder, Secretary.

COWS' TAILS.—A correspondent of an agricultural journal says he has seen several dairies of cows with short tails. He "likes the style, and wishes to relieve some five or six cows of their troublesome switches."

Can it be that there are dairies of cows with short tails, and can it be that anybody "likes the style?"—[ED. AM. FARMER.

NATURE'S BEE BOOK.—We have received a copy of this little treatise on bee management, from the author, W. A. Flanders, Shelby, Ohio. It is designed, he says, as a directory, to aid, to explain, and accompany his improvement in bee culture. See advertisement.

LOSS OF SHEEP.—It is estimated by the "Ohio Farmer" that the loss of sheep in the State of Ohio, by a cold rain and storm, occurring a few days after shearing, was not less than one hundred thousand.

Butter Making in Devonshire.

[Extract from a letter of Cuthbert W. Johnson to the "Mark Lane Express."]

"Cows are milked twice a day, morning and evening, and the milk strained into the milk-pans, which are generally made of tin, and should not be too deep, or the milk will not cool quickly.—Early the next morning, (as soon as the fire has attained a sufficient heat,) the milk is placed on the stove or steam apparatus, to be scalded, beginning with the previous morning's milk until all is scalded. There should be from 12 to 15 pints in a pan, and, with a proper heat, it will take from twenty minutes to half an hour to scald. When it is sufficiently scalded you will see the cream look rough, and a ring or mark will appear on the surface, just the size of the bottom of the pan. After scalding, the milk is placed in the dairy to cool, and on the following morning the cream is taken up from each pan with a skimmer, and placed in a large basin, where it remains until it is removed into the tub, to be made into butter. In the summer butter must be made every day; in the winter three times a week will be sufficient. When you make butter you must pour off any clear or thin cream there may be in the bottom of the basin, and then put the thick cream into your butter tub; stir it with your hand or with a stick round the tub, all one way, until it becomes a very thick substance; continue turning it until you see milk coming from it, then pour off the buttermilk and wash well the butter with cold spring water until there is no milk left in it, and the water is quite clear; then add a little fine salt to make it a proper saltness, wash it again, and continue working it with the hand or stick, as may be, until you cannot get a drop of water from it; then weigh the butter and make it up into pounds.—If this plan is strictly followed your butter cannot fail to be excellent. In very hot weather the morning's meal of milk must be scalded in the afternoon, and the evening's meal early the following morning, to keep it sweet. The stick used in our dairy, and which is preferable in every respect to the hand, is formed like a small spud, with the handle about 12 inches long.—When the red earthenware pans are used for the milk, it takes nearly an hour to scald each pan. We consider tin pans preferable, for two reasons: first, economy of time in the dairy work; second, the milk in hot weather is less likely to turn sour when quickly scalded."

If you would build high and firm, dig low in humility, in meekness, and in forgiveness, for a foundation; and your roof shall reach the heavens.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, SEPTEMBER, 1866. Vol. I.—No. 3.

SEPTEMBER.

"Hence from the busy, joy-resounding fields,
In cheerful error, let us tread the maze
Of Autumn, unconfined: and taste, revived,
The breath of Orchard, big with bending fruit.
Obedient to the breeze and beating ray,
From the deep-loaded bough a mellow shower
Incessant melts away."

Farm Work for the Month.

TOBACCO.

The cultivation of the growing crop will have been completed, and what remains is to have it put in proper condition into the houses. Of course this includes the necessary work immediately preceding—the clearing the plants of every worm, that they be not ragged by them after being taken to the house, and the breaking out carefully every sucker that may have started from the foot of the leaves. If fire is to be used in curing, there will not be the same necessity for destroying the worms that may be on the plants when fit to go to the house, as the heat will effectually dislodge them.

The topping may continue, as the leaf advances, up to the 20th of the month, when all should be topped that remain, down to leaves of six inches in length. The leaves will thus have time to make good length, and to ripen up pretty well, by the 10th of October, when all should be cut. No more of the crop should be cut on any day, than can be properly handled and put away in the house, within the twenty-four hours. The cutting for the day should begin after the dew is entirely off, when it may very soon be handled and taken to the house. The single plants may, in a very short time, be put into small heaps of an armful, and taken early from the field, if the sun be very hot, lest the outer leaves be scalded. In the afternoon, before the dew falls, enough should be cut to employ the hands, till the dew is off next morning, in hanging away in the house. It should not be allowed to lie all night in large heaps.

See that in hanging in the house, the plants are not crowded on the stocks, nor the sticks closely jammed together. They should have ample room, to avoid the plants touching when the leaves have wilted. Otherwise there will be what is known as "house-burn"—the destroying of the tissue of the leaf and its turning black and worthless.

THE CORN FIELD.

If any portion of the fodder is to be saved by the old method of topping and blading, it must now be done as it begins to yellow at the bottom. This practice is at great expense, no doubt, of the weight of grain, and is, apart from this, an expensive mode of saving fodder. A lot of good timothy would prove much cheaper provender. The blades, however, if properly saved, make very fine food for working or driving horses in the heavy work of spring and early summer, and many are still unwilling to dispense with them.

Any portion of the corn field that is to be seeded in wheat, should be cut off at the ground as early as the condition of the corn will allow, and set up in stooks.

WHEAT SEEDING.

Let every preparation be made to get the wheat crop promptly seeded at such time as you may determine on. The red wheats are very frequently sown as early as the first of the month, and the only drawback to the sowing of this, or

any other sort so early, is the fly. If there seem to be special danger of that, the seeding may be postponed to the 5th of October, but we are more and more impressed with the belief that the reasons in favour of September sowing far outweigh the risk from fly.

Corn land should be seeded, with only enough stirring of the surface to give the grain a shallow covering. If there be not too much grass to work the drill, the best practice is to put it in with the drill, without the use of plough or cultivator.

SEED.

Sow none but the cleanest and best seed, and even with this, take the precaution of washing, and soaking for some hours in strong brine. Let the seed fall slowly and gently into the brine, and quietly stirred, that smut balls, and all light matter may float. When thoroughly washed and soaked even for a few, or as many as twelve hours, if you choose, the seed must be drained and dried with fresh lime. This is a sufficient preparation of clean seed, and foul should not be used.

MANURING.

It should be understood as worse than folly, to undertake to make a crop of wheat without manure, on any ordinary ground, except a well set clover, or pea-fallow, and fortunately we need not be at a loss in finding good fertilizers that will bring land of only medium fertility up to the necessary standard for a good crop. Whatever may be proposed in the way of manuring the crop, we should not fail to give say, fifty pounds of some portable fertilizer to the acre, applied in the drill, using the remainder broadcast. The application in the drill is not likely to be sufficiently appreciated except by those familiar with it. Its value consists in the direct and immediate impulse given to the young crop in the fall, a point which we have repeatedly dwelt upon, as of the greatest importance.

RYE.

Rye should be sown without delay, if practicable. On light, coarse sands, it may be found a more profitable grain than wheat, but on all ordinary soils, with this exception, where a fertilizer may be commanded, wheat will be found the more profitable crop. In any case, however, we should sow a small lot, proportioned to the stock on the farm, for green food in early spring. The earlier in spring that stock can be supplied with green food the better, and nothing is more suitable than rye, which may be cut two weeks at least in advance of clover. For this purpose, sow two bushels of seed to the acre, but for grain, one bushel is sufficient.

TIMOTHY.

Timothy may be sown now, or at any time until hard frost, but the sooner the better, if sown by itself, and a crop be wanted next season.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER. Maryland Agricultural College.

SEPTEMBER.

The garden will soon begin to assume its autumnal aspect. Lose no time in removing all weeds, which, after the copious showers we had during the month of July, will be very abundant. Remove all decaying vegetable matter. Plant up all vacant ground, and at the end of the month clear ground for plowing and trenching during the fall and winter months.

BEANS.

Continue to earth up and keep clean from weeds, the late crops.

BEETS.

The early crops may be taken up towards the end of the month—storing them for the present in a dry, airy place.

CABBAGE

May now be sown to stand the winter, for spring and early summer crops. Any of the early hardy kinds will do, such as large early York, early Wakefield, early Winnigstadt. This is not quite as early as some other kinds, but we consider it one of the very best cabbages grown, frequently succeeding when all others fail.

CAULIFLOWER.

Sow for early spring and summer use, not later than the 25th. "Jenormando Mammoth" is the most reliable of any kind which we have grown.

CELERY.

Continue to earth up advancing crops.

COLEWORT OR "GERMAN GREENS."

Sow during the first ten days, for a crop to come in late in the winter and early in spring.

ENDIVE.

Continue to sow the green curled early in the month, and plant out those which are strong enough from previous sowings—some from the early. Any that may run to seed should be pulled up, and their places supplied by others.

LETTUCE.

Sow during the first ten days for a crop to come in during the winter. Plant out on vacant

ground and keep the ground well worked. We are so well pleased with the kind named in our last month's operations that we do not intend to cultivate any other.

ONIONS.

When the stalks begin to turn yellow and fall down, take them up or they will produce fresh roots, and of any, which still exhibit a luxuriance of growth, break down the leaves.

RADISH.

The Black Spanish and winter Chinese Rose may now be sown for winter use.

SPINACH.

Make a sowing of the prickly about the middle of the month for spring use.

TURNIPS.

Thin and hoe advancing crops.

POTATOES.

All those which show any signs of maturity by the decay of the stems should be taken up and stored.

The Fruit Garden.

HARDY FRUIT

Gather as soon as ripe, which may be known by the color of the seeds, and by the stem parting readily from the tree. Gather with great care, and keep apart from the best all that may fall in the process. Gather only in dry weather, and store at once. The fruit store should be in a dark place, capable of being freely ventilated, yet generally admitting but a trifling current of atmosphere; and it should be cool yet safe from frost.

STRAWBERRIES

In pots for forcing should now have well formed, plump crowns. If the crowns are thin and weak, place the pots in a warm place and assist with weak liquid manure.

FRUIT TREES IN POTS,

Towards the end of the month, should have small supplies of water, and full exposure to the sun, near a fence facing the south, where the heat will be reflected on them, and they will ripen more wood well. Any trees, in a green and sappy state, may be laid on their sides and be sprinkled every morning; this will check growth without distressing them, and help to coax them into rest. Get ready for potting, planting out any from the pots or orchard house, as when the fall comes, there will be extra pressure of work and many important jobs of planting and potting may be delayed to the injury of next season's produce, unless pots, composts, &c., are all ready in good time. Those not re-potted should have the top soil of the pots removed and its place supplied with fresh turfy soil, and rotten dung heaped up around the stem of the tree.

The Flower Garden.

"Ye flowers of beauty, pencilled by the hand
Of God, who annually renews your birth
To gem the virgin robes of nature chaste,
Ye smiling-featured daughters of the sun,
Fairer than queenly bride by Jordan's stream,
Leading your gentle lives retired, unseen,
Or on the sainted cliffs of Zion's Hill.
Wandering and holding, with the heavenly dews,
In holy revelry, your nightly loves,
Watched by the stars, and offering every morn,
Your incense grateful both to God and man."

BEDDING PLANTS.

Verbenas, Geraniums, Heliotropes, &c., should have every necessary attention to keep them in proper order. Do not allow seeds to ripen, or the plants will decline in bloom; therefore remove them promptly, and serve a two-fold purpose thereby.

Take cuttings of "Zonale," and other Geraniums, for planting in the borders next spring. Plant them in pots, or boxes, where they can remain all winter. Use a rather poor sandy soil, in order to check a too rampant growth and harden the wood.

CARNATIONS, PINKS, &C.,

Which have been layered, as soon as well rooted, should be transplanted or potted in sandy soil Avoid all stimulating manures for this class of plants, as they should not be encouraged to make much growth during the winter months. If potted, place them in a shady place for a few days. Plant out the old stock plants into borders, where they will produce an abundance of flowers next summer. Keep the beds of young ones well worked, and perfectly free from weeds.

GLADIOLA

In pots, when the bloom is declining, should have but little water when the foilage shows signs of decay. Lay the pots on their sides, in the full sun, to promote their ripening. Those in the borders will take care of themselves till time to take them up.

LILIUMS

Grown in pots treat the same as recommended for Gladiola. When the foilage begins to fall lay them on their sides.

MIGNONETTE

For flowering in winter, may be sown now, in

about four inch pots, using a good light red soil, and placing the pots in a partial shade until the plants are fairly up.

ROSES

May now be propagated by planting cuttings in a light sandy soil, where they can be protected during the winter; any of which have been budded this season, will now require to be looked over, the wild growth cut in slightly, the ties loosened, and any shoots below the buds rubbed off. Roses struck from cuttings should be potted off soon as rooted. Roses layered in the open ground should be transplanted into good rich soil as soon as sufficiently rooted to be removed. If planted in the open border, they will need protection during the winter months.

VIOLETS,

For bloom during the winter and early spring, should be taken up now, with good balls of earth, and potted in four or five inch pots, in a mixture of leaf mold and sandy loam, placing them in a shady place until well established.

Propagate all sorts of plants that are likely to be wanted for next year as early in the month as possible. As soon as rooted pot them off or place in boxes, as recommended above. Keep them in a close place for a week or two and then expose them to the weather until placing them in their winter quarters.

Lawns and Parks.

Nothing looks neater than a well-kept lawn or park, its thick sward of velvety grass, smooth and well-trimmed. Many lawns are spoiled by being crowded with large, deciduous trees, the overspreading branches of which prevent evergreens and other choice trees and shrubs from developing themselves fully. Who has not seen the leading shoot of a Norway spruce, arbor vitæ, or balsam, destroyed by the overhanging drip, shading or chafing of a maple, poplar or elm? It is better to cut down such intruders, or at least to prune them severely, than to have fine evergreens, etc., spoiled. A few choice specimens of evergreens and flowering shrubs, with an occasional lime oak or purple beech, and plenty of space between them for a large expanse of grass, with flower beds cut out of it, looks better than a crowd of trees, shutting out the sun and hiding the view of everything. Some lawns and parks are spoiled by having too coarse a variety of grass sown in them, which never makes a good sward. There is nothing better for a lawn, park or grass plat than a mixture of June-grass, *poa pratensis*, sweet-scented vernal grass, *anthoxanthum odoratum*, and white clover, *trifolium repens*. The latter grows rapidly and forms a thick sward, but it is apt to choke out other plants, to require cutting too frequently, and also to fade in the autumn. For these reasons only a small quantity should be sown The grass in lawns, parks, etc., should be frequently mowed during the season, in order to keep the sward in proper trim, and to prevent the grass from injuring the trees, shrubs and flowers. If it is left until fit for a hay crop, it will spoil the lower branches of evergreens, and encroach on and overspread flower beds.—*Ex.*

Deterioration of Seed.

A correspondent in Washington county, Maryland, referring to the enemies of wheat in his region, adds: "In addition to these enemies, a formidable difficulty arises from the repeated use for a series of years of the same variety of seed on the same soil, in the same locality. Each variety of wheat seems to do well here for a series of eight or ten years, then it seems to languish and become more liable to injury from the Hessian fly, the rust, or smut, &c. Whether the declension in the crop is attributable to the fact that each variety of wheat exhausts so much of some particular constituent of the soil that it can no longer flourish as at first, or whether the wheat deteriorates from neglect, inattention, or mismanagement of the farmer, I am unable to determine. Prior to 1836 our farmers had used varieties which failed totally that year to make a remunerative yield. Soon after, some wheat was imported from the Mediterranean, which for some ten to twenty years was cultivated here almost exclusively. In 1858 the crop failed almost entirely. The Lancaster wheat was then introduced, and has been successfully cultivated ever since. This year the 'Lancaster' has suffered much from 'fly;' some also from rust. At seed time last fall we had a dry spell, so that wheat came up badly. That which was sown first and came up well was damaged by 'fly;' the later sown was injured by rust. We estimate our crop this year to be about a half crop; the quality of that which ripened early is good; the later wheat was injured by rust.—*Report of Commissioner of Agriculture.*

QUALITIES OF A GOOD WORKING OX.—Let him have large nostrils, a long face, a bright hazel eye, which will indicate docility and intelligence; a hoof rather long and not turned outward very much, a straight back, a broad breast, white gambrel, small tail, and horns of medium size. When you find such an ox as that, he will be a good worker.

For the American Farmer.

The Pine Hills of Georgia.

As many thousands of Northern people are contemplating emigration to the South, any trustworthy information in regard to the country, and its soil, climate, productions, and capabilities, must prove interesting and valuable. In this belief, I desire to contribute my mite toward the enlightement of the public on these subjects.

Having formerly resided in several of the Southern States, and traveled extensively in others, I might volunteer to give a general description; but, I think, a closer view of a particular region, will be far more satisfactory and useful to the reader, who must bear in mind, however, that in setting forth its advantages, I do not desire to depreciate those of any other locality. Desirable places, in which to settle, abound in all the Southern States.

I have lately returned from a tour through a portion of Middle Georgia, which I have visited for the special purpose of examining it with reference to fruit culture, and I will confine my remarks to the particular neighborhood which seemed to me, all things considered, best suited to the wants of a settlement of fruit-growers, and which I have selected as the scene of my own future operations in that department of horticulture, though the description will apply, in the main, to a large part of Middle Georgia and the adjoining States.

The region to which my remarks have special reference, and which I have called "The Pine Hills," in contradistinction from the level pine lands of the "low country," and the oak hills of the "Upper Country," comprises portions of the counties of Richmond and Columbia, and is intersected by the Georgia Railroad, which connects Augusta with Atlanta. It is, strictly speaking, an undulating country; the elevations reaching an altitude of three hundred feet above the Savannah river, and gradually sloping to the beautiful fertile valleys which intervene, producing a scenery every where pleasant, and in some places exceedingly picturesque.

The soil of the hill-land is sandy light colored, and only moderately fertile. In the valleys it is richer and darker; and some of the bottom-lands, bordering the creeks, can boast a soil equal to that of the river valleys of the West. These bottom-lands are, however, of limited extent.

The summits of the hills generally form plateaus of from ten to a hundred or more acres, admirably fitted for orchards; while the sloping hill-sides (hardly ever too steep for easy cultivation) are suited to vineyards, and the valleys to the cultivation of the small fruits generally.

The original forest growth on the hills is the magnificent long-leafed pine of the South—the glory of the semi-tropical forrest—which gives every where its peculiar character to the landscape. Where this growth has been partially removed by the lumbermen, which is very generally the case along the line of the railroad, there has sprung up an undergrowth of oaks of various species, but generally of a dwarfish habit, which contrasts strongly, both in size, and in color of their foilage, with the dark gigantic pines which overshadows them.

Water-oak, hickory-oak, poplar, sweet-gum, black gum and other deciduous trees, intermixed with swamp-pines, abound in the valleys and bottom lands.

Here, also, the wild fruits of the climate are found in abundance, and of the most tempting quality. Prominent among these are Chickasaw plums; persimmons; papaws (richer and more delicious than bananas;) grapes; mulberries; blackberries; whortleberries, &c. Game is plenty in the woods, and fish in the streams. The sportsman will find no difficulty here in bagging patridges, doves, ducks, squirrels, hares and "possums," to perfect content. There are also many wild turkeys and a few deer.

The climate may not suit every one, but to me it seems unsurpassed. It is mild, and less subject to extremes of temperature, than at the North or West. Of its perfect healthfulness there can be no doubt. In summer the temperature is, of course, pretty high during the day, but on these breezy hills it is never oppressive, and the nights are almost invariably cool. The fall and winter here are absolutely delightful—a perpetual "Indian Summer," in which the air, tempered into mild deliciousness, seems ever freighted with a health-growing balm.

This region abounds in springs and running streams of the purest and softest water, and is lest subject to drouth than many other portions of the country The adaptation of the Pine Hill region to fruit culture has been demonstrated by experiment. It is here that Mr. L. E. Berckmans, the distinguished Belgian pomologist, after having been engaged in the propagation of fruit trees, and the cultivation of fruits for a half century, first in Europe, and afterwards in New Jersey, finally selected a location for his future operations; but to Mr. D. Redmond, the well known editor and publisher, for many years, of the *Southern Cultivator*, more than to any other man, is the country indebted for calling attention to this branch of agricultural industry,

as a source of prosperity and wealth for the South, and showing with what marked success it can be prosecuted here. And so well is Mr. Redmond convinced, after an experience of nearly twenty years, of the superior advantages of this region, that he is preparing to plant five or six hundred acres with trees and vines.

The finest orchard I have ever seen, either North or South, is that of Mr. Stanton, a northern man, now settled in the neighborhood of which I have been speaking. It consists of peach, apple, and pear trees, all in the most perfect condition, and in full bearing.

Nearly all the fruits of the temperate zone may be successfully cultivated in Middle Georgia. The cherry, the currant, and gooseberry are, perhaps, partial exceptions. Peaches, strawberries, and grapes, attain there a degree of sweetness, and exquisiteness of flavor, utterly unknown in colder climates. The strawberry commences to ripen about the first of April, and may, by proper management, be kept in bearing for four or five months. Sometimes it even ripens a crop in mid-winter. The peach tree comes into full bearing, in this climate, the third year from the bud, and I even saw trees in the nursery rows, only two years from the bud, with peaches on them.

Properly packed peaches are readily sent to New York; the earlier sorts reaching the market from the twentieth to the twenty-fifth of June, and commanding fabulous prices—say from $20 to $25 per bushel.

Apples and pears will prove even more profitable than peaches: but they have, as yet, been less extensively cultivated. Grape culture and wine making have proved immensely profitable here; the wine produced being superior to that made any where else in the United States.

The fig, that exquisite luxury of the South, so luscious and so nutritious, grows here freely in the open air, *producing from two to three crops a year*, and never failing. Sitting under ones own vine and fig tree is no mere figure of speech among the Pine Hills of Georgia; and thank God! now that the war is over there "are none to molest or make us afraid."

I hardly dare to state how cheaply land may be bought in this region, lest I thereby throw a doubt upon the preceding statement; but, strange as it may seem, these admirable fruit-lands, within fifteen miles of the flourishing city of Augusta, and in the immediate neighborhood of the Georgia Railroad, are now offered at from $10 to $12 per acre, and further from the road for even less. It is quite certain, however, that they will not long remain at these low figures.

I purpose to settle among the PINE HILLS OF GEORGIA next fall. There will be room for a few more industrious and sensible people, who are disposed to mind their own business, manifest a conciliatory spirit, and show a decent respect for the feelings and opinions of their neighbors. Who will go with me? D. H. JACQUES,

389 *Broadway, New York.*

Top Dressing.

By various methods, through different seasons, I have learned that masses of rich nitrogenious manures are annually lost, or nearly lost, by being buried below plant roots, instead of being applied to the surface in either liquid or solid form. Whoever seeks to copy nature will learn, by observing her operations closely, that she never enriches her products with crude masses of concentrated substances; but gives her stimulants in minute proportions, chiefly from the surface of the earth. It has been urged against top dressing, that the decaying manure gives a large portion of its ammonia to the atmosphere. It is undoubtedly a fact that some ammonia does thus pass off: yet accurate experiments have established another fact, viz: that the absorption by the manure of moisture and its ammonia, more than compensates for the amount thrown off.

Where manure lies exposed on the surface, decomposition takes place slowly, and the solubles, potash, lime, soda and the phosphates are not volatile, but remain to be appropriated by the plants as required.

The slave of Bacchus, who used his stimulants, claims "that he is warmed in winter, and cooled in summer." This is exactly what mulching and top dressing do to the soil. Darkness, moisture and air, are the requisites for vegetable and mineral decomposition. These requirements are met by surface manuring, and the chemical constituents, when set free, at once become food for vegetable life. As the manure disappears from the surface, it is washed into the soil in the precise condition required by the growing plants, which in turn become active agents in carrying forward chemical changes through the entire surface on which they act.

Waste no manure by burying it in the soil. Top-dress in July and August, and make the fierce rays of the summer sun a chemical laboratory to enrich your fields. Top-dress in September and October, and make the autumn rains distil upon your lands showers of ammonia. Top-dress in the spring, and make the harbinger of plenty to distribute over your fields the wealth accumulated by the frosts and snows of winter.—*Rural American.*

Fruit Department.

The Concord Grape.

We are indebted to the *Horticulturist* for the following notes on grape culture, and its results in Massachusetts. It should encourage very much the growing disposition to enter more largely on this branch of culture in the Southern States, where the climate is so much more genial, and the quality of the fruit so much superior. The Concord grape is a vigorous grower and abundant bearer, though inferior in quality to some others. We are told, however, by those acquainted with it in the more Northern States, that it improves greatly in quality as it comes South. No other grape can be so safely planted on a large scale as the Concord.—Ed. Farmer.

The *Massachusetts Ploughman* is publishing a series of short, practical papers on the open air cultivation of the grape, written by the Hon. E. W. Bull, of Concord, Mass., the originator of the Concord Grape, and a cultivator of the vine, whose experience and success have given him a very honorable position among the horticulturists of this country.

The solid basis of fact and experience on which Mr. Bull's papers are founded, and the general soundness of his views, make me think that a brief *resume* of these Essays, with such criticisms as may not seem impertinent or presumptuous, will be acceptable to the numerous readers of the *Horticulturist*, and I therefore ask leave to present a sketch of the learned Vigneron's remarks, with a word of comment of my own.

In his first paper, Mr. Bull discusses the question whether grape growing is profitable or not, and answers it in the affirmative. He says, "the Concord is the only grape I cultivate on a large scale, and that for *sixteen years* has not failed to give me a remunerating crop.

One acre of well established, healthy vines, will give about seven tons of grapes, worth at wholesale, on the average of the last four *years*, fourteen cents per pound, or about 2,000 dollars. This amount, large as it is, has been exceeded in many cases; but if you reduce the result one-half, you still have one of the most profitable crops known to our husbandry." (I may say, in parenthesis, that two of the largest grape-growers in this State tell me that they make $1,200 per acre per annum with the Concord.)

At present, and indeed for a long time to come, the market price of the fruit will be so high as to prevent the making of wine to a very great extent; but whenever the crop of fruit becomes so abundant that the price declines, wine will be made in large quantities, and its manufacture will be found more profitable than selling the fruit.

No other farm crop requires so little of the farmers ready capital, manure, as the grape.

I have vines which give me annual crops of one hundred and twenty pounds each, and which have had no manure for ten years. I have no occasion to give the Concord any manures except a dressing, once in three years, of twenty bushels of bone dust, twenty bushels of unbleached wood ashes, and five bushels of plaster of Paris to the acre, spread broadcast and harrowed in."

I believe that we are gradually reaching a more rational view of the wants and requirements of the grape, and that Mr. Bull is right in what he says about manures. For vines that are to bring money into the owner's pocket, the days of deep trenching and high manuring are past and gone. Certain kinds of grapes, as the Iona and the Delaware, need a rich soil, and the highest possible cultivation, and this is a great pity, for if the Iona had the freedom of growth and vigor of the Concord, we should not have much further to go to find the perfect grape.

A vine that requires constant attention and petting, and a considerable annual outlay for manure, can hardly be cultivated for profit on a large scale.

I have seen the vines of which Mr. Bull speaks, in full bearing, and can testify to their splendid appearance, vigor, and capacity to produce loads of fruit. They had had no manure for ten years, but their owner proposed to give them a slight dressing of ashes the present season.

Mr. Bull advises planting vines in rows running north and south; the rows being ten feet apart, and the vines six feet apart in the row. This gives sixty square feet to a vine, and facilitates working with a horse and cart in the vineyard.

The following is the estimate of the cost of planting an acre :—

726 vines at $25 per 100	$181 50
40 loads compost	40 00
Ploughing	6 00
Carting and cross-ploughing	3 00
726 poles at 1 cent	7 26
Planting, two men, ten days	30 00
	$267 76

There will be a difference in the cost in various localities, but the above is a fair average. Mr. Bull, we presume, plants two year old vines, judging from the price he gives, for first class one year old Concords can be bought for ninety dollars per thousand.

The forty loads of light compost is to promote the formation of roots the first year, and the application of the compost is not to be repeated.

Mr. Bull's second paper is devoted to the operation of planting, and we quote the substance of it, condensing a little here and there for the sake of brevity:

"Having prepared the ground for planting, open a furrow on each side of the line on which the grapes are to be placed, and two feet from it, turning the earth towards the middle of the bed and ridging it slightly.

Let one man bestride this ridge at the end of the line, and throw out the soil to the depth of six inches, over a space four feet square, *i. e.*, let him form a bed for the vine four feet on each side, and six inches below the level of the field. A second man having placed the vine in the centre of this table, and spread the roots out; the first man, still bestriding the ridge, must step backwards and throw out from between his feet soil enough to cover the roots to the depth of six inches, thus planting one vine, and making a bed or table for the second. The earth for covering the last vine in the row is taken from the end of the second row, that from the last in the second, from the third, and so on, and two men can thus plant with ease and rapidity. If the soil is wet and strong the vines should be planted four inches deep instead of six, this being the distance from the surface the roots are usually found when they have the power of selecting for themselves. Never shorten the roots of a grape vine. You may cut the top in within two eyes of the level of the ground, but by all means save all the roots."

To recapitulate, we may say that in these two papers, Mr. Bull recommends a light, warm, friable soil, not too rich; advocates the use of mineral manures only, and these in small quantities; advises us to give each vine sixty square feet of room; to plant shallow, without shortening the roots, and, though this we should have put first, he insists that grape growing is profitable.

Grapes.

William Saunders says (and no man knows better) he holds two undeniable facts in grape culture: 1st, that the best fruit is produced on the strongest and best ripened shoots, and 2d, that the shoots produced from spurs never mature so thoroughly as those produced from terminal buds. Farther, that properly ripened fruit will never be produced from unripened wood. Fruit apparently well colored may be seen on green growths, but such fruit does not possess the characteristics of a well-ripened bunch of grapes.

Keeping Grapes.

Mr. Griffith gathered his grapes early. Put them, boxed up, in a dry room of temperature just above freezing. They came out well in the spring—the Diana best; the Delaware second. H. G. Warner had been highly successful in keeping grapes. Put up a large quantity last fall in boxes of varying sizes and found the last lot fresh in the cellar that morning. Had Catawbas, Isabellas, Rebeccas and Dianas. They all kept well. Management is all. Grapes should be ripe when picked and kept clean, dry and cold. Had a cellar under a portion of his barn, in which were placed the boxes, containing 5, 12 and 24 pounds. There should not be enough in one box to make weight sufficient to crush or press hard upon the lower strata of grapes. Pack in lightly and set them one upon the other, as they will thus occupy less room. The temperature of the cellar was about 28 degrees. A temperature that will freeze potatoes, uncovered, will not freeze grapes in boxes. Pine boxes should not be used, as they flavor the grape with their own aroma. Some few of the grapes decayed, but nearly all were preserved fresh and good. The Isabellas and Concords were among the last used, and they were fresh and palatable. No other covering but the boxes were used. Mr. Babcock, Lockport, kept his grapes well till May. They were boxed up with sawdust and shavings intermixed and put into a cool cellar. The stems were as green as when put up in the fall.

Soil.—Mr. Smith did not consider a rich soil essential. Downing thought a rich soil would produce a large grape, ripening later and not so good to eat. Farley thought a moderately rich soil would ripen the fruit earlier and of better quality. Moody found a clay soil produced earlier and better grapes than light soils. Hoag said grapes in rich parts of his vineyards were a week later than upon the poorer parts, with exception of the Delaware. Griffith would prefer dry, hard, forbidding soil—"white bean soil"—to richer land. Twenty years ago planted a vineyard upon corn ground, and had raised crops every year from the third except one—last year three tons of Catawbas to the acre.

Mildew.—Herndon had visited the experimental grounds at Washington and found Mr. Saunders preventing mildew by a roof two feet wide over the trellises. Moody recommended sowing leached ashes broadcast. Longworthy did not agree with him—thought sulphur better. Several thought if planted further apart there would then be less trouble from mildew.—*Fruit Growers' Society, Western New York.*

Propagating Grape Vines.

From an experience of more than twenty years, during which time I have grown some millions of grape vines, one hundred thousand of which I have fruited in my own vineyards, I am fully able to demonstrate that a well-grown one-year-old vine, produced from a single bud, in *open culture*, (open ground,) is the best and most valuable plant that can be grown.—Wm. Griffith, *North East, Pa.*

We have received from Wm. Griffith, Esq., of North East, Penn., samples of six varieties of native vines, viz: Concord, Hartford Prolific, Diana, Delaware, Isabella, and Catawba, all grown from single eyes in the open ground. By some peculiar mode of his own, (which we hope he will divulge for the benefit of grape growers) Mr. Griffith is able to produce strong, well-rooted vines of the Delaware from single eyes, planted at once in the open ground. We can commend the quality of the vines, which are planted in our own garden, and are making a most vigorous growth.—*Horticulturist.*

Packing Fruit.

The boxes used in packing grapes for shipping, are of different sizes, holding from five to twenty-five pounds. They are sold according to their capacity, usually at one cent a pound, a five-pound box costing five cents, and so on for larger sizes. Establishments for their manufacture are found in all of the principal grape regions. In packing, the top is first nailed on, and a sheet of thin, white paper put in; whole bunches of grapes are first put in, being packed as closely as possible without jamming them. The vacant places left, after putting in as many whole bunches as the box will contain, are filled with parts of bunches, and lastly with single grapes, so that all the space is occupied. Another sheet of paper is now laid on and the bottom nailed down. By this means, when the boxes are opened, only entire bunches are found at the top.

Apple Tree Borer.

A correspondent of the *Rural World* thus writes about the apple tree borer:

"Take one pint of tar, one pint of soft soap, and half a pound of flour of sulphur—melt them together, and while it is warm paint it on the tree five or six inches up. The borer will not attack that tree the same year. Put it on in April or beginning of May every year. Wood ashes are good, and coal ashes are much better—placed around the tree to keep them off, the rain will splash the coal ashes up the tree three or four inches. The sulphur in the ashes is what keeps them off I think—no insect will go about sulphur. The first receipt is the surest. It will also keep off rabbits, if painted up two feet high. I have used it for twenty years, and have now an old orchard that is quite free from the apple borer."

How to Make Wine.

Not according to this receipt or that. It seems as though there were a thousand ways to make wine. This is all wrong. Such multiplicity only perplexes. The simplest thing in the world is to make wine: or, rather, wine is not made—it makes itself. Simply express juice, and let stand. That makes wine: that is the whole of it.

For domestic wines, which people will drink, treatment is required. Here sugar must be added—but this is all. Were there sugar enough in the berries—currants, rhubarb, &c.—it would come under the head of grape wine. Each man may judge as to the amount of sugar he wants. Some people like sweeter and some sourer wine. Make to suit taste, and the sugar is your criterion. For wild, sour grapes, a pound of sugar to a quart of juice is the rule. Some have a quarter or even a third less. The more sugar, the sweeter will be your "wine." All wines are alike in one respect—in the general wine taste. The difference is made by the flavor of the fruit. Thus the strawberry wine is different from the blackberry wine, and these different from the grape. The reason why the grape is best (to a cultivated taste), is, that its sugar is better—differing from cane sugar. A fruit *should* have its own sugar. But the grape flavor also is excellent. Flavor and sugar unite in the grape; and hence it makes the best wine—so good that it is called the only wine.

But a man can help to make wine—help just as he does in anything—that is, he can see that only pure, ripe grapes are used; that vessels are clean; in a word, that everything is done in a workmanlike way. This will improve the article just as any article is improved by care in the production. Give, then, the grapes a chance to ripen *thoroughly* their fruit, and a good chance for fermentation in clean vessels. If the temperature is low (in the long stage of fermentation), the wine will be the better—but it will take the longer to make it. In Europe, casks are sunk 60 feet into the earth. That gives uniformity, as well as a low temperature.—F. G., *in The Rural World.*

A Plea for the Toads.

Dr. J. V. C. Smith read a most interesting and valuable paper for farmers, if they will heed its precepts, about the usefulness of toads, and an urgent plea for their protection. He made a beautiful allusion to, and illustration of the designs of Providence, in forming the complete chain of animals, all of which have their purposes and usefulness. "It is idle to talk about useless animals. All are useful, and many that we despise, are necessary to man. Even the common house flies should be ranked among the best friends of man. All dead and decaying matter, which is the most abundant in the hottest weather, is detrimental to human health and life. Swarms of flies rapidly convert this matter into living, healthy substance, and thus purify the atmosphere, and make our dwellings habitable. These every busy workers are actually essential, particularly in the dirtiest portions of our cities. They destroy immense quanties of pestilence-breeding impurities. Their busy motions pertain to life. With death comes foul odors, which flies consume and convert to life and motion. They are the real sanitary inspectors of our dwellings, and abaters of nuisance. They are under estimated, and so are all reptiles. The despised toad is one of our most useful domestic animals—one of the farmer's and gardner's best friends. We should all teach lessons of useful instruction of the toad, and learn our children and servants never to injure them. They delight in well cultivated grounds, and live long in the same locality, occupying the same nests for many years. Their natural food is bugs and flies, which are injurous to the garden. They catch their prey with wonderful facility, by the power they have of shooting out their tongues, to the lenghth of six or eight inches, striking with lightning quickness whatever comes within the focus of their prominent eye. If one eye is destroyed they lose the power of striking their prey. The tongue is covered with a glutinous substance, which holds every insect it strikes. Night is the toad's time to work. We have accounts of monster toads in Surinam, with mouths like a hog. All toads and frogs are insect eaters, and the numbers they destroy can hardly be over-esmated. They seem to have been predestined for the great work of destroying bugs and insects generally, and as the natural habitat of toads is with man in his cultivated grounds, they are there his most useful co-workers. If not already in the garden, man should collect and carry them there. A few toads in a vine patch, soon rid it of its worst enemies, the bugs. The young of frogs, while in the tadpole age, breath by gills, under water. After they lose their tales, and become perfect frogs, they are air breathing animals, and not amphibious. If they dive, it is only suspended inspiration. They must come to the surface to breathe. In spite of all that Shakespeare has said to sustain the prejudice against toads, they are not poisonous, nor hateful. Our antipathy all comes from faulty education. We should teach our children not to hate, but to protect toads. We should also try to overcome the prejudice against eating frogs. They should be the cheap and plenty food of the poor, instead of, as now, the choice dainties of rich. They might as well be grown for food as chickens. Frogs would only need a fit place to live. They would need no food nor care. If the idea of cultivating frogs is thought absurd, it is not more so than the idea of sending ice to the tropics was thought to be a few yeas ago. It was made to pay, and a frog pond, as well as the ice pond may, and frogs should be an article of food in every market.—*From proceedings of New York Farmers' Club.*

How to Keep Milk Sweet.

Large quantities of milk are sent once a day from Orange county to New York city. Notwithstanding it is sent by railroad, a portion of the milk is thirty-six hours old when it arrives in New York and is ready for the milk carts. To keep milk sweet this length of time in warm weather is no easy matter. The management on the part of the farmers is described as follows by the Utica *Herald:*

"The milk, as soon as it comes from the cow, is strained and put in long tin pails, which are set in water, care being taken that no portion of the milk be higher than the water. These pails look like sections of stove pipe, being eight inches in diameter, and from seventeen to twenty inches long. The milk is occasionally stirred up so as to keep the cream from rising. It is deemed important that the animal heat be removed as soon as may be, at least in an hour's time after it comes from the cow. The old plan, which is yet practiced by some, is to cool the milk in the cans, but is regarded as a very unsafe way when it is designed to have the milk keep sweet for a considerable length of time. The milk stands in the pails until ready to be carted to the trains, when it is put in cans holding from fifty to sixty gallons. These cans are filled full, and the cover, which fits closely, carefully adjusted.

A Dairyman says a cow ought to be milked clean in five minutes.

On the Part which the Atmosphere and the Soil Respectively Play in the Development of Vegetation and the true Theory of Agriculture.

BY J. G. MACVICAR, D. D., MOFFAT.

Of all the objects which nature presents to us, the vegetable kingdom contains the greatest beauties; and, of all the arts, the cultivation of plants is undoubtedly the most ancient, the most generally practiced, and the most important. It is to plants, in fact, that we owe, either directly or indirectly, all the food by which our life is sustained from day to day; and the number of families which it is possible to introduce into our world depends altogether upon the extent to which plants may be grown upon its surface. An all-wise Providence has not, indeed, intrusted the existence of the human family to the practice of any one art. By fishing, hunting, and pasturing—by merely gathering the roots, the seeds, and the fruits which the earth spontaneously produces, a stock of men is preserved all independently of the art of cultivation. But the increase of this stock and the progress of civilization—the numerical, the intellectual, the moral, and the religious cultivation of man—mainly depend upon the cultivation of plants.

Yet so far behind is our knowledge in this respect, that even at the present day we are in the midst of a keen controversy as to the very first principles of agriculture. Thus, on the one hand, it is maintained that almost everything depends on the atmosphere and the mineral constituents of the soil, and consequently (since the air can scarcely be operated upon by the cultivator) that the grand secret of successful farming consists in keeping in the soil, in a state suitable for absorption by the growing crop, an adequate supply of the mineral constituents proper to that crop, as these may be discovered from its ashes. And this may be regarded as the new light, which is due chiefly to the genius of Liebig. But, on the other hand, it is also maintained that neither the air nor the ashes or plants need to be much considered by the agriculturist, but only proper tillage and the supplying of the soil with well-rotted manure, the belief being that it is upon decaying organic matter in the soil that the crop mainly feeds. And this is the view which has prescription in its favor, and is most popular with practical men.

Now, though these theories do not conflict in practice so much as might at first sight be supposed from their statement, yet they do not conflict; and a final settlement of their respective claims, if it be possible, would certainly be not a little acceptable at once to the man of science and the cultivator.

I think that such a settlement is possible, and I proceed to attempt it.

But, in order to do this, the reader must consent to a preliminary question—he must consent, in fact, to the inquiry, *What is the place of the vegetable kingdom in the economy of nature?* That such an enlarged view of plants is necessary when our aim is to understand them fully, and especially when we wish to ascertain the best food for them, and how to apply it to the greatest advantage, follows from the very nature of the case; for food is always a part of surrounding nature, and a demand for food on the part of the plant is an appeal to surrounding nature; and that such an appeal may be successfully seconded by us, it is plain that nature, in her contact and dealings with the plant, should be well understood by us, and her aid invoked in accordance with her own laws and in her own language. Now, though much has been done and beautiful discoveries have been made in eliciting the relation which exists between the vegetable and the animal kingdoms,* yet the same success has not accompanied such inquiries as have been made into the relation between the vegetable kingdom and the inorganic world. It has been too much the custom of scientific botanists to look at plants as individual objects irrespective of their place in nature—nay, to pluck them up expressly for the purpose of study, and to preserve them at home between the folds of paper. Now, from such a mode of procedure great progress has no doubt been made in the classifying and naming of plants, but scarcely any light at all has been thrown as yet on the general features of plants, such as the cause and meaning of their forms, of their inner structure, of their composition, of their colors, of their fragrance, and but little for certain on the true economy of their cultivation. As to each and all of these particulars, it has indeed been shown that all is very good, that each organ has its uses—uses often manifold and always favorable; it has been shown that the whole is beautiful, and invites to the adoration of the Creator. And so far assuredly so well. But it has not been shown why the forms and organs of plants are what they are, and not otherwise—why they consist of the substances of which they do consist, and not of other substances—and why they must have the food that they want. Nor has it been shown why they are so highly colored and

* See *The Chemical and Physiological Balance of Organic Nature.* By MM. Dumas and Boussingault. An Essay. 12mo. Boulliere: London, 1844.

so fragrant. For all these things it has only been possible to assign as a reason, that it was the will of the Creator that they should be as they are. Now, though this be, no doubt, a sufficient reason in a theological point of view and for moral purposes, yet, in a purely intellectual point of view, it is simply equivalent to saying "God knows." But with this we ought not to rest satisfied; for the Creator, whilst He is the absolute Will, is also the Supreme Reason, and, consequently, there is a sufficient reason for everything; and in the breast of man, the Creator, as the Supreme Reason, has implanted a noble instinct, whose mission is to wrestle with nature as to the reasons of things, and whose language ever is, I will not let thee go except thou bless me with light. Such is Philosophy. It does not conflict with Theology. On the contrary, they are appointed to walk in loving sisterhood together, to pursue truth together: when they find it, to rejoice together; and when they find it not, to long for and to search for it still together, and meantime to keep its Sabbath holy.

For the discovery of the *rationale* of the vegetable kingdom, the plant must be viewed *in situ* as a part of nature—as a development in the place where it grows by natural law of a living embrio given by the Creator, and designated a seed. Nor let the reader recoil from such a point of view, as if he were going to be remitted to his studies, and required to acquaint himself with all the details of natural philosophy, chemistry, and physiology, before he can understand what a plant is, and how it is to be cultivated. No more is demanded than a general knowledge of the chemistry of the atmosphere, such as is now possessed by every inquiring person, and a comprehensive acquaintance with a single law.

And what is this single, this all-sufficient law? Let us lose no time in setting it forth. By natural philosophers it has been most generally named *the law of continuity*, that law which forbids abrupt transitions from one thing to another, and secures their passing into each other on their mutual confines more or less. By physicists and chemists it has been seized in various manifestations, and has been named now the law *of diffusion*, now the law *of osmose*, now *of capillarity*, now *of catalysis*, now *of affinity*. By physiologists it has been emphatically recognized, and under the name of *law of assimilation* it has been insisted upon in one of its most important operations. By philosophers generally it has been referred to as a certain all-embracing harmony of things—a certain strongly but darkly conceived *law of harmony*. Each student of nature has observed it to rule in his own department, and thus has naturally named it in reference to that department: but in consequence of that unhappy isolation from each other in which the various branches of science at present exist, no one has observed that these variously-named laws are in reality but various manifestations of one and the same law; no one has unfolded it in all its comprehensiveness. But this is necessary to our understanding of the vegetable kingdom, its place in nature, and how to aggrandise it; and this, therefore, though very shortly, we must attempt here.

This law is to the effect that every individualized object, once statically constructed, tends (first) to remain true to its own type, and to hand down and perpetuate that type in every successive moment of its existence as an individual or a species, the conservative action which tends to this end extending also as far as the agency of that individual or species extends: whence (secondly) each permanent object in nature, each molecule, crystal, plant, animal, must also tend to impress its own type upon all others that lie within the sphere of its influence, to assimilate them to itself; and thus (thirdly) each must tend to bring all into keeping or generic relationship, and therefore to promote an universal harmony. Whether objects in general, or more than a few, shall succeed in thus affecting each other either deeply, or in any such degree as may be marked by the senses of an individual observer in the course of his life, or of such history of the past as we now possess, is a question of detail. It is the tendency only at once to permanency of the specific type in the individual, and to the assimilation of all to each and of each to all, and to its actual environments and conditions of existence, that our law affirms and provides for. And that such a tendency does indeed operate universally all nature proclaims aloud, inasmuch as all nature is seen to be a harmonious whole. Every object, while tending to continue true to its present self, and to echo and repeat its past in its future, tends also to mirror itself in the kindred objects around it, or to vibrate in harmony with them. A bright body illuminates the dark, a hot body warms the cold bodies around it. A polarised body polarises such as are susceptible of this mode of existence. Molecules of an eminently undecomposable nature, when introduced among others which are tending to decomposition, arrest that process. Salt preserves meat. And molecules which are themselves undergoing decomposition, when introduced among unstable molecules, assist them in decomposing. Yeast causes fermentation. Con-

duction, radiation, polarity-induction, catalysis, antiseptics, ferments, &c. &c., are all so many manifestations of one and the same law, which in all tends to the same issue, viz to assimilate to individual objects, or to that which is fixed in them as primary data, all the others around, so far as they are assimilable or contain assimilable parts, and thus to secure a general sisterhood and harmony among all. I have lately shown* that inertia, elasticity, gravitation, polarity, and other agencies, may all be referred to this law, and are in reality merely uniform phenomena in matter resulting from its paramount operation.

But for our present purpose it will be best to illustrate it in reference to *Assimilation*, as that process is manifested in the life both of plants and animals, and as it is understood in physiology. It is quite a typical illustration of our law, and as it is that by which all growth and life are maintained in organic beings, it is of supreme importance. Now, assimilation is simply to the effect that when two dissimilar yet kindred media meet together, the one consisting of plastic material, and the other of a living organism in want of redintegration or increment, that organism, while maintaining its own type, assimilates more or less the plastic material to itself and organizes it, while the plastic material on its part assimilates more or less the organism to itself—a circumstance which, though not remarked in physiological works, is altogether needful to be kept in mind in order to a full and satisfactory conception of the phenomenon. Thus, if the plastic matter consist of cell-material in the liquid state, and the living organism be a single living cell, or a mass, or, as we may say, a battery of living cells, constituting an organism which has suffered lesion, or is not yet full-grown, then the plastic liquid in contact with the cellular concrete becomes itself cellular and concrete; new cells are developed in it; the organism grows. But the assimilative power is not all on the side of the concrete part. In the region of mutual contact and action, the cellular surface feels the presence of the plastic liquid. It is more than wetted by that liquid (though the phenomenon of wetting is a superficial assimilation)—it is rendered plastic. The new cells are not added abruptly outside the old. Along with the formation of new cells there is a solution or absorption of old ones. The new and the old are beautifully wedded together; they grow and co-exist in harmony, in unity, so long as healthy development is the order of the day. Let it be otherwise, and not a case of health; let the concrete organism in the region of the plastic liquid lose its energy, or the plastic liquid gain more energy than is proper to it in health, and then the cellular surface, instead of growing or being redintegrated, will be dissolved away or absorbed into the liquid; instead of strength there will be weakness, instead of granulation and closing there will be abscess and ulceration. Disease is not the mere absence of health. It has positive power to extend and perpetuate itself, in so far as it is not in its own nature essentially temporary and transient. Disease cannot be met and resisted too soon, while as yet the healthy action of the system is but a little impaired by it. Hence the cause of so many deaths under acute disease; the physician is not sent for till it is too late. He is no longer master of his position.

But that by the way at present. What I have now to insist upon is this, that the instance of assimilation action which has now been given is but an illustration of a law which is absolutely universal; which, though not always obvious to the senses, either in its working or its results, yet is never wholly at rest, and holds good in reference to inorganic as well as organic nature. What but a phenomenon perfectly parallel, and to be referred to the same law, is the growth of a crystal, for instance, in a fluid medium, whether liquid or aeriform, when that fluid is losing energy as such, either through loss of quantity (evaporating), or of heat (cooling), while yet the number of concrete particles in it remains the same, so that, considered as plastic material for the increment of a morsel of a crystal or concrete substance of some kind immersed in it, or placed in contact with it, that fluid's condition is improving? And what but a phenomenon of the very same order with crystallization is its counterpart, solution—that is, the reduction to a fluid form of any soluble or volatile substance in a fluid, whether liquid or aeriform, in which that concrete is immersed? In the former case the solid assimilates the liquid to itself; in the latter case the fluid assimilates the solid. In like manner, when a granular or crystalline nucleus or bed exists in, or is conterminous with, a mechanical rock, and the granular structure is seen to be extending from that nucleus or bed, what is this but an illustration among geological phenomena of the same law, the law of assimilation? Nor is it less an illustration when crystals imbedded in a rotten rock are found to be rotten themselves. Again, when two dissimilar gases or liquids are placed in con-

* See *Proceed. Roy. Soc.* Edinr., Sess. 1858–59, p. 146; *Proceed. Phil. Soc.*, Glasgow, 1859, p. 52, *Report Brit. Assoc.* at Aberdeen, 1859; and as a separate work, *First Lines of Science Simplified*, &c. Sutherland & Knox: Edinburgh, 1860.

tact, either immediately or with a permeable diaphragm between, and the particles of the one pass in among those of the other, as they are known to do, until they are completely diffused, and the mixture of the gases is complete, what is this but a case of assimilation where the success, mechanically considered is complete? Diffusion, osmose, capillarity, are but efforts towards assimilation. Catalysis is but the affirmation of the power of one molecule to act assimilatively on another. And what else is chemical affinity but the determination of molecules, when of essentially different types, and not immedially assimilable, to merge their differences by rushing into each other's embrace, and constituting a new chemical species. It is quite marvellous what order and simplicity present themselves in nature when we try to take as large a view of her processes as nature does herself, when we try to forget all laws which are merely empirical and have no reason in them, and to dismiss all fondlings and foundlings of our own. There is in nature, indeed, an all but infinite variety—a variety which appears in laws and ends as well as in forms and structures: but there is also an all-pervading unity; and the law of assimilation in its twofold function of at once perpetuating individualities and effecting universal harmony—the impress on creation at the very fountain-head of the two essential attributes, the immutability and the unity of Him who inhabiteth eternity and is the Author of all—the law of assimilation is the most deeply-piercing and all-pervading law of the cosmos that can be reached at present. It is, in fact, exactly an articulate expression of what all men feel when they think of Being and System.

To find the plant of the vegetable kingdom is nature, it is only necessary to consider that diffusion, osmose, capillarity, &c.—in one word, mutual penetration—does not take place between gases only, nor between liquids only, nor between solids only, nor yet between solids and liquids only, but also between aeriform and concrete media. It takes place between the air and the earth, the atmosphere and the soil, on their mutual confines. Yes; the air in contact with the earth tends to penetrate the earth, and to become assimilated to it by assuming a condensed or concrete state; while the earth in its turn, on the confines of the air, tends to rise into it, and becomes as aerial as it can. Nor can either do otherwise if the law of assimilation be as universal as it has here been maintained that it is. In obedience to this law, those earth-particles which are capable of the aeriform state must tend to rise into the air, as gas or vapour; and those which are not volatile, yet separable from each other, must tend to effloresce in the air, and to constitute, on its confines with the earth, lace-like mineral tissues as highly diffused, as spreading and elastic, as mobile and colored—in a word, as aerial and bright as possible. I say bright as well as aerial, because the atmosphere is the realm of light and colors as well as of air.

[TO BE CONTINUED.]

Incombustible Wash.

During the hot and dry season, serious accidents sometimes occur in consequence of the highly combustible nature of the materials used for roofing. Pine shingles, after being laid a few years, often become covered with a fine, short moss, which, when dry, is almost as easily ignited as punk, and a spark falling upon the roof, soon envelopes the building in a blaze.

To make a cheap wash for the roofs of buildings, take a sufficient quantity of good stone lime, and slack it carefully in a close box, or mortar bed, to prevent the escape of steam, and after slacking, pass it through a sieve. To every *six quarts of this lime*, add *one quart* of *rock or Turk's Island salt*, and *one gallon of water*. The mixture should be boiled and skimmed clean. To every five gallons of this, add, by slow degrees, *three-fourths of a pound of potash*, and *four quarts of fine sand*.

Coloring matter may be added. Apply it with a common paint brush. A writer, in speaking of this wash, observes: "It looks better than paint, and is as durable as slate. It will stop small leaks in the roof, prevent the moss from growing over and rotting the wood, and render it incombustible from sparks falling on it. When applied to brick work, it renders the bricks utterly impervious to rain or wet, and endures a longer time than any paint I ever used. The expense is a mere trifle; in fact, scarcely deserving of mention."

The walls of out-buildings are frequently coated with this wash, as well as the roofs, and are thereby rendered much more durable. It is said that clapboards put on without planing, if coated with this cement or wash, last much longer than when planed and painted.

SCAB IN SHEEP.—Take one pound of mercurial ointment and three pounds fresh lard, well mixed together. Turn the sheep upon its back and anoint the bare spot under each leg, and also around each place where the scab has appeared. Keep the subject from the weather a few days.

Poultry.

One hundred fowls are as many as should be quartered upon a single acre. As high as one hundred and fifty have been kept, but for success in breeding and producing eggs, at least one square rod of ground should be allowed each fowl, and more than this would be better.

In breeding fowls, great care should be taken to produce not only large males, especially if breeding for market is to be followed. If the production of eggs is desired, great care should be taken to hatch no eggs from which to raise breeders, except those of good layers. By following this course a flock of hens may be produced which will lay a large per cent. more eggs than if chickens are hatched from unselected eggs, without care, thought or design.

Who that has had the care of a flock of any kind, but has observed the superiority of some of its number over others in egg producing. While many have noticed the fact, few have profited by the hint.

It has been practiced so long to secure a large, fine specimen of a male in fowl breeding, while any female was deemed "good enough," that we have frequently seen flocks of young poultry in which the males exceeded the females in size by at least fifty per cent. This need not and should not be. The same care should be taken in producing fowls as other farm stock, and the same general law governs its production.

Value of Poultry.—Few matters pay better than poultry around a farm. Where success is so easy, failure indicates great negligence. Begin with the spring if you have been careless hitherto, and your attention will be well repaid before the autumn arrives. Aside from the convenience and profit of having always abundant supplies of poultry and eggs, attention to the various kinds (turkies, ducks, geese and chickens) will pleasantly occupy a share of the time of the younger members of the household. The gift of some of them to the children will have a good effect in stimulating attention to the whole brood.

Poultry in England is a long way behind France, the dampness of the climate being unfavorable to fowls. The English poultry yards are supposed to yield but about 4,000,000 of dollars annually, while the produce of eggs in France is said to be twenty millions dollars, and of fowls as much more. A large portion of the population of the south of France subsist chiefly upon poultry, so far as meat is concerned.

Chanticleer.—The noble and ancient chanticleer, whose clarion notes have been the world's timepiece ever since Peter denied his master, and have never failed to sound the approach of every rising sun, the bird that saved old Rome from conflagration by his warning voice in the dead of night—shall these lose their old and established rank and give place in man's affections to breeds of swine and sturdy bulls of Bashan? What are all their uncouth grunts and frightful bellowings about the farmers' dwellings, compared with all the music of the cheerful cackling and crowing with which the poultry yard resounds from day to day? If there is not music, there is life in it.

How to Improve Common Fowls.—To improve the form, size and laying properties of the common barn-door fowls, put with the hens a Dorking or Brahma cock; then if the produce should be too leggy, introduce a large-bodied Creeper cock, as it is found, by experience, that the influence of the male is greater than that of the female. By this means you can improve your stock of fowls; and to keep them so, select the best pullets, and change the cocks every year or two, using no other variety than those enumerated above. This method has been tried and proved satisfactory.

To have the poultry yard profitable, the fowls should not be kept until they are old. There is no objection to preserving a favorite cock, as long as he is active and lively; but hens after three years will not produce as many eggs as those of one or two years. Much, however, is depending on the breed kept, so far as good layers are concerned.

If you wish your hens to do well, and lay well, keep them in a moderately warm, well lighted, well ventilated and strictly clean place. Feed them all they will eat of boiled potatoes, mashed and mixed with shorts and midlings in the morning, and on corn, oats or barley at night. They are fond of buckwheat, some fresh meat or chandler's scraps, with sulphur mixed with meal. If you dont wish to find now and then a dead hen, dont have the roosts for the large hens more than three feet from the ground, and then two ladders for them to go up and down on. In this way, if they have plenty of broken bones and pounded oyster shells, old lime, water, plenty of gravel, and dust and ashes to roll and bathe in, they will pay.

Poultry, it is thought, ought always to be confined; but if so, instead of a dark, close diminutive shed or hovel, have a spacious, airy, light place, constructed especially for them. In both large and small establishments it will be necessary to separate some fowls from the rest, when particular breeds are to be raised; separate pens or wards must be provided, either at some

distance from each other, which is preferred, or with divisions to prevent any intrusion, by which crossing might be prevented.—*English Paper.*

How we Manage our Poultry in Summer.

It is not always best to allow hens to run over the garden, and it is always best to allow them some recreation outside of the park in summer. While I am waiting for my breakfast, before going to my place of business, I open my park and allow the hens to race around in the grass, which is quite a luxury for them, I at the same time keeping a little watch to see that they do not get into mischief. I allow them this privilege until my breakfast is ready. I then start them to the park, and close the door until the next day. It requires but a short time to train a flock so you can take them out and in the park at pleasure, without any trouble. When I have two or more breeds at a time, I drive them back and make them secure before letting the other out. I find that my hens do about as well, when treated in this manner, as when allowed the privilege of running at large all the time; and all the attention it takes away from other pursuits is but trifling—and I find that I'm better off with a little recreation of this kind myself, than to sit and read newspapers or lie in bed whilst my breakfast is being got ready. The above is done before giving them their morning feed, especially before they become thoroughly trained, as they return with less reluctance, and they eat more freely of grass, which is excellent for them to change on when confined in a park. Hens, when confined in a park, should have some bits of fresh meat to take the place of worms and insects that they would be able to get by being out at all times. We occasionally get a beef's kidney and chop fine, both summer and winter, unless running at large. For amusement, we occasionally go into the park while the occupants are out taking their morning walk, and spade up the ground, and they forget that they are not out and running at large.

Feeding Fowls.—There is nothing gained by feeding your laying hens as though you were fattening them for the eastern market. Especially will this remark apply while they are running out. This thing of over-eating is hurtful to any thing that eats. It is natural for a fowl to be on the lookout the most of her time, and swallow a grain at a time as it is found, and thrive best living in this manner. Not so with man or beast. It is best for the latter to eat meals at certain periods, and not eat a particle between meals.

Feed fowls a little at a time and often. Grown fowls should not be fed less than three times a day. I find if I over-feed fowls, they go off in some corner and sit down and chill, if the weather is cold; whereas, had I given them half as much, they would continue moving around, feeling well, and seemingly getting that exercise that their nature requires, by keeping their blood in healthy action. By this means my hens are better off, in every respect, one-half of my grain is saved, and as great a per centage of eggs is secured; and at present prices of grain, it is an object to know how to feed judiciously.—*Sever's New Poultry Book.*

A Year of the Cattle Plague in England—Official Statement.

The following official statement has been made by the British Privy Council:

PRIVY COUNCIL OFFICE, June 22.—The cattle plague has now completed the fifty-second week of its prevalence, and during the year nearly a quarter of a million (248,965) of attacks have been officially reported, 80,597 cattle are stated to have been killed, 124,187 to have died, 32,989 to have recovered, and in 11,192 cases the results have not been specified. In addition to the foregoing, 51,343 cattle exposed to risk have been slaughtered while free from disease.

In the aggregate, more than 50 (50.5) in every 1,000 of the ordinary stock of cattle in Great Britain have been attacked, and to every 1,000 attacks, whose results have been reported, nearly 900 (861.3) animals perished.

The epidemic has also extended to a considerable number of sheep, and since the commencement 4,463 are officially reported to have been attacked; of these 4,002 died or were killed, and and 461 recovered or were unaccounted for.

During the week ending the 16th of June, 533 attacks were reported to have occurred in Great Britain—namely, 488 in England, 26 in Wales and 18 in Scotland. The number of attacks—namely, 533—shows a decrease of 454 on the previous return. Correcting the total, by adding an average of attacks commencing during the week, but which may be subsequently reported, the number for the week will be 666.

TO CURE SCRATCHES IN HORSES.—Tell your subscribers who have horses which are troubled with scratches, to try a simple remedy, viz: Keep the fetlock clean with castile soapsuds, and then wash twice a day with buttermilk. Give them a good rubbing at each time.

Sweet Herb Culture.

BY PETER HENDERSON, JERSEY CITY.

The cultivation of sweet herbs for market purposes, is but little known in this country, except in the vegetable gardens in the vicinity of New York; there it is practiced to an extent of perhaps 60 or 70 acres, a fair average product of which would be about $500 per acre. Like the crops celery, spinach, or horseradish, it is grown only as a second crop, that is, it is planted in July, after an early crop of peas, cabbages, beets, or onions, has been sold off. The varieties used are Thyme, Sage, Summer Savory, and Sweet Marjoram, the former two being grown in the ratio of ten acres to one of the latter. The seed is sown in April in rich mellow soil, carefully kept clean from weeds until the plants are fit to plant out, which may be done any time that the ground is ready, from the middle of June until the end of July. As the plants are usually small and delicate, it is necessary that the ground be well fined down, by harrowing and raking, before planting. The distance apart for all the varieties is about the same, namely, 12 inches between the rows, and 8 or 10 inches between the plants: the lines are marked out by what is termed a "marker," which is simply a mammoth wooden rake, with the teeth 12 inches from centres, and having 6 or 8 teeth, this number of lines is marked at once. (This "marker" is used for many other purposes; in the lining out the rows of early cabbage, for instance, every alternate line is planted, thus leaving them 2 feet apart, their proper distance.) In 8 or 10 days after the herb crop has been planted, the ground is "hoed" lightly over by a steel rake, which disturbs the surface sufficiently to destroy the crop of weeds that are just beginning to germinate; it is done in one-third of the time that it could be done by a hoe, and answers the purpose quite as well, as deep hoeing at this early stage of planting is perfectly useless. In 10 or 12 days more, the same operation is repeated with the steel rake, which usually effectually destroys all weeds the seeds of which are near enough to the surface to germinate. We use the steel rake in lieu of a hoe on all our crops immediately after planting, for, as before said, deep hoeing on plants of any kind *when newly planted*, is quite unnecessary, and by the steady application of the rake, weeds are easily kept down, and it is a great economy of labor *never to allow them to get established*. The herb crop usually covers the ground completely by the middle of September. Then, every alternate line is cut out, each plant making about 2 "bunches." The object in cutting out the lines alternately is, to give room for the remaining lines to grow; in this way nearly double the weight of crop is taken off the ground than if every line had been cut, and it frequently happens, on particularly rich soils, that at a second cutting every alternate line is again taken, when the remaining lines now standing four feet apart will again meet. I had about an acre of Thyme treated by this process, in the fall of 1864, that sold for over $2000; but this was an exceptional case, the crop was unusually fine, and prices at that time were nearly double the usual. As before stated, the average yield is about $500 per acre. Herbs are always a safe crop for the market gardener; they are less perishable than anything else grown, as if there be any interruption to their sale in a green state, they can be dried and boxed up and sold in the dry state, months after, if necessary. The usual price is from $10 to $15 per 1000 bunches, and we always prefer to dry them rather than sell lower than $10 per 1000, experience telling us that the market will usually so regulate itself as to handsomely pay for holding back the sale.—The cost of getting the crop raised and marketed will average about $150 per acre, the principle expense being in tying it in bunches. But with many of our industrious German gardeners it does not cost half that, as tying up is usually done by their wives or children in the evenings: a pleasant as well as profitable occupation.—*Am. Agriculturist.*

Cure for Heavey Horses.

Having had a large experience with animals afflicted with the disease in question, always with success, with a small amount of labor, I submit the following: First, procure (if you have not one already) a head halter, and tie the horse so that he cannot eat the bedding; give for a few days but little food, and that wet, not more than half the usual quantity, which will relieve the breathing; after which, nutritious food is fed liberally with grain, and less hay, and so long as you do so, your horses will not have the heaves.

If the owner wishes to hurry recovery, a dose of physic (an ounce of powdered aloes) will unload the bowels quickly.

I have owned several heavey horses, and after treating them as stated above, I have doubted whether they ever had the disease, but after (by accident) a large amount of hay had been devoured, the distressed breathing and double action of the flanks reasserted the facts.—*Corres. Mass. Plowman.*

The American Farmer.

Baltimore, September 1, 1866.

TERMS OF THE AMERICAN FARMER.

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BALTIMORE.

What Our Lands are Worth.

The real value of Maryland and Virginia lands is not yet known, and present prices do not pay for them, except so far as the sale of a part serves to enhance the value of the remainder, by developing its intrinsic worth. We would not have these lands held so high as to discourage settlers, but their owners should consider well their real worth, that they may be prepared to advertise it well to buyers, and that they may be encouraged to hold on, so far as they may be able to do so, for that appreciation which, sooner or later, must come. They may sell "alternate sections," but they should reserve the remainder, and reap the benefit of the increase in value which will inevitably follow the influx of an industrious people, with means sufficient to cultivate well the surplus land now owned in Maryland, Virginia, and other Southern States: they should, as we have before urged, keep their old Homes, and so keep themselves in position to form, to direct, and to give expression to public sentiment. This is the highest duty now, of the land holders of the old slave-holding States.

As to our advantage, in point of climate, over more northern States, one of the best known agricultural writers of the day, himself a Northern man, in a letter written from Washington to a Northern agricultural journal, expresses the deliberate conviction, that agricultural labour in the latitude of Washington will produce as much in four days, as in six days in Western New York. We see no reason to question this opinion, nor has it been questioned, so far as we know. If it be admitted, it makes a difference in value of fifty per cent. in Maryland lands, over those of the same quality in one of the finest regions of the country. The same degree of fertility that would make an acre worth a hundred dollars in Western New York, would bring it up to a hundred and fifty here, and for the ordinary products of the soil.

But this same difference of climate makes ours, and more Southern latitudes, superior to more Northern regions for the growing of some of the most valuable fruits. It will soon be understood that both the soil and climate of Maryland are well suited to the grape and pear, as it has already been found to be to the strawberry, the peach, the melon, and the apple. This is the opinion of those whose experience elsewhere and here, make them eminently capable of judging. The grape especially, the most valuable of all, we anticipate great success for: the quality of the same sorts being better, and our milder autumns allowing a thorough ripening of the new wood, a point of much importance. In a recent publication, the originator of the Concord grape makes the value of an acre's growth of this grape, in his own hands, and with good culture, $2.000. But the Concord in Maryland, while it maintains its hardiness and productiveness, is, in quality, far superior to that of Massachusetts. Other sorts, as the Delaware and Iona, much superior to the Concord in quality, may be found, on due trial in our temperate climate, to increase greatly in productiveness. In the midst of great, growing markets, it is not difficult to foresee the greatly increased value that our lands will have, under a systematic and spirited effort to introduce fruit growing into the State as a branch of general culture.

But estimating our lands for ordinary farming purposes, they are held far below their intrinsic value, and this value is by no means duly estimated by those who would buy. The remark above alluded to, as to climate, puts their value up fifty per cent., but it was met by another, intimating their inferiority in point of actual or possible fertility. The same writer, in another communication from Washington, says, that having travelled recently through the best portions of the States of Tennessee, Illinois and Ohio, he had seen no field of clover equal to one he had visited on the Potomac, below Washington, that had not been manured in fifty years. The fertility of this field had been maintained through a course of cropping, by shells found on the land, and clover grown by means of the shells. This was no rare case. We know, though strangers do not know, how many thousands of acres in Maryland and Virginia have been fertil-

ized by the same cheap means; and our people themselves do not yet know how many other thousands of acres might in the same manner be enriched.

The Eastern Peninsula of Maryland has material enough of marl and shells, and marsh and sea ore, to make every acre of its poor land as rich as the best, and the best Eastern Shore lands have produced the heaviest crop of wheat on record, this side of California. A crop of wheat reported in the "American Farmer" by the late M. T. Goldsborough, of Talbot county, was on nine acres of a large field, sixty-four bushels to the acre, and on a larger portion of the same field, fifty-five bushels to the acre.

The whole tide water region of Maryland and Virginia enjoys the same resources, and away from tide water, the still cheaper means of clover and plaster; and inexhaustible supplies of limestone. With such means of improvement, and their well known facilities for reaching the best markets, their natural fertility of soil and genial climate, what reason is there, but our own want of appreciation of what belongs to us, and our consequent apathy in bringing the true value of our possessions to the notice of others, that keeps down the price of Maryland and Virginia lands. We had better almost give away our surplus lands, than have them lie waste or unimproving, but if our people had some of the Yankee enterprise which has been so often exhibited in the sale of wild western lands, they would soon find the means of bringing in a population which would buy from them at better prices, while they would have the satisfaction of knowing that they rendered a fair equivalent.

Strawberries.

One fact seems well established by the experience of Strawberry growers, which is, that the value of varieties changes continually, with change of place, and that the reputation which a berry may have for valuable qualities elsewhere, gives us no assurance of its value when we bring it into our own grounds. Hence the many disappointments we experience in getting much lauded kinds. They may be very honestly advertised, but unsuited to the new locality. Hence it is advisable to try a few of the different varieties, and plant largely only such as are found by experience to flourish well in your own locality. G. Howatt, of Tarrytown, N. Y., says in the *Gardeners' Monthly*: Thirteen years ago, I moved to Pittsburg to lay out and plant a company place. Hovey's seedling was the universal strawberry here. Market and private gardeners told me there was no use trying it there, it would be a failure. I could not see the philosophy of that. I purchased eight hundred dollars' worth of plants; had my ground all prepared in the best possible order for their reception. Plants grew as fine as I ever saw plants grow, and I anticipated what a fine paying crop I should have the following season, they receiving the very highest cultivation during the summer. Fall and following spring they flowered, but no fruit. I do not think there were half a dozen fruit on the whole lot. I would not remove, but tried them another season with the same result. I imported a quantity of British Queen from England, and the result was the same as the Hovey seedling." He found, however, that the Bicton Pine succeeded finely, and going shortly to take charge of a place in New Jersey, had a few thousand of the Bicton Pine sent, intending to grow it largely, but failed as completely in growing it in New Jersey, as he did the Hovey seedling at Pittsburg. He says further, that Wilson's seedling and Triomphe de Gand do not succeed in Northern New Jersey, Russell's seedling and La Constant, being ten to one more prolific.

Mr. John Saul, of Washington, says, also, in the *Gardeners' Monthly*, "I was struck with the very just remark made on strawberries in the June No. How few, very few, of these varieties are of any value."

The Agricultural College.

A meeting of the Board of Trustees of the Maryland Agricultural College was held on the first day of August, at the rooms of the State Superintendent of Instruction. There were present James T. Earle, Esq., President, Rev. Dr. Pinkney, Otho H. Williams, Ramsay McHenry, Edward Lloyd, and Charles B. Calvert, Esqs., representing the stockholders, and Rev. L. Van Bokkelen representing the State.

No definite action was taken, we learn, as to reorganization or other matters of importance, but the whole subject, including the report of a previous committee, was referred to Mr. Earle, Rev. Dr. Pinkney, and Charles B. Calvert, as a committee, with directions to take at once the necessary steps for the re-opening of the College. It was the unanimous sense of the meeting, we understand, that the re-opening should not be postponed beyond the 1st of October. A meeting of the Board has been called to consider the action of the Committee, and we cannot doubt that it will result in re-opening on the day named, if not earlier.

Clover Culture.

If there is one thought which we would press more than another, on landholders in the Middle and Southern States, it is the necessity of extending the cultivation of Clover. While the most remarkable and most valuable results have been realised in its use as a renovator, there is still an immense field for its invaluable services. We would urge upon our readers by every consideration, that they will not be satisfied that clover will not grow well upon their lands until they have given it the most thorough trial. A Marylander who was familiar with its value as an improver here, having settled in Georgia, says: "I mean to sow the seed every month in the year, till I find out the right time." This is the determination which should influence every landholder. Whatever the obstacle, whether of climate or soil, let no effort be untried to overcome it.

We know that to a great many of our readers it is very unnecessary to say anything of the value of clover culture, and they will hardly understand the necessity of alluding to a matter so familiar to them. To sow clover seed is to them as necessary a part of their rotation as to sow wheat. Whatever other means of improvement they may use, this is never overlooked, and the loss of a crop is a calamity. Their lands have been raised gradually, through its influence, to a degree of fertility, varying in degree with the skill of the farmer, or the natural constitution of the soil, but always so marked, that he who has once seen its effects, knows he cannot afford to do without it. He understands that it is at once, food for his stock, and for his crops, and that while it feeds them directly, it exerts an influence upon the constitution of the soil which corrects permanently, the natural faults of too great closeness, or looseness, of texture.

That clover culture is not so extended as it deserves to be, is owing first to the fact that its value is not sufficiently known, and secondly, that the crop grows with such facility upon certain soils and under a favourable climate, that the difficulties occurring under unfavourable circumstances discourage attempts to produce it.

In extensive sections of Maryland, Delaware, Pennsylvania and Virginia, nothing seems needed beyond the merest sprinkling of Plaster (Sulphate of Lime) to secure the most luxuriant growth; and such a growth means nothing less than a soil sufficiently fertilized for almost any crop that is to grow upon it.

In other sections, the Plaster seems to produce no such effect, as on portions of the Eastern Shore of Maryland, but lime from the shell banks, or marl-beds, is a ready substitute, and clover rarely fails on well limed lands, if otherwise well cultivated. In the limestone regions there is the same facility in clover growing.

In the absence of such advantages, and in hot and dry climates, or upon soils of light, open texture, the difficulty of growing clover increases, and the greater effort must be made to overcome it. In these cases the difficulty will diminish after a first success. In old countries we hear of "clover-sickness," but we have reason to think the disease is not known in America: at any rate it is a far off evil to lands that are strangers to the plant. Where it has been grown for a long time, there will be found occasion for somewhat longer intervals between crops, but on newer lands, a first crop will favour the success of a second, and long intervals between crops will be quite unnecessary.

Where there is difficulty in securing a growth of clover, we must give special care to all the conditions we can command. First the land must be fertilized. If plaster does not act with great effect, or lime is not to be secured, guano or super-phosphate must be used as for other crops. It has been a great error to use these fertilizers to so great an extent, for the direct benefit of crops which are mainly carried off the land. The clover crop first of all should be secured, and that relied upon for the general enriching of the land, and fertilizing other crops.

The condition of the soil must be looked to as to drainage, cleanliness, &c. Clover will not flourish where there is excess of moisture, or water stagnant in the soil. It is needless to undertake to grow it, except upon dry or well-drained grounds. Neither will it grow upon soil filled with undecomposed vegetable matter, or in any such condition as encourages sorrel, or other noxious weeds of natural growth. Therefore, if sown upon new lands after one year's cultivation, such weeds will overgrow it, but after two or three years cultivation in a hoed crop, the clover will flourish. There will be the same difficulty if the soil is full of the remains of weeds or crops, in an undecomposed state. One year's cultivation in a hoed crop does not put them in condition for clover.

Again, under circumstances unfavourable to the growth of clover, seed must be sown abundantly and at different times, and with different modes of treatment. When a first crop is grown, let the ground have the benefit of all the seed it will produce. The early growth, if the greatest benefit to the land is wanted, should, when in

bloom, be trodden down and consumed by stock enough to level it well in a few weeks. It should then be cleared of stock, and all the after growth be allowed to make seed. If this growth be allowed to fall on the ground, it will so charge it with seed as greatly to facilitate future crops.

Where there is difficulty from any cause, in getting a good set—and we often fail in this, even under favourable circumstances—it may be almost ensured, by a top-dressing of yard manure, or litter of any sort. It would be well worth while under ordinary circumstances to devote the greater portion of such substances to this purpose.

No one should be discouraged by difficulties, but the most strenuous efforts used, until it is absolutely certain that there are natural causes which make it vain to attempt to grow this foundation crop of good lands, and good stock.

Fruit Growing.

We have spoken to our readers of their Homes, not of beautifying them as in past times and adorning them by all the arts of the Florist and the Landscape Gardener, but of keeping themselves in possession, of assuring themselves that they shall be to them still Homes. We have advised with them as to the value of their lands, and the disposition they must make of them, in meeting the necessities of the new condition of things. We ask their attention now to new ways of using these lands,—not new absolutely, but new to them because they have wilfully, and in their blind following of old things and old ways, ignored them.

We promised in our first Number to give more attention than heretofore to the subject of fruit growing. This is the matter we now call their attention to, as one of the instruments they must use to keep themselves in position, to increase the value of their lands, and to assure themselves larger yearly products, with less labor, and from smaller areas. Many of them must sell a portion of their land, and will have less to work. Those who do not sell, must cease to labour over extended and impoverished surfaces. They cannot hire labour for such a purpose. They must rent, or graze their outfields, and get larger returns from a few acres. When very near to market they may raise bulky vegetables, but farther off, fruits that will bear transportation. We say Fruits, and we mean more especially *Grapes*. We wish we knew how to impress it more forcibly upon the attention of our readers; they must grow Fruits of any or every sort, and Grapes especially.

But shall everybody grow them it is asked? Certainly not. Such a thought will not enter everybody's head, because everybody is a dull, ignorant old fellow, who does not read the *American Farmer*. We are talking to *our* readers, and for their benefit, and compared with the great mass of Farmers, even in the State of Maryland they are the select few. The Farmers of Maryland are Thirty Thousand, and we have never claimed the fourth of them as the readers of ours, or any other Agricultural Journal.

But it is feared that the business may be overdone. The answer is, that with all the increase of many years past, the demand has kept ahead of the supply. Fruit is getting more abundant indeed, but every year harder to get; because every year higher. Notwithstanding that single growers of the Strawberry have more than a hundred acres each in cultivation near Baltimore, Strawberries, little above medium quality, brought 40 cents a quart in the market. Notwithstanding our old fields and fence corners fruitful in the blackberry, and one of the most productive seasons ever known, the Lawton blackberry brought, throughout the season, eight dollars a bushel as retailed in the market. There are thousands of acres of marsh lands in the State entirely worthless to the owners, which are very capable of yielding two hundred bushels of cranberries to the acre, worth, at all times, four to six dollars a bushel, with a demand without limit for shipment. Many of these marshes have the vines to stock them already growing wild in their midst. Pears of excellent quality, we munched freely when a boy, from standard trees of thirty, forty, and fifty years of age, ever bearing abundantly, and in Maryland soil; but who eats a pear now, except at fabulous prices, after all the modern stimulus to their cultivation. There is not now, the fourth of a decent supply of any kind of the best known good fruits, in the Baltimore market. With the growing demand for what is good, and the very large supplies needed by the preserving houses for winter use and shipment, there is the least possible danger of over production.

Now as to grapes, one great advantage they have over other fruits, is that they are almost equally profitable for table use and for wine. And they have the further advantage, that they need not be pressed immediately into market, but will keep well during several months, and can be disposed of at leisure. Failing of a remunerative demand, they can be manufactured into wine, and reserved for future sale.

The demand for wholesome wine, and genuine brandy, is without limit. With all the temper-

ance preaching in the world, men will have wine, and our opinion is, they ought to have it, if it be good, not for abuse, but for use. But it is very desirable that it be good, and not some "villainous compound." There is more champagne wine offered for sale in the New York market every year, than the whole champagne district produces. And how much brandy we have offered for sale that is genuine, may be judged from the revelations made recently in New York, at the trial of parties, at the instance of revenue officers. It appeared from the testimony that the liquor in controversy was a fluid known as "imitation brandy," and was made from cologne spirit, flavored by oil of cognac, and "neutral liquor," commonly known as French spirits. A maker of imitation brandy at Albany, tasted a sample, and declared it had not in it a drop of French brandy. Such was the general character of the testimony. A druggist, however, testified to its genuineness, because it was similar to brandy he had purchased in Boston for $9.50 per gallon. He had been himself cheated, the price of the article in New York being $2.50 per gallon.

Now it must be evident, that there is a wide field open for the raw material out of which to make pure and genuine wine and brandy; and when we remember the value of the latter as a medicine for delicate women and other invalids, and the true worth of a pure wine for ordinary consumption, we may form some idea of the importance of grape culture to the health of the community.

Apart from such uses, when we consider the value of the grape crop as exhibited in an article on another page, in the unpromising climate of Massachusetts, we may suppose that as a mere market fruit, with our greatly favourable circumstances of soil and climate, it is not likely to prove unprofitable. Twenty-five years ago, Downing estimated the number of acres in cultivation in the country at three thousand, now it is supposed to be a hundred thousand, and grapes are as high as then.

There is no impediment to their cultivation. It is easier, simpler, and every way pleasanter work than the cultivation of tobacco. For the cheerful work of the vintage, there will always be found sufficient help. What is needed, is enterprise, and pluck enough, to look a new idea in the face, and turn it to advantage.

COTSWOLDS.—The Cotswold buck bought by H. C. Meriam at Mr. Andrews' sale, sheared fourteen pounds. The best ewe sheared twelve pounds.

Scientific Reading.

A young correspondent, writing from Enfield, North Carolina, whose farming experience begins with this year, speaks of the interest with which he has been reading back numbers of the *Farmer* of 1858 and 1859, and of the pleasure he takes in Agricultural Chemistry, and kindred reading. Many other correspondents have either lamented the loss of back volumes with their household effects during the war, or expressed the pleasure they had taken in them in the absence of a new issue. Such frequent expressions, from very various sources, afford gratifying testimony to our success in furnishing the readers of the *Farmer*, as we always designed, not with matter of temporary interest merely, but with that which was worth keeping, and would keep without spoiling.

This is what we aim at now. Matters of mere routine—what crops were made by such an one, how he cultivated, and how he manured—how much milk a cow gives, and how she was tended and fed,—how some one has fattened his beeves or his sheep—this is more popular reading, and has a certain value. We give a due proportion of it, with matters of detail as to the working of various crops, care of animals, &c. As far as we can do so, we make these matters of practice illustrate principles, and aim thus to familiarize the minds of readers, with the underlying truths, which must direct all intelligent practice.

But we should be unwilling, at this day, to edit an Agricultural Journal which was only so far scientific. We must recognize the advance of agricultural science, and we must gratify the taste which we know exists, to a greater or less extent, among our subscribers, for purely scientific reading. Therefore, we publish such articles as "Cultivation and Manure as Fertilizing Agents," by Prof. Tanner, of Birmingham, the essay of Dr. Anderson, of Edinburgh, on the "Supposed Exhaustion of Soils by the Modern System of Agriculture," and that by Dr. McVicker, of ———, in this number.

We have a further object too, in doing so. We wish to encourage all such readers as the correspondent alluded to, to raise themselves to a higher level of agricultural culture, by selecting for them, from the best sources, matter most likely to be interesting as well as valuable. Our young men can no longer afford to walk in the paths of their fathers. They must recognize the changes which are going on, and the advance in Agricultural Science, especially. If they find such articles as we publish a little hard to read at first,

let them read again and again, till they become pleasant reading. Then they will realize that they themselves have made an advance in the right direction.

Instruction in Fruit Culture.

So many responses were made to the advertisement in our August number, of an Englishman, proposing to take charge of a Fruit growing Farm, that we take this method of saying to those whose letters may not be directly answered, that the advertiser has been induced to remain in his present position. There is evidently very great demand for the services of men familiar with fruit growing, and it is a demand not likely to be supplied. We hope that very many of our young Southern men, who find it difficult to get employment, will turn their attention to this business, and take hold of it with energy; and we think our Agricultural College could do nothing more practically useful to the community, than to take a certain number of pupils for special instruction in Fruit growing in all its branches, under the skilful Head of that Department at the College. It will be for a time, one of the greatest drawbacks to Fruit culture, that there is really so little practical acquaintance with it. Young men, as they have opportunity, should get instruction, but others need not be deterred by supposed difficulties. They must consider that no art is well learned, but by taking hold, and working it out. Good instruction greatly facilitates the efforts of the learner; it is good help for him. But he, really and effectually, learns his business, only in working honestly up to the amount of knowledge he starts with. None are so ignorant, that they need be afraid to take hold, and make a beginning.

"The Lost Subscriber."—Our friends are informed that we are amply recompensed for the gentleman who resigned his "situation" last month, as a subscriber to the *Farmer*, though we have not the least objection to all the new names they can send. The first to take his place is, we are glad to say, a Northern man, who hails from North Carolina. The friend who sends the name and the money, says, "let us know of all you lose for the same reason.' They will, probably, hereafter, "die, and make no sign."

The second substitute writes from New Kent county, Va., briefly, as follows:

"My friend and neighbor, Col. T. A. L., to whom you have forwarded the July and August numbers of the *American Farmer*, has been kind enough to hand them over to me for inspection, and I am so well pleased that I feel a sympathy with that *poor fellow who 'bears malice,'* and is determined to debar himself the rich treat of its monthly visits, for a splenetic gratification of a mythical nature.

If you think it possible to survive the *shock of a separation*, so far as to be able again to put forth another number, please accept of the enclosed two dollars, and substitute my name in place of the *lost subscriber*, who has, ere this, been expunged from your books, by a black stripe."

We must add only the following:

"As you express willingness to part company with this immaculate patriot, and ask some one to send you a subscriber in his place, I take great pleasure in sending you *two*, who can appreciate your labours in the field of Agricultural Science, without exercising a carping censorship on your past political creed. I herewith enclose four dollars."

J. T. W., Montgomery Co., Md.

The little paragraph "Bears Malice" was written pleasantly to show our entire indifference to the sort of censorship alluded to, and the request that some one would send a new subscriber to fill the vacancy, was without premeditation, and very luckily as it seems, thrown in at the close. The response shows how easily those, who really think well of the *Farmer*, might give it great help, if they felt some stimulus to do so. They have this stimulus when we say a word in unison with their just and generous sympathy for those who, whatever might be thought of the past, are now surely, only wronged and suffering friends. But may we not move their sympathies otherwise, even by the love they bear that common Mother of ours, whose lovely face has been marred, and whose fair bosom torn, by ungentle and ungrateful hands. Help the President to reconstruct unfortunate Sister States, help the *Old American Farmer* to reconstruct our gentle nursing-mother, the Earth. There is sad need of it, for her desolations are the work, as well of peace as of war, and her worst wounds, perhaps, have been "in the house of her friends." We want help, and ten thousand Maryland men should give us a hand.

American Pomological Society.—We learn from the Circular of President Wilder, that the meeting of this Society, which should have taken place in St. Louis in September, has, by and with the advice of the Executive Committee and other leading Pomologists, been postponed, for reasons given, till 1867, when due notice will be given for its reassembling at that place.

Fertilizers.

"No man of common sense," says Hon. Willoughby Newton, in his letter to the *Farmer* of last month, "can suppose it possible to cultivate, profitably, poor land with hired labour; and under our new system fertilizers must be used to a much greater extent than formerly."

Nothing can be truer, than that to farm profitably, under the changed circumstances which surround us, we must enrich our lands. We cannot afford to make half crops. We cannot take four barrels of corn where the same labour will give eight, or ten bushels of wheat where we may as well have thirty. We must economise labour by contracting our surface cultivation, and by enriching what we do cultivate, that it may approximate at least its maximum of production.

To do this, the portable fertilizers of the market must and will be used, even more largely than ever before. Those that are well and honestly manufactured, and good natural guanos, have an intrinsic value which cannot be overlooked, and they have the taking quality of giving us on poor lands the crops that belong to fertility, and of cheating us into the belief that our barren fields have become, by magic, rich. They will be used, therefore, more and more, and to the prudent and judicious, will be the instrument of improvement and wealth.

As nothing has been more uncertain heretofore than the character of the fertilizers offered in the market, it becomes those who are interested to look well to what they must buy. If for any reason they fail to get a good or genuine article, it is not the loss of the cost of the fertilizer only, but of the whole year's crop. Of the several articles offered in the advertising columns of the *Farmer*, we can say, with pleasure, that they have an established reputation, where they have been used for a sufficient length of time, or are offered by merchants of high standing in the Baltimore trade. Our readers must judge between them, according to the evidence presented.

MANURE FOR EVERGREENS.—The *Horticulturist* says that although it said that animal manures are injurious to evergreens, it has been recently proved that old, *well-rotted* barn-yard manure may be applied to them with the best possible results. Trees and shrubs manured with this compost grow vigorously, putting on a deeper, brighter green, while Kalmios and Rhododendrons flower more abundantly than in the old practice of leaf-mold manuring.

Our Correspondence.

Hon. James Chesnut, one of the Senators from South Carolina, who resigned his seat in the United States Senate at the opening of the war, writes a letter on business, from which, claiming his indulgence, we make the following extract: "At the end of the recent disastrous war, in which, under a sense of duty to my country, I bore, however humbly, still the best part I could, I find myself in control of a very large and fertile body of land, without systematic labour, adequate to my wants, without a sufficiency of animal power, agricultural implements and seed, proper for the development of a new and moderately successful system of agriculture, which I hope to adopt for the ensuing year. My losses, I will not refer to, as I regard them as the natural result of events, and the willing offerings which I gave to a cause which I thought just, and most honourable, and cherished. This result I have accepted in good faith, and as I have now no past to which I will refer, I desire to make the brief future, for me, as beneficial as I can to myself and my country.

"I am now engaged in the production of corn, cotton, turpentine, &c., the usual staples of this region heretofore. My experience of this year, however, and observation as close as my opportunity would enable me to make, have convinced me, that with the radical change in our condition, we must, if we hope to be successful, make a corresponding change in the employment of our capital, and in the nature of productions resulting therefrom. The cost of labour now, and the tax proposed by Congress upon cotton, will make its production a luxury, or amusement, too costly to be hereafter indulged in by an impoverished people. If I thought it would be to you a matter of interest, I would give you the *data* upon which the opinion is founded. But I presume you are overwhelmed with correspondence, and I write now only on a matter of business."

Hon. Marshall P. Wilder, Dorchester, Massachusetts, the well known President of the U. S. Pomological Society, writes: "I am pleased with the revival and fine appearance of your paper. Here are two dollars for the year. Please send every number."

Andrew G. Kennedy, Esq., Jefferson Co., Va., says: "As the time for seeding timothy is near at hand, I will give you a plan which I have followed with success: On the ground, ploughed and harrowed for wheat, sow, before the first of September, with the broadcast sower, about one peck of seed to the acre, and then roll with wooden roller. Drill your wheat about the first

of October. In cutting the hay, I use my reaper just as it is fixed for cutting wheat, except rather more lowered. The grass is allowed to accumulate on the board in as large heaps as the board with accommodate; it is then raked off and left to cure in the heaps, and when cured, hauled in from the same heaps. This mode saves labour, and, if the cutting is done at the right time, the hay will cure perfectly."

Dr. B. P. R., of Dinwiddie Co., Va., writes: "As I would welcome an old friend, so did I the July number of the *American Farmer*. It came just in time to supply a want. It was handed to me by a friend while at church, and though it is not my custom to read secular papers on the Sabbath, yet the temptation was irresistible to examine it as I rode in my carriage home, to see what had become of such an esteemed old friend during the trying ordeal we had passed. I wish I could write something of interest for your valuable paper, but really the present and future seem so dark and discouraging, that one has but little heart to chronicle the times, or prophet the future.

"The wheat crop is an entire failure; but few will have any for market, and many will not make seed. The corn crop at present is gloomy, on account of the long drought, but it is not too late as yet to make a good crop, though it must be somewhat shortened. The tobacco crop will, I think, be a short and inferior one. The land that was good, and that is guanoed, and planted early, is running up, and buttoning, and, of course, can never be as it should. The poorer lands and late planted, will be inferior. I do not think half the surface is planted that formerly was, owing to the uncertainty attending the necessary labor.

"I find it to be the experience of all, that the only way of getting any thing out of the freedmen, is for the white man to take the lead, and tell him to follow. This, of course, can be done by comparatively few at the South, as they have not been accustomed to field work. We are consequently forced to the necessity of dividing up our farms, and renting them out to the white labouring class, who, with a few freedmen, may make it profitable, but to the landholders ruinous: as the man that rents land seldom improves, and ultimately, under this system, our lands will be exhausted. I have said nothing about foreign white labor, as I am convinced at present it will not do."

Under the present system of yearly renting, the remarks of our correspondent are no doubt correct. But it will be necessary gradually to change this for long and improving leases, which will ultimately profit landlord and tenant.—Ed. Farmer.

L. A., of Shenandoah County, Va., writes: "I received the July number of the *American Farmer*, and am delighted once more to have it. I had been a subscriber for many years till cut off by this unholy war, which devastated our beautiful Valley. Twenty thousand dollars of good money would not cover my losses, but thank God, with the return of peace, I have my land and buildings, &c. I raised a fine crop of corn last year, fenced up last winter, and now have 140 acres of corn looking pretty well. I have just finished cutting my wheat of 100 acres, which will thrash, I think, 12 to 15 bushels per acre. In my immediate neighborhood the wheat is much better than in any other part of the Valley. In Western Virginia there is scarcely any. The hay crop very short.

"I bought one of Calvin Page's combined mowers and reapers, self-rake. I am delighted with it. Our old reapers were burned by our glorious Union General Sheridan. We forgive our kind friends for the destruction done to save us from the Devil, but when we come to be admitted at the doors, why do they turn their backs on us? We know they are Christians (so-called.)

"This county will hardly make seed and bread, especially in the limestone land. I have 140 acres of river bottom that never fail, and part has never been in gear. Has been farmed for upwards of a hundred years in corn and wheat—40 to 50 bushels of corn, 18 to 20 of wheat."

A few more extracts from "Old Friends."

"I have to offer you many thanks for your kindness in forwarding to me again my old friend, 'The American Farmer.' The perusal of the two numbers received, has already inspired me with new hopes, and partially renewed my waning energies," &c.

J. H. E., Coleraine, N. C.

"I glory in the reappearance of the 'Old American Farmer' upon the stage of life, with a higher, nobler and purer bearing (if possible), than of yore. I read it as a boy when the Ruffins, Newtons, Jones', Calverts, Pendletons, and Caprons, were wont to hold pleasing converse over mother earth. I have continued reading it in my manhood, when directed by other heads and hands, but never with greater satisfaction and instruction than now."

G. H., Snow Hill, Md.

"You cannot tell the gratification I felt on receiving your publication—very much like an old friend, long absent, affording delight at his return." D. S. C., Williamsburg, Va.

"I rejoice to see your journal revived, because I regarded it, and so expressed myself, as the best of all the agricultural journals of the country." E. C. E., Montgomery County, Pa.

"I enclose you $2 for subscription to your valuable Magazine, which I was glad to see again. I think you will sustain your former reputation, and congratulate you sincerely on your reappearance. J. W., near Richmond, Va.

"Please find herein $2 for subscription to my good old friend, the *American Farmer*. Receive my thanks for having thought of me after so long a time." E. L., Cincinnati.

"You can form no idea, how pleased I was to see again the familiar face of the *Old Farmer*. You may consider me a subscriber as long as I own a farm, or can pay for a newspaper.
F. M. H., Newbern, N. C.

"The *Farmer* came to hand a few days since, bringing an account of its long absence, and was received with more than wonted pleasure."
W. C. W., Fosterville, Tenn.

CUBA AND CONNECTICUT TOBACCO.—The correspondent who makes inquiries as to peculiarities in the mode of cultivating these varieties, is informed, that there is nothing materially different from the practice in Maryland and Virginia. The Cuba tobacco is a much more delicate growth than ordinary sorts, with leaf of finer texture, needing careful handling, and may be planted much more closely. Ten thousand plants may very well grow upon an acre, at two feet each way, or three by one and a half.

The Connecticut seed leaf is a very large growth, being planted usually on rich and heavily manured lands, and yielding enormous crops, ranging from fifteen hundred even up to three thousand pounds to the acre, as we find reported. The plants need, of course, much more room than common kinds.

The St. Paul *Pioneer* says that on the Red River settlement, 500 miles north of that place, 60 bushels of wheat to the acre is an ordinary yield.

Notices of Agricultural Journals.

THE MARYLAND FARMER—*A Monthly Magazine*, devoted to *Agriculture, Horticulture, Rural Economy and Mechanic Arts*. Volume III, No. 8. S. Sands Mills & Co., Publishers, No. 24 S. Calvert street.

THE RURAL GENTLEMAN—*A Monthly Journal*, devoted to *Horticulture, Agriculture and Rural Economy*. J. B. Robinson & Co., Publishers. No. 2 North Eutaw street.

Among many labourers who have entered the field of Agricultural Literature within a few years, we have occasion to notice first, two very near neighbours, named above. The former is the *Farmer and Mechanic* of Mr. Ezra Whitman, published before the war, mainly to advertise his large manufacturing business, and now developed, through the enterprise and energy of Mr. Mills, into a first class Agricultural Magazine. The numbers before us are filled with a variety of useful matter, indicating discrimination and judgment, and we wish it the most ample success.

The *Rural Gentleman* presents itself in the number before us, for the first time, and proposes to devote itself "entirely to practical rural life." Its pages are well filled with good matter, ranging through the extended fields of agriculture, horticulture, and floriculture. It makes fair promise for a future which will be very useful to the agricultural community, and very profitable, we hope, to its proprietors.

We must engage these young neighbours of ours in the special duty of stirring up the supine and laggard farmers of Maryland to a sense of their duty in support of the agricultural press. Of the thirty thousand farmers of Maryland, we have nothing like ten thousand yet upon our own list, and some means must be devised of bringing them every one into the line of progress. They can hand us over the first ten thousand that fall in, which is all we shall claim, and divide the other twenty thousand between them, and when the whole thing is done we shall get along very comfortably together, so far as Maryland is concerned. Outside of the State, as neither of us have any special rights, each must hoe his own row, among other able competitors, and make the most of his opportunities.

THE SOUTHERN CULTIVATOR—A practical and Scientific Newspaper for the Plantation, the Garden and the Family Circle. D. Redmond, Augusta, Ga.; W. N. White, Athens, Ga. $2 per annum.

This long established and very able Magazine

of Agriculture stands at the head of the list of valuable Journals that are doing faithful service in behalf of Southern Agriculture. It is the only one South of New York, we believe, which maintained itself throughout the fearful four years' struggle. It goes now on its way prospering, and to prosper, as we hope. We are certain, at least, that the success which marks its course, will be a sure index of the advance of agricultural improvement in the South. Long experience, sterling good sense, and knowledge of rural affairs, both theoretical and practical, are distinguishing qualities of the *Cultivator*.

THE FARMER—Devoted to Agriculture, Horticulture, the Mechanic Arts and Household Economy. Elliott & Shields, Richmond, Va. $3.00 per annum.

THE FARMER takes the place, long, so ably filled by the *Southern Planter*, and now issues its eighth number. It is, we learn, in the hands of gentlemen abundantly able to make it the worthy organ of the great farming interests of Virginia. Its present issue gives sufficient assurance of this, in a number of articles of superior merit, and the variety of its table of contents. It is very worthy of, and we trust will get, a hearty and generous support.

THE RURAL JOURNAL—Devoted to Rural Life, Agriculture, Mechanics, &c.

Is a spirited and well conducted Journal of eight quarto pages, with the imprint of that enterprising firm, Wm. B. Smith & Co., of Raleigh, N. C.; subscription, $1.00.

The Journal seems to be designed to relieve the pages of our old friend and favorite, *The Field and Fireside*, of its agricultural matter, and to give it to the farmers in separate form, at a low price. It deserves to be well sustained.

THE SOUTHERN RURALIST. Amite City, La., H. A. Swasey & Co., Publishers. $3.00 per annum.

This is a semi-monthly Journal of twelve quarto pages in covers, devoted to Agriculture and Rural affairs. It is the only representative of the agricultural interests of the great Southwest, and is started under favourable auspices for great success, which it eminently deserves by the quality of the matter offered its readers. It is edited by H. A. Swasey, M. D, aided by a large corps of assistants.

This makes up our list of Southern Agricultural exchanges as yet received.

THE FIELD AND FIRESIDE.—This publication was well and favorably known before the war, having been established in 1855. It was designed as a family, literary, and agricultural weekly of the first class. As suggested above, it has given its Field side rather the go-by, and claims to be "devoted to all the highest and noblest purposes of pure and dignified literature." A Journal of such aims should have the support which will enable it to realize, to the utmost, its lofty aspirations.

Published by Wm. B. Smith & Co., Raleigh, N. C. $5 per annum.

☞ The following notice of the *American Farmer*, is so much more than an ordinary expression of newspaper courtesy, and is so well conceived, and appreciative, that our readers will pardon our putting it on record. The *National Defender* has not been heretofore on our exchange list, and we are indebted to some unknown friend, who by sending us a copy with this notice, introduces us so pleasantly to this spirited and able *Defender* of the right:

From the National Defender, Norristown, Pa.

THE AMERICAN FARMER.—This very able and justly popular Agricultural Magazine, has, after a season of temporary suspension—occasioned by the late saddening civil war—resumed publication, and we hail its reappearance with a feeling of earnest satisfaction. No periodical work within the limits of our information, so commends itself to the patronage of the farmers of Montgomery county, as does this admirable serial, each number of which is filled with matter whose value has only to be known to be appreciated. The Magazine is the oldest in the United States, and has always been looked upon as a text book of the subjects upon which it treats. In it the farmer will find a vast number of practical suggestions relative to his pursuits, coupled with the experiences of distinguished agriculturists in the various branches of his vocation. The Middle and Southern States are the special fields of its labors, and the principal crops which are cultivated therein, receive, in its pages, a very careful and critical analysis; indeed, we know of no purely agricultural work which conveys, in a more pleasing and satisfactory manner, that knowledge which the intelligent husbandman deems essential to a successful prosecution of his profession.

The *American Farmer* is published in Baltimore, and issued monthly to subscribers at the extremely low rate of $2.00 per year. Each number contains upwards of 36 pages. Subscriptions should be forwarded to the publishers, Messrs. Worthington & Lewis, No. 52 South Gay street, Baltimore, Md. The Southern patronage

upon which these gentlemen particularly relied, was necessarily cut off from them during the pendency of hostilities, and they were thus compelled to wait until the storm of war had passed, before resuming duties which, as their prospectus states, are alone for "seasons of quietness." That their counsels may contribute to make green with grass and teem with golden harvest, the desolated fields of the South, and to restore the hamlet from its ruin and once again replenish the blood-stained soil with abundance, is a hope which we can sincerely express, and in whose fruition we shall most earnestly rejoice. We commend the work to our readers not only as a source of practical interest and instruction for themselves, but because its teachings will serve to create a kindlier sentiment between the once warring sections, and reanimate the sentiments of good will which have been so long and so unhappily interrupted.

☞ We have had occasional inquiries, as to whether seed wheat, fertilizers, &c., may be had of merchants here on the pledge of proceeds of crop of wheat to be made. On receipt of the first one, we made inquiry, and ascertained that while this has been done frequently, the cases were only exceptional, and in favour of old correspondents and customers. With the most liberal disposition on the part of the great majority of our business men to extend help to those who need it, it will be readily understood, on reflection, how very far their ability must fall short of meeting even the most urgent claims which have grown out of the wide-spread losses of our Southern friends.

Acknowledgments.

We are indebted to Sandford Howard, Esq., Secretary of the Michigan State Journal of Agriculture, for his Fourth Annual Report, an octavo of more than three hundred pages of valuable agricultural matter.

We are indebted to Edward J. Evans & Co., York, Pa., for their several Catalogues, Nos. 1, 2 and 3, of Fruit and Ornamental Trees and Shrubs, Vines, Roses, Native Apples, &c. They may be had at our office, or on application, by letter, to York. See their advertisement.

BUSINESS NOTICE.—We beg that every one who writes to us on whatever subject, but especially with reference to subscriptions, will write distinctly his own name, and *the name of his post office.* In case of removal, name also the office removed from.

Advertisements.

We need hardly direct the attention of readers to our advertising pages, as we know they are always examined with peculiar interest. It is a pleasure to us, however, to be able to bear testimony to the high character of our advertisers in their several departments. Apart from our well considered opinion on this point, it may be assumed generally, that the best business men, and the most satisfactory to deal with, are those who, seeing most promptly in what direction lies their own interest, are as prompt to see how they may most directly approach the best class of custom. We have here a case in point. Many of our former advertisers, who long experienced and acknowledged the *American Farmer* to be, to them, the best, if not only, medium of advertising of much value, are holding back in abundant caution, perhaps, as if our publication were an experiment, or as if we stood to the agricultural community in the position of an aspirant for favour. Our present advertisers have seized at once the advantage of the fact, that we started at once *with our full list of old subscribers or their representatives*, unimpaired but by exceptional cases, which are fully made up by new ones.

In our advertisements of Fertilizers are found the well known firm of John S. Reese & Co., so long and favourably known to the agricultural community.

Ober & Co., of the old house of Kettlewell & Ober, famous for their well directed enterprise and energy.

Wm. Crichton & Son, successors of the old and wealthy firm of Malcolm & Co.

George Dugdale, agent for the manufacturer of Baugh's Rawbone Phosphate, which has worked itself into great favour in many sections.

The *Baltimore Ctiy Fertilizing Manufacturing Company* is an enterprise of very great promise to the agricultural community. J. J. Stewart, President; Wm. H. Kimberly, Secretary.

Allen & Needles, of Philadelphia, also, old and well known manufacturers of Super-Phosphate.

Of Implement Manufacturers and Dealers, we have, as ever—

Sinclair & Co., a Baltimore institution of the last half century, with no falling off in their well earned reputation.

Richard Cromwell, who, though of fewer years, has full as fair a fame.

E. G. Edwards, who, among other valuables in this line, offers the famous Bickford & Huffman Drill.

All these furnish Seeds too, and in this line, we have, also, D. Landreth & Son, of Philadelphia;

C. B Rogers & Co., Philadelphia; Thomas Meehan, Germantown, Penna; Wm. Hacker, Philadelphia, all old familiar names to our readers, and of first class standing.

Of Portable Steam Engines, Saw Mills, Sorgho Mills, &c., we have—

E. B. Duvall & Co., of long experience in the Southwest, with their factory at Laurel, and their place of business, 24 S. Howard street, a firm as full of energy as their own engines. No one should fail to call on them, who is interested in the matters they advertise.

Poole & Hunt are long established, and of well known character, in somewhat the same line.

Of Nurseries we name, first,

Cromwell's Patapsco Nurseries, where all sorts of the best things in the way of Fruits, Flowers, Ornamental and Evergreen Trees grow; and we may say in further commendation, our friend Cromwell grew there himself, and his father before him.

Edward J. Evans & Co., at York, Pa., have built up in a few years comparatively, a very flourishing business and present very attractive catalogues.

Ellwanger and Barry are of world-wide fame, and the many hundreds of acres in Nurseries near Rochester, are the wonder of those acquainted with them.

Hightstown Nurseries, New Jersey. Our old friend Pullen, among numerous things remarkable and otherwise, has any quantity of Peach trees that ripen their fruit two weeks earlier than anybody's else.

John Saul, near Washington, presents also an attractive list, of very reliable character.

Of *Pianos*, Mr. Benteen offers the celebrated Steinway, and others, with piano and organs.

Otto Wilkens is manufacturing his own pianos, and his own fame at the same time. He makes a first rate instrument.

Samuel Hunt makes the best Saddles, Harness and Trunks in Baltimore, so far as we know, and knows best where to advertise them.

S. S. Stevens & Son, are great manufacturers of a great deal of good furniture for houses.

Hamilton Easter & Co. have a long time stood at the head of Baltimore dry goods dealers, because, *perhaps*, they have a long time advertised in the *Farmer*.

Oakley & Keating. New York. The Nonpareil Washing Machine, thought to be one of the best of its kind. Richard Cromwell, agent in Baltimore.

Horse Stables.

It is a fault with most stables that they are built for men rather than for horses. We wish to point out two common errors into which not a few builders are liable to fall in constructing stables, especially those upon farms. The first is in having the doors and upper floor so low as they generally are. On account of these low doors horses instinctively learn to fear them, and they shy, rear or prance whenever led toward them. They are, also, among the most frequent causes of poll-evil. The horse, when passing through them, is either surprised by something it beholds outside the building, or checked by the voice or gesture of the person leading him, when up goes the head and crash comes the poll against the beam of the doorway. A violent bruise often results therefrom, and a deep-seated abscess follows. Low hay-floors also produce the same trouble. The sudden elevation of the head is, in the horse, expressive of very unexpected emotion. This effect is always noticed whenever you enter the stable rapidly or at an unusual hour. A sudden noise will also cause the same upward motion of the head. With low stables an injury to the horse is almost invariably sure to follow.

Again, the easiest position in which the horse can stand, is when the hind feet are the highest portion of the body, or when the flooring of the stall slants in exactly the opposite direction from what it does in most stables. This is the other error in constructing stables, to which we alluded. Horses at liberty in a pasture invariably stand, when at ease, with their hind feet elevated somewhat, and it is almost a wonder that builders of stables have not improved upon this fact before, and adapted floors to the wants of the horse. The moisture from the horse, if the floor slanted toward the forward feet, would help to keep the forward feet moist, cool and healthy, whereas they are now generally hot, full of fever, and require washing with cool soap suds at least once a day, in order to be kept in a healthy condition. This is not all. Where the floor slants back, the horse not unfrequently attempts to ease the heavy strain upon the flexor tendons of the hind legs by hanging back upon the halter. The pressure upon the seat of the poll stops natural circulation, and in time it develops itself into a deep-seated abscess. We would like to see a stable in which the two errors in building we have pointed out did not occur. If the builder was not satisfied with it, we are sure the occupant would be, and would repay him by long years of good service with unstrained limbs and a healthy system.—*Maine Farmer.*

A Maine Farm.

No one at all interested in farming can spend an hour upon a well appointed and well tilled farm (even though it be no better than others that may have been visited) without receiving some benefit from viewing the arrangement of the buildings, the plan of the several enclosures, and conversing with the owner about the general management of his farm. So in the hour or two spent upon the farm and about the buildings of Major Davis, a week or two since, one mile west of this city, (Augusta,) on the old road to Winthrop, we saw much to approve in his system of management, and much that might be imitated by other farmers to good advantage The farm consists of one hundred acres, is well divided into mowing, tillage, pasturages and wood land; has some of the best soil in the country; is completely fenced, and provided with good buildings that are well arranged and contain all the necessary fixtures for convenience and the saving of labor; is provided with an abundant supply of good water, and has upon it a young orchard of one hundred trees.—Last year Mr. Davis cut one hundred tons of hay, mowing over about forty acres to obtain it. His general course of husbandry is to break up in the fall what land is wanted for planting the next spring, usually from six to eight acres, plant it with corn, potatoes, beans, turnips, &c., and the next spring sow it to barley and oats, and seed it down. No land is kept up longer than two years, is liberally manured, and much of his permanent grass land receives a top-dressing of old, well rotted manure, (about ten cords to the acre,) immediately after haying. The farm stock consists of six cows, two horses and two mules, besides from three to six hogs. The chief part of the hay is sold, and manure from our city stables used to make up for that which would otherwise be made upon the farm. The cows are stabled every night, loam being placed in their stalls to absorb, save and add to the manure, which, with manure from the horse stalls and loam from the road side—which Major Davis regards as better than muck—is handed over to the working of three store hogs, who convert it into a superior article of dressing.

From a field of grass of six acres that we visited, and which was cut for the first time after being seeded last summer, seventeen tons of hay were obtained. The tools and implements are all housed when not in use. A cistern holding over one hundred hogsheads receives the water from the barns, thus furnishing an abundance for stock during the winter, and the premises are neat and in good order. For a farm team Major Davis uses a pair of mules, and regards them as better than either oxen or horses. They are tough and strong, cheaply kept, and will perform a larger given amount of work, at less expense, than any other team. He believes that farmers might make a more general use of them to good advantage. All the crops upon the farm look promising, and betokened a high degree of cultivation and good management —*Maine Farmer*.

Boiling Food for Hogs.

At a meeting of the New York Farmers' Club, Prof. Mapes made the following remarks in regard to boiling food for hogs:

"The proof of the saving of food by boiling has been given here; we may as well have it. Mr. Mason was a watchmaker in Camden, N. J., and among other fancies he liked to keep hogs. He had his hog pen built just back of his shop, so that he could sit at his window and watch his hogs. Every spring he bought some pigs and fed them through the season. Just opposite to Mr. Mason was the store of Mr. Van Arsdale, and every pound of food that Mr. Mason gave to his pigs he bought at this store. At the end of six months he got his bill from Mr. Van Arsdale, and he always slaughtered his hogs at the same time, so that he knew exactly how much his pork cost. For several years it figured up at 13 cents per pound. At length some one advised him to boil his corn. He accordingly got a large kettle and cooked all the food which he fed to his pigs — Then his pork cost him 4¼ cents per pound. We also had the experience of Mr. Campbell, which was about the same as Mr. Mason's. Henry Ellsworth made some extensive experiments in the same thing, and his statement is that thirty pounds of raw corn make as much pork as thirteen pounds of boiled corn."

Bone Charcoal.

Bone charcoal is made by heating bones in closed vessels, called retorts. The gases which pass off during the heating, contain carbonate of ammonia; these are condensed in water. The liquid is then mingled with fine ground plaster. This contains sulphate of ammonia and carbonate of lime. The liquid is then drawn off from the chalky carbonate of lime, and the ammonia salt is obtained by evaporation. The bones are now heated again to drive off the volatile substances. They are then broken down and pulverized, and they may now be used as a fertilizer.

Never insult misery, deride infirmity, nor despise deformity.

White Thorn Hedge.

In parts of Virginia, fences and the material for constructing them having been destroyed, it occurs to me that a statement of a simple fact may prove beneficial to many, even to some whose fencing material is abundant.

The common white thorn, well known in this region, forms a most effective fence, is very ornamental, and more beautiful than even the celebrated hawthorn hedges of England.

I first became acquainted with the value of the white thorn for fencing purposes at Natchez, Mississippi, where a friend had introduced it on his own place with very beneficial and satisfactory results.

This variety of the thorn may be better known and more extensively used in Virginia than I am aware of, but never having seen it under cultivation in this State, either for ornament or for field protection, and finding it growing abundantly here, I have determined not only to inclose my yard and garden with it, but to put it wherever a permanent fence is required.

As if nature intended it to facilitate man's labors, the white thorn grows very readily from cuttings, as readily as the grapevine, and also yields abundantly small, red, cherry-like seeds, from which a nursery of the thorn may be established while the farmer is deciding where to have his permanent live fences, and by this means complete his hedge sooner than from cuttings.

The cuttings which I planted out a few weeks ago are now growing, and the plants which I found growing from the seeds, probably two years old, being from two to three feet high, on being transplanted grew off at once.

The flower is white and very odoriferous, and the hedge, when well trimmed and in full bloom and foliage, is only second in beauty to the coffee plantations in bloom in the island of Ceylon.

The following directions are offered for setting a hedge of white thorn, or, as it is called in Mississippi, "Virginia thorn," namely:

Dig a trench six inches wide and eight or ten inches deep. If the ground is not rich, make it so by mixing good manure with the dirt from the trench, fix the trench with the earth and manure, and while loose, stick the cuttings in six inches apart, in two rows, thus: ·.·.·.·. and press the dirt well around them. Keep the hedge free from grass and weeds, and in four or five years you will have a beautiful hedge or very effective fence, if properly pruned and cultivated.

I have observed often that people go to the expense and trouble of sowing the osage orange seed, and then leaving them to grow among grass and weeds, and when the seed has sent forth a thrifty shoot, even in all its disadvantages, instead of properly trimming and training the long switch-like branches, and forming an effective hedge, they send a careless negro to cut them down, perhaps with a dull axe, and when they again grow up, this process is repeated, and then the osage orange is pronounced a failure; and so it will be with many who try the white thorn. They will plant it out carelessly, then neglect it, and finally pronounce it a humbug. Those who do not intend to do the work so as to benefit by it, ought not to attempt it.

If this benefits only one farmer, or enables only only one lady to adorn her home with this beautiful hedge, I shall be fully repaid for my labor in writing this.—Thos. J. Finnie, *in Virginia Farmer.*

The London Dairies.

Mr. Morton has lately read before the Society of Arts a very interesting paper on this subject. Contrary to expectation he found such a state of affairs in the London Cow-houses, as to lead him decidedly to the following conclusions: 1. That the establishments themselves need not be, and often are not, nuisances; 2. That the milk made in them is better than that delivered by railway from the country; 3. That it is wiser and better to carry the roots, grass and hay from the country into town, than one-sixth their weight in milk itself; 4. That cows in London are, and may be healthy, and comfortably kept, and that they are no more liable to disease that when at large in country pastures; 5. That, in fact, London is "better supplied with milk than most south-country villages." The very thorough examination of the Dairies in the city which he has been conducting, gives great weight to the opinions expressed. Mr. M. refers to the circumstances which lead London cow-keepers to adopt the best systems of management, and has "no doubt that the milk yielded by a London cow is better than that which the same cow would produce under ordinary Gloucestershire or Cheshire management." Mr. Morton, it should be remembered, is not a city man, and is quite familiar with the dairies of England and Scotland. To secure a license as cow-keeper, the cow houses must contain at least 1,000 cubic feet per head, in order to prevent too great crowding.

Progress of Vineyards.—In 1840, the lamented A. J. Downing, first editor of the *Horticulturist*, estimated the vineyards of the States at 3,000 acres. May we not now estimate them at 100,000 acres? What say our grape men?—*Horticulturist.*

Sunday Reading.

It is observable what the Rabbins have delivered, that at the morning sacrifice, the priests, under the law, did bless the people with the solemn form of Benediction, but at the evening sacrifice they blessed them not; to show that in the evening of the world, the last days, which are the days of the Messias, the benediction of the law should cease, and the blessing of Christ take place. When Zachariah the priest, the father of John Baptist, the forerunner of Christ, *executed his office before God in the order of his course*, and the whole multitude of the people *waited for him*, to receive his benediction, *he could not speak to them*, for he was dumb; showing the power of benediction was now passing to another and far greater Priest, even to Jesus, whose doctrine in the mount begins with "Blessed," and who, when he left his disciples, "lift up his hands and blessed them."

Till now, human nature was less than that of the angels; but by the Incarnation of the Word, was to be exalted above the cherubims; yet the Archangel Gabriel, being despatched in embassy, to represent the joy and exaltation of his inferior, instantly trims his wings with love and obedience, and hastens with this narrative to the Holy Virgin; and if we should reduce our prayers to action, and do God's will on earth, as the angels in heaven do it, we should promptly execute every part of the Divine will, though it were to be instrumental to the exaltation of a brother above ourselves; knowing no end but conformity to the Divine will, and making simplicity of intention to be the fringes and exterior borders of our garments.

Whatever you write, it has no relish for me, unless I read there Jesus. Whatever you say in dispute or conference, it has no relish for me, unless it speak of Jesus. The name of Jesus is medicine to the soul. Nothing so checks the violence of anger, allays the swelling of pride, heals the wounds of envy, restrains the flow of wantonness, extinguishes the fire of lust, slakes the thirst of covetousness, and puts to flight the temptation to every impure affection. For when I name Jesus, I represent to myself the man, "meek and lowly," and of a loving heart, sober, chaste, pitiful; in a word, conspicuous for all purity and holiness, and at the same time Himself the Almighty God, who, while he heals us by his example, strengthens us by his aid. All this speaks to my heart, as soon as the name of Jesus sounds in my ear.

The Providential congruities between the times of the Old and New Testament, as a learned writer styles them, do very much confirm the authority of both Testaments. From hence we learn that the Scriptures comprehend one entire scene of Providence, which reaches from one end of the world to the other; and that God, who is the beginning and end of all things, by various steps and degrees pursues one great design, viz: the setting up the kingdom of His Son, through the several ages of the world, and will still carry it on by such measures, as seem best to His infinite wisdom, till the great day of the consummation of all things. Such a gradual opening of this wonderful scene of Providence is a new argument of that infinite wisdom which contrived it, and which so fully justifies this mystical way of propounding it.

Some have observed that such as are born of parents who have been childless and aged, have proved very famous; for they seem to be sent on purpose by God into the world to do good, and to be scarce begotten by their parents. Such are something like Isaac, who had a great blessing in him, and seem to be intended by God for some great service, and work in the world.

I love to lose myself in a mystery, to pursue my reason to an *o altitudo!* I can answer all the objections of Satan, and of my rebellious reason, with that odd resolution I learned of Tertullian. *certum est, quia impossibile est!* I desire to exercise my faith in the difficultest points; for to credit ordinary and visible objects, is not faith, but persuasion.

I am a Christian; what I believe is beyond my understanding.

The belief in the doctrine of the incarnation is necessary—(not only to ensure the original purity of our human nature in the person of our Saviour; for as S. Augustine says, *Si esset in Illo peccatum, auferendum esset Illi, non Ipse auferret*, but also)—to teach us whence our own purity and holiness must flow. We are commanded to be holy, and that, even as He is holy. We bring no such purity into the world, nor are we sanctified in the womb: but, as He was sanctified at his conception, so are we at our regeneration.—(*St. John*, i. 13.) The same overshadowing power which formed His human nature, reformeth ours; and the same spirit assureth us of remission of our sins, which caused in Him an exemption from all sin. He, which is born for us upon His incarnation, is born with us upon our regeneration.

THE

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"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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OCTOBER.

"Ere, in the northern gale,
The summer tresses of the trees are gone,
The woods of Autumn all around our vale,
Have put their glory on.

"The mountains that infold,
In their wide sweep the colored landscape round,
Seem groups of giant kings in purple and gold,
That guard the enchanted ground."

Farm Work for the Month.

WHEAT SEEDING.

What can we say that we have not said, to urge the wheat grower to *early* sowing. All ground to be sown, is now, it is to be hoped, in good order, and the seeding may be dispatched with promptuess. By the 15th of the month, let it be completed, if possible. And let it be well understood that at present prices of labour, seed, and other requisites, we cannot afford to sow on poor land. We would sow none without a reasonable prospect of twenty bushels to the acre. Wheat is a tolerably sure crop on good land, an extremely uncertain one on poor land. If the drill be used, as it should be, put always, fifty weight to the acre of some good fertilizer in with the seed, at the same operation. This should be by no means dispensed with, so great is its value in pushing the Fall growth. Nothing reconciles us, at all, to sowing so late as October, but the fact that guano, or other good fertilizers so used, will make a difference of ten days in the time of ripening, besides otherwise profiting the crop. The additional quantity of fertilizing matter needed, whether from the markets, or domestic, may be put on at any time during the Fall, if this drill sowing be not neglected.

TIMOTHY.

Sow Timothy immediately upon finishing the wheat, and upon the same ground, but Clover seed must be delayed in this latitude till Spring. It needs no covering.

SOD GROUND.

We think this the best season for top-dressing grass lands, to thicken up, and improve the sod. Seeds may be sown, if necessary, before the top-dressing. There is, perhaps, no mode of using the manuring material of the farm so economical as putting it on grass land.

But if the manure is wanted for next year's corn, or tobacco, or potato ground, let it be spread on the sod now to remain till the spring ploughing. The value of the manure for the crop, will be in proportion to the length of time its application precedes the ploughing.

CORN FIELD.

Tops and blades that have been converted to fodder, are very valuable, and should have the best protection against rains. Stow them well in barn or shed, but if there be no room there, an old-fashioned fodder house must, of necessity, be made of the tops, and blades and shucks may be stored there.

Very little corn, of common varieties, is fit to be gathered and housed before the close of the month, in Maryland. At any rate, too great haste in taking it to the crib, is to be avoided, lest there be damage from heating.

Seed corn should be gathered in the field. Select large ears, well filled out, and the lowest on the stalk. Choose from prolific stalks. Strip back the shuck, tie in bunches, and hang up to dry, out of the way of rats and mice.

TOBACCO.

Let there be no delay now, in getting the remainder of the tobacco crop, in this latitude, put safely into the house. Two years ago there was great destruction by frost on the night of the 10th of October. This was an unusual occurrence, it is true, but it does sometimes happen, and there is little benefit at any time from having tobacco remain in the field beyond that time.

Hanging in the house, the tobacco should have full benefit of sun and air, in all good weather. After it begins to cure, close the houses in damp weather, and in the evening, if the dews be heavy and weather warm. Warm and moist air, long continued, is especially injurious to the finest sorts during the process of curing, and should be guarded against by tight houses.—Doors should be closed, too, against very high winds.

The use of fire has been in great measure abandoned, on account of damage by smoke, and the great risk of burning, but if these can be avoided, fire is a very useful agency in getting the crop early out of the way of other risks, and into market. In some sections, wood is first burned to charcoal, and then used very advantageously in curing tobacco.

No tobacco house should be without one or more ventilators, on the top, for the free passage through of the air, and openings should be left underneath them in hanging the crop, that there may be ventilation throughout.

POTATOES.

The late crop of potatoes should be gathered by the close of the month, and put away in kilns on the surface of the ground, where it is dry and well drained. They should be spread long enough to dry off surface moisture, and it is very advisable not to dig in wet weather. Bear in mind, that exposure to the light injures their quality, and therefore it is to be avoided. Cover at first with a thin coat of straw, and a few inches of earth. Later in the season, before hard frost, remove to cellar, or cover with another layer of straw, and another of earth of a foot's thickness.

PUMPKINS.

If these are to be fed away early, as is desirable, gather and bring them near to the place of feeding. They may be preserved, if put away without bruising, under a thick covering of dry straw.

PROTECTION OF ANIMALS.

Animals of all kinds should now have protection, especially against cold rains. They should not be allowed to lie in the pastures at night, but brought to the shelter of the yards, as well for their own sake, as to save the manure.

FEEDING.

The feeding of such animals as are intended for the butcher in early winter, or before, should be begun at once. They will make now, much more weight from the same amount of food than in colder weather.

Sheep to be fattened, should have grain given to them in the pasture, beginning with a small quantity, and increasing gradually as they become accustomed to the change.

Oxen should be fed, too, while at pasture, giving them grain where most convenient. It is better, we think, on all accounts, to bring them to their stalls or pens at night, where they should be properly littered, and kept clean.

The feeding of hogs with grain should be commenced, even if they are not brought at once to close quarters in the pens. It gentles them, gets them accustomed to the change of food, and prepares them in every way to profit fast by full feeding, when penned.

Those who would make the best bacon without especial regard to cost, should continue to feed in small enclosures, with running water, if possible, and with shelters which ensure always a dry bed, and protection against bad weather. As soon as they become accustomed to their food, they should have enough to keep them quiet.—Quiet is encouraged, too, by feeding with strictest regularity as to time.

When kept in closer quarters, they may have litter enough to keep them dry, but should not be encouraged, or tempted, to root. The less work they have to do the better. For strictest economy, close pens, raised from the ground, are preferred.

French Horses.

In a recent letter from Paris, John Mitchell gives France a decided preference over England in the matter of fine horses. He says, Paris has the finest carriage horses in the world, and that, although France, a few years ago, was a large purchaser of horses from England and Germany, that country is now able to supply itself with both cavalry and draught. To the stallion establishments sustained in all the departments of France by the government, much of the credit for the improvement in horses is given. Gladiateur, the French horse that won the Derby last year, is now the most noted running horse in the world. He lately won a 10,000 franc cup in France. His owner has entered one of his horses for some of the English races this season.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER, Maryland Agricultural College.

OCTOBER.

This should be a busy month in clearing, storing, digging, and trenching. Keep up a constant war with the weeds, subdue caterpillars which are now molesting all the cabbage tribe. Clear off all decayed and falling leaves, dress and roll all walks which may require it. Dig, trench, and plow up all ground that may require it, and make every part neat and clean. In all probability, during this month, strawberry and other plants recently planted out will show symptoms of wilting and decay, if such should be the case, examine the roots of all those so affected and it is probable that grubs will be found to be the cause; should it be so, every means should be adopted for their extermination. Collect all the leaves which can be got together, and put them in a pit to furnish a supply of leaf mold.

ASPARAGUS

May now be cut down to the surface of the ground. Clean off all weeds, and cover with three or four inches of good, rich manure. We never use the spade either on the beds or in the alleys.

CABBAGE.

Cultivate, and hoe between the rows to destroy all weeds. The main spring crop may be planted out toward the middle of the month. Those sown last month should be pricked out to strengthen, on four foot beds

CARROTS

Should now be taken up and stored.

CAULIFLOWER.

Continue to transplant upon raised beds, so that they can have the protection of mats, or other covering, during severe weather.

CELERY.

It is necessary to take advantage of every favorable opportunity to earth up all that requires it; rather let it remain as it is than attempt to do so while wet, as it will afterwards rot in a very short time.

LETTUCE

Intended for winter use, should be planted in frames admitting air at all favorable times. Should the plants require water, give it to each from a watering pot. Never expose the plants to heavy rains.

PARSLEY.

This, by many, is considered indispensable for the kitchen. Frames should be placed over a portion to protect it from frost. Some roots may be put in pots or boxes, and placed in a green-house, or in any convenient warm place where light is freely admitted.

POTATOES.

The land intended for their culture next spring should be rough dug or plowed, and exposed to the action of the atmosphere as much as possible.

The whole of the main crop should, during the month, be got up and carefully stowed away, being careful to keep each kind separate.

RHUBARB.

To be forced during winter, should now be taken up and laid in some cellar until it is time to put it into boxes, or whatever position it is to occupy when forced. This one of the most useful of our "*Pie Plants*," is usually forced by blanching, which we think very objectionable, as it destroys both color and flavor; our practice is to plant it in heaps of good rich soil beneath the stage of a green-house, or in any structure where light is freely admitted, and the temperature from 60 to 65 fah.

The Fruit Garden.

FRUIT TREES.

To be planted soon as the foliage commences falling. Manure not to be used unless the ground is in a poor condition, and then a little fresh soil should be used with it, good turf or clay. The clearings of ponds and drains are all excellent materials to invigorate an old worn out soil required for fresh culture, as also to give body to poor sandy soils. In planting, keep all roots near the surface; never plant any tree deeper than it was before, and if it was evidently too deeply planted before, give it a better chance than it had previously by more shallow planting. Place a stake to each tree soon as planted to prevent being rocked by the wind; when large trees are to be removed they should be taken up with the greatest care, every root should be carefully preserved, more especially the small ones, this we have found to be a matter of much more importance than that of preserving an immense ball of earth to a few of the larger roots. Should a tree lose, by accident, many of its roots by removal, a part of the head should be pruned away, as the head and root should always bear some proportion to each other; apple and pear trees may now be carefully pruned and trimmed. If the head of these were kept well trimmed out, that the sun and air could reach the whole of the branches, there would be much finer fruit, much cleaner and more healthy appearance, and the ground beneath them would be less injured. It is very

improper to allow the heads of fruit trees to grow into dense thickets of small wood instead of good, healthy shoots. We scarcely pass by an orchard that would not be benefitted by judicious pruning, cleaning, &c., by taking out half the trees, and one-half the branches left.

Look over all picked fruit frequently, to see that all is keeping well, removing any that may show any symptom of decay. It is now a good time to root-prune any fruit trees which are grown so luxuriantly to wood, without producing fruit. This operation we consider as one of the essentials to perfect success in the cultivation of the apple, pear, peach, plum, &c., having pursued the practice for a number of years with the most satisfactory results. Our method is to open a deep, and wide, trench at a proper distance from the stem, so that we can work with freedom, standing on a level with the lower roots, when we find no difficulty in undermining the tree. As the smaller roots are cleared they are tied up in bundles, in order to prevent their being bruised, the large perpendicular roots are cut with a saw some three feet from the main stem. All bruised portions being carefully pruned away, the smaller roots carefully replaced, and a small portion of well decayed manure and fresh soil added to the trunk.

RASPBERRY PLANTATIONS

May now be cleared of all dead canes and superfluous wood; the suckers should be taken off, and where required should be planted for succession.

FIG TREES.

It will be a great benefit to have some spruce or other evergreen boughs placed around them to prevent injury from frost; though this is less likely to occur this season than in many we can remember, as from the fine, bright summer we have had, the wood is becoming (Sept. 10th) well ripened not only upon the "fig," but upon every description of trees; consequently, they will receive the effects of severe weather with much greater impunity.

CURRANTS

May now be planted, as the next year's crop will be less jeopardized by getting them early to the places in which they are to fruit. Work in a good dressing of manure between the rows in old plantations; put in cuttings of choice sorts, the cuttings should be straight ripe shoots of *this* year's growth, and all the lower buds removed, in order to prevent the throwing up of suckers.

Five two-year-old ewes, belonging to E. N. Bissell, Richville, Vt., sheared sixty-seven pounds of wool, the growth of five days less than a year.

The Flower Garden.

BULBS.

Plant Hyacinths, Early Tulips, Narcissi, Liliums, &c., in the open border, and continue to pot and glass Hyacinths in succession, so as to prolong the season of blooming.

CHRYSANTHEMUMS

Should be attended to, so that they may have a fair chance of making good bloom. Give them clear liquid manure, and stake them securely, as the blossoms of the larger kinds are very heavy, and often weigh down the stems, or cause frail sticks to snap off. We never place them in the greenhouse so long as they are safe from frosts, except that any are required for early bloom.

FUCHSIAS

May be kept in bloom very late in the season by keeping them rather close. Plants going out of bloom, and which are to be grown another season, should be kept out of doors to ripen the wood, and left unpruned until some light frosts; then cut them in, say one-third of the last summer's growth, and protect them in any moderately dry place protected from frost, where they may remain until they commence to grow next spring.

ROSES.

The planting of the hardy kinds may be proceeded with in earnest; the ground should be spaded at least eighteen inches deep, and a liberal portion of rotten manure mixed with the soil. Protect the roots of Tea, and Bourbons, with a coat of good rotten manure and wood ashes. The planting of all kinds of hardy trees and shrubs may now be advantageously proceeded with. Where there are grass lawns, and gravel walks, they should be constantly attended to, or otherwise they will soon become unsightly; take up the "Dahlias" as soon as the tips are frosted; do not take too much soil from them, as it proves a protection when dry.

Transplant Hardy, Herbaceous Plants, such as Sweet Williams, Campanulas, Canterberry Bells, &c., &c., into the flower borders. Revise the whole stock of pot plants as opportunities offer; remove worms from pots by the application of lime water; renew the drainage where stopped, and otherwise prepare for the casualties of winter. Plants in pots, which have been standing out, should now be taken into the green, or dwelling-house.

In the English *Cottage Gardner* is an account of an enormous grape vine on the coast between Tyre and Sidon. It branches into two stems, one of which was 50 3-4 inches in circumference, and the other 40 inches.

For the American Farmer.

Drainage.

For some twelve years past, we have been accustomed to hear great complaints of the misbehaviour of fruit trees, grape vines, vegetable crops, the unsatisfactory blooming of roses, and many other things. We have, during the above mentioned time, witnessed the *preparation* of the ground, and planting of thousands of acres to fruit and other trees, *nine-tenths* of which, this day, are numbered with the things which were; thousands of these trees are lost for the *want of drainage*.

In our travels (we will not say where) we have seen people labouring away at the surface, raising the level by additions of soil, manuring liberally, removing plants which have not prospered, and planting others in hopes of better luck *"next time;"* and we can tell them when all is done, that until they secure the first *essential of success* —a removal of surplus water—there can be *no* success to their efforts; dig, sweat, and go ahead as they may. To those about to plant fruit trees, grape vines, &c., we would respectfully suggest that they open a hole two feet deep upon the land proposed to be planted, which will soon prove whether the surface soil is saturated or not; should the hole be filled with water, as in many cases it will be, it will be sufficient evidence that any cavity, tunnel or opening would draw it off according to the capacity of the opening, and that, therefore, very simple, and comparatively inexpensive means, would suffice to enable the soil to get rid of the water, which is in excess of its power of absorption. Three inch cavities, from two to three feet deep, made by pipes or otherwise, at a regular fall, will effectually drain a breadth of from twenty to one hundred feet in width, according to the nature of the soil, and its relative level. We have, as a general rule, laid our drains about three feet deep, and twenty-four feet apart; but in heavy retentive soils they will not be too close at twelve feet.

In districts subject to moles, we have used one inch pipes with very satisfactory results. In very flat land, we have found a fall of one in thirty-six to be sufficient to keep the water moving; but a rapid fall is much preferable, as after heavy rain storms a quick removal is very desirable.

We cannot now enter into all the details of the all-important subject; but as it is now a good time to drain lands requiring it, we would remind all who intend to plant fruit trees, that good and thorough drainage is most essential, as it promotes the warmth and fertility of the soil; on the other hand we can say, from observation and experience, that a water-logged soil is almost poisonous to every kind of fruit bearing plant.

DANIEL BARKER.

Fruit Department.

Growing Grape Vines from Eyes for Vineyard Planting.

There are two different methods I practice in this country, after many laborious experiments, valuable time, and cost.

The first plan is the out-of-door propagation of the readier and more willing kinds. For these I procure well-ripened wood, as late as possible in the autumn before the severe frost sets in; cut it into single eyes, and plant them without delay in rows, on a bed crossways in the open ground (rather exposed than sheltered), which is five to six feet wide, and in length according to the quantity of vine eyes, and prepared with the best possible soil as generally used for that purpose. After planting them I gave a cover of two inches and a half well seasoned loam, and half coarse sand well mixed, and do not water them, but let the soil be tolerably damp in good working order. After two weeks planting or more, if the weather permits, it not being wet, I cover the bed three feet with half-decayed horse manure, mixed with half fallen leaves, and lastly, line the whole bed three feet with the same material, no frost or moisture being able to penetrate,—not even 20 degress below zero.

In the beginning of April I remove the lining and covering, and place over the beds frames with sashes, and in a very short time the eyes make their appearance; by degrees I give air when the weather requires it. As the plants grow I raise the frames, and ultimately remove sashes and frames altogether, and leave them to the open air without disturbing or transplanting.

The more obstinate kinds I raise in-doors, with and without bottom heat, in sand beds only three to four inches deep; the eyes being covered half an inch.

Of these latter I likewise procure the wood and cut it up as above, but instead of planting the eyes at once on the beds, I, for two months, place them in barrels between layers of moist sand. About the middle of February, I plant them on these beds in-doors, and as soon as struck, plant them in well prepared pits, and treat them as the out-of door eyes.

This is the mechanical part of that business, and my method here, and if the watchful eye of

the experienced propagator but assists, final success is unavoidable.—C. GRUNEBERG, *in Gardeners' Monthly.*

Loading the Vine.

This is a very important part of the management of the vineyard, both in regard to the health of the vine, and the maturity of the fruit. The grapes of an overloaded vine are always poor and sour, being never thoroughly ripened, and will not bring more than half price in the market compared with well ripened fruit. Our experience in vineyard culture has convinced us that fifteen pounds of grapes to a vine is enough, in consideration of the future health of the vine, and the full development and early maturity of the fruit; and for such varieties as the Delaware and Rebecca, the quantity should not exceed ten or twelve pounds. Of coarse, isolated vines that have a great range, may be allowed to bear a large quantity.

We have for the last three years succeeded in ripening the Isabella at Oneida, by allowing the vine plenty of bearing wood, and carefully restricting the quantity of fruit. At the time of the first summer stopping or pinching, a glance over the vine will readily discover how many embryo bunches the vine has set, and knowing about the average weight of a cluster of each variety, you can, without much loss of time, reduce the number to the desired quantity, by pinching off the third bunch of each bearing branch, which is always the latest in ripening, thus leaving but two clusters, and if necessary the number can be reduced to one.

There is a difference of opinion in regard to summer pruning, some advocating close pinching, others a more liberal course, and still others objecting to summer pruning altogether. Undoubtedly the safest course is between the two extremes. The extension of the bearing branch to any great length beyond the last bunch, is of no benefit in developing the fruit, but tends to retard it; therefore the branch should be stopped at one or two joints beyond the fruit, and not allowed to extend further. The laterials will now burst forth and push rapidly, and should be handled with care. Situated as they are, exactly opposite the clusters, it will be seen that a few well-grown leaves at this point, must be of great value in developing and ultimately maturing the fruit. The laterals, however, should be stopped at the proper length, after leaving one or two leaves, as the case may require, and one additional leaf at each subsequent pinching.—*The Circular.*

The Fruit Garden.

If large fruit is wanted, thinning assists. Strawberries are increased in size by watering in a dry time. Fruit should be allowed to bear only according to their strength. If a transplanted tree grows freely, it may bear a few fruits—but bear in mind, growth and great fruitfulness are antagonistic processes.

Handsome forms are as desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton—but it is summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than others. Equality must be insisted upon. Pinch out always as soon as they appear, such as would push too strongly ahead, and keep doing so till the new buds seem no stronger than the others. Thus the food gets equally distributed.

Whether strawberries should have runners cut off, depends much on kind and soil. Free growing kinds may grow too freely often in rich soils. Allowing them to exhaust themselves, and the soil, by growing thick together, is an advantage. Shyer growing kinds would not do well under such treatment. Most garden soils are rich; but on the whole, the most profitable and best plan, is the system of cutting runners off

If there be any blackberry really earlier than Dorchester, it will be well for those who love this fruit to look out in time and satisfy themselves. They will be in bloom about the end of June in very early places.—*Gardeners' Monthly.*

Scuppernong.

We assert this grape to be worth more to us of the South, than all others put together. The fruit is of large size; sweet; of delicious flavor; subject to no disease, nor liable to the depredations of insects or birds; it makes a finer and more delicate flavored, sparkling wine, than any other in the world, but requires very strong bottles to hold it. Some object to it because the berries do not all ripen at once. All the the reply we have to make is, cultivate the vines well, and when they are eight or nine years old, you will have as many as you want for the space of a month at all times. We do not hesittate to predict, that sparkling wine will yet be made from this grape, commanding a higher price than any other wine in the world. And as the vine can only be grown successfully in the Southern States, we urge it upon the attention of amateurs, and for vineyard culture, as far more remunerating than the Catawba, or any other variety, as it requires but very little attention to cultivate it, is enormously productive, and probably longer lived than any other known variety.—J. VAN BUREN.

The Nursery Trade.

The results of the past year, says the *Horticulturist*, have developed some very curious examples of timidity in this line of business—a business that now stands on a broad and permanent foundation, and is as legitimate in its pursuits and results as any other business that can be named, and yet, by a very large number, evidently carried on with the momentary expectation that all demand will suddenly cease. The question was asked, upwards of twenty years ago, of a nurseyman who stocked an acre near Hartford, Conn., "Where will you find a market for all your trees?" and since then nurseries have gone on increasing in numbers and extent year after year, and now the public are clamorous to know where they can find peach trees, plum trees, crab apples, quinces, evergreen seeds, Concord grape vines, and grape vines of all kinds. This kind of questioning is getting to be quite an important part of our correspondence, and we must decline answering it in any other manner except through our advertising columns. But the men who trembled the most were those who propagated grape vines most extensively. They evidently thought that a small matter of two or three hundred thousand vines would glut the market; and the cut throat game of seven or eight cents apiece for Concord vines was an evidence of fear by which the buyer profited largely. Now, in the month of December, when prudent buyers are looking out for next spring, Concord vines are scarcer at four times the price. We hear a great deal of talk about grape fever; but what does the whole of it amount to? About one of the most imperceptible things in existence. How many farmers in all this broad land have a single grape vine? Take all the acres of vineyard from the Atlantic to the Pacific coast, put them together, and how many townships in this State would they cover? Grow all the fruit, and make all the wine possible, and this city would call for more. This grape business is only in its infancy, and its progress will not end with this generation. How many farmers take an agricultural paper? Not one in ten. The balance know nothing—they don't want to know anything—and it will take years to educate such men to know the difference between good grapes and poor ones: but it can be done. It requires persistent application. There is steady progress; we have full faith in it. The time will come when every one will not be satisfied with a single vine; they will require dozens and hundreds. What our grape vine propagators ought to do, is to raise the first rate vines, and then let the public know that they have them for sale. Advertise boldly, liberally, persistently; keep at it week after week, month after month; spend your profits in printer's ink; it will all come back in good time, and goodly fortune besides.

Why Orchards Deteriorate.

Fruit trees, like everything else whose sustenance is derived from the earth, are subject to decay, but by improper management they are often killed before their natural productive power is half exhausted. This is not the fault of the variety planted, the locality, nor the severity of the weather, except in rare instances, but of those who have the care and culture of them. The trouble generally arises from the want of thought or the cupidity of the owner. He plants an orchard, the trees perhaps twenty feet apart. In a few years, if they grow well, their branches will cover a large portion of the intervening space. But some ground is still unshaded, and the orchardist thinks it is a pity that this should lie waste. The plough is introduced, and what is the reeult? Simply this; hundreds and hundreds of the small fibres, reaching out from the main roots in search of sustenance for the trunk, are severed; their absorbing and conducting power is destroyed, and the trees and branches, sustained by their active functions, wither; it ceases to yield its wonted burden of fruit, and, after a few years of languid life, permaturely dies.

The truth is, the farmer asks too much of his soil; wants it to impart vigor and fruitfulness to from fifty to eighty trees to the acre, besides giving him a crop of corn and potatoes annually. To secure the last he cuts the thousands of fibres of his trees with the plow, and then wonders why his orchard decays and dies prematurely! This is bad policy and poor practice. Do not ask too much from the soil. Give it a chance to nourish and sustain one product to a full development, rather than by a multiplication of them, to secure stinted samples of immature ones. The earth, properly manured and tilled, is munificent in its gifts to man, but when overtaxed by a multiplicity of exactions its response to his labors will be feeble and unsatisfactory.—*Rural New Yorker.*

Sunflowers should be cultivated around back yards, garden houses, pig stys, poultry yards, &c. Their stems and foilage absord a great deal of carbonic acid gas, and thereby prevent disease. Their seeds are good food for horses and poultry.

Wine Making.

BY HON. E. W. BULL, OF CONCORD, MASS.

It has been supposed that wine making was a difficult art, requiring great skill and long practice, and this is probably true of some rare and delicate wines, but sound and wholesome wine, and wine of good quality, too, may be made without a large experience, if certain rules are observed which are within the reach of the plainest common sense.

In the first place, care must be taken to keep all the vessels and utensils perfectly clean. These should all be of wood, as metal gives a bad flavor to the wine, which is sometimes a long time in passing off. If possible, have the mash tub large enough to hold a barrel of wine, if you have grapes enough to make so much, and a press which will enable you to fill up the barrel as rapidly as possible, so that the fermentation may commence in the whole body of the wine at the same time.

Let the grapes be ripe, but not over-ripe, that you may get their best flavor. It is not necessary to the making of a good wine that much sugar should be present in the grape, that can be added, but it is best to secure the real wine making properties, such as flavor and aroma and the gluten or yeast making property of the grape, and some of these properties are altered, and sometimes impaired, by over-ripeness, while your sole gain is in the amount of sugar which the grape contains. Gather the grapes when dry, and, if possible, in a cool, dry day.

The casks should not be new, for the new wood would be likely to give an unpleasant flavor to the wine. It is better to use casks which have already contained wine or spirit, and which are strong and well hooped; let them be perfectly sweet and clean also, and your casks are ready for use.

All grapes do not make equally good wine: some of the finest table grapes will not make wine, while some of our wild grapes, those which are not of too harsh flavor, will make a very good wine, if you follow the method which I shall describe before the close of this article. My own experience is confined almost wholly to the Concord grape, which I treat as follows.

If I desire to make a delicate, light colored wine, I gather the grapes as soon as they are well ripened, and take them immediately to the press, into which I put them without stripping them from the stems or bruising them. The screw will press out nearly the whole juice, which often runs from the press without color, making a white wine. This wine has a very delicate and agreeable flavor, but does not keep so long, I think, as that which is fermented on the stem and skin and seed, before pressing.

The grape rarely, if ever, contains sugar enough to make a sound wine when it is grown at the North. An instrument called a mash scale indicates the per cent. of sugar which the mash contains, but, as few persons will care to go to the trouble and expense of obtaining one of these, I mention another method which is about as good, and very nearly accurate. Take a new laid egg and put it into the mash, and add sugar until the egg will float on the liquid, exposing a surface equal in diameter to an old fashioned cent, or about one inch. The amount of sugar you find to be necessary for one gallon will give you the proportion for the whole quantity you make from the same grape. Now press your grapes as rapidly as possible, and put the juice at once into the cask, which should not be quite full until the fermentation is well a going, then fill up to the bung and let it work over a little, so as to clear the wine a little. If, however, the fermentation subsides, and the mash shrinks back into the barrel, as it will sometimes do, add the yeast again, (having caught and saved it for that purpose,) and the fermentation will start again.

A vigorous fermentation is believed to be the best; if, however, the fermentation proceed slowly, you should keep the air from the mash by laying on the bung lightly, or what is better, by putting one end of a bent tube through the close fitting bung into the barrel, and the other end into a vessel containing water. The gas which escapes from the barrel passes through the tube into the water, from which it escapes in bubbles, and the water prevents any return of air through the tube into the barrel to sour the wine. After several days, sometimes weeks, the fermentation subsides, and the liquor begins to clear, and the lees are thrown down. Now is the time to draw off the wine, clean out the cask of all settlings, and after returning the wine to the cask, put it into a sweet and dry cellar to ripen.—*Massachusetts Ploughman.*

Sorgo Sugar.

A Lebanon (Ohio) paper says: "The question 'can sugar be made from sorghum?' has been answered by the Shakers at Union Village. They have a method of their own discovery, by which they make sugar from the pure sorghum material. We have seen a specimen. It is very dark, exceedingly coarse-grained, and has the real sorghum taste, but it is thoroughly dry, and is indeed sugar. They have not brought their method to perfection, but they expect in a short time to be able to make a good article."

On the Part which the Atmosphere and the Soil Respectively Play in the Development of Vegetation and the true Theory of Agriculture.

BY J. G. MACVICAR, D. D., MOFFAT.

[*Concluded.*]

Has, then, let us ask, this cosmical disposition on the part of these great neighbours, the earth and the air, to keep the law and live in harmony together, to interlace their borders, and adopt as far as possible each other's substance and forms on their common frontier, been permitted to realize itself? Do we find that, on the mutual confines of the air and the earth, the air-particles seek downwards and become concrete, while the earth-particles, water included, seek upwards, and spread themselves abroad in the air? Yes; it will be immediately granted that the soil absorbs and retains in it a goodly portion of air and vapour. The earth also, it will be admitted, the more fully it is exposed to the air, becomes more and more pulverulent—nay, often rises in clouds of dust; nay, of fish; nay, of frogs; nay, what not, utterly to astonish the natives by their fall again. Certain earth-particles, also (potass, lime, &c.), in places where the air is still, are well known to effloresce beautifully into the atmosphere, as if to anticipate vegetable nature. Moreover, the aqueous matter of the earth is ever tending to rise into the air as vapour. Yes; it is to the law of assimilation (as the rational cause) that we owe the existence of the cloud world, so varied, so grand; and not less benignant than beautiful. For when it exists as vapour in the air, it is no less under the law of assimilation than it was when in the earth as water. And, in consequence of this, having now gained the aeriform state, and satisfied the demands of the atmosphere, it is called upon by the earth to satisfy its demand under the same law, and to become assimilated to it in its turn—that is, to become concrete. And, accordingly, with prompt obedience, from its aptitude for the concrete state, the cloud-matter forms into little masses while yet on high; and pouring down as rain, and hail, and snow, it not only assimilates itself with the concrete earth as a concrete form, but it ploughs the bald surface into many a ravine, thus enabling the air to penetrate deeper and lock with the earth more closely. Meanwhile the earth, by secular upliftings, meets the cloud half-way, and, summoning to its aid the volcano and the central heat, rises high in Alp and mountain-range, keen air piercing into the deep valleys between. Thus that which to blind sensibility seems but the war of the elements, is to intelligence a harmony and a mutual embracing. The storms and convulsions of nature are products of a law which has repose for its end and aim, and which is, as has been already stated, the symbol and representative in nature, of the unity and immutability of the Deity. The law of assimilation by which a wound granulates and our organization is redintegrated, by which our strength, physical and intellectual, is restored hour from hour, is also that by which the surface of our globe, from being a bald geometric surface, is made rugged and hoary—that by which the beautiful, the picturesque, and the sublime, are imparted to nature, and a sheltered dwelling place secured for man and other animals.

Nor is this all. By the miracle of creation at first, and by sowing the surface of the earth thereafter, with the seeds of plants, the Creator has enabled the earth and the air to fulfil the law of assimilation and harmony between them in a manner that is most complete and most beautiful. For the fully-developed seed, the individual plant, the vegetable kingdom as a whole, what is it, when viewed in relation to the atmosphere, but air become concrete as vegetable tissue, piercing down into the earth and rooting itself in it? And, viewed in reference to the earth, what is it but a system of earth-particles, aqueous, gemmeous, earthy, saline, suspended and diffused in air to the utmost, by the concrete air-tissue (that is, the vegetable tissue) as a scaffolding; these particles, meanwhile, in so far as they are capable of the aeriform state, exhaling into the air in forms often fragrant, and always more aeriform than those in which they enter the plant? Yes; the calling of the vegetable kingdom, the charter of its existence with antecedent nature, the earth and the air, is to realize and fulfil the law of continuity, of harmony, of assimilation, on their mutual confines, (1) to carry up in forms as aerial as possible earth-particles, and to suspend them in a state of diffusion in the air when they cannot be made to vaporize into into it, and (2) to carry down, in forms as concrete as possible, air-particles into the earth.

And in this theory (along with that which gives the spherical superficies as the most general archetype of all forms that are the products of the physical forces) we have a satisfactory explanation of the forms of the plant-world in general. Here we see why a fully-developed plant must consist of an aerial and a terrene part, of widely-spreading morsels of surface or leaves, supported, if need be, on radii as leaf-stalk, branch, and stem, and of deep striking roots and rootlets. There is no longer room for wonder why plants and flowers, things of such

beauty, should be so fragile and so fading, the sport of every blast. The plant-form must intercede between the fickle air and the fixed fleeting earth, on their mutual confines. The plant must bring these heterogeneous elements together and reconcile them. And therefore, inasmuch as the air is very tenuous, elastic, mobile, spreading wide and rising high, while the earth is concrete, inelastic, fixed, and lying low, the plant which is appointed to represent both in itself, and each favourably to the other, must have a form that shall be tenuous, mobile, elastic, carrying up and distributing in the air such earth-particles as are capable of isolation and solution, as widely and as high over head as possible. It must, as an individual, be a wavy fleeting thing. If it is to acquire stability. and to last for years, or generations, or ages, it must consent to the compromise of its individuality. It must have recourse to the principle of association. Many must merge into one. The phyton must become a branching plant or tree.

That the plant-form, especially when an annual merely, must, from its tenuous and expanded character, be very liable to injury, is an inevitable consequence. But in creation, as it actually stands, is this an evil? Nay; to the very extent that the plant-world is easily destructible, it is suitable as food for a higher order of beings —beings possessing sensibility, and that sensibility so adjusted to their organization that a state of organic well-being in them is a state of enjoyment to them; beings teeming in multitude —creatures such, that it may be truly said, in a high sense, that after the glory of the Creator himself, creation exists for their sakes.

To our theory there also attaches a definite conception of plant-life and function. A plant, according to what has been shown, consists at once of an ascending and a descending system of parts and action; and for the full development of the plant, a corresponding amount of energy must be simultaneously imparted to both these systems and modes of action. If the proper earth-particles which it is the duty of that species of plant to raise and suspend in the air are wanting in the soil where it is put to grow, the plant has nothing to do, and it will not grow either well or long. And if light and heat, which energise the air, are wanting, all the peculiar phenomena of vegetable synthesis must fail.

The ascending system of parts and action commences in the soil, and from concrete molecules in contact with the spongioles of the root, it takes up such as it can, analyzing and reducing them more and more towards the purely aeriform state; thus resolving water into common vapour, common vapour into oxygen and hydrogen, ammoniacal compounds into ammoniacal vapour, and ammoniacal vapour into nitrogen and hydrogen; also decomposing carbonic acid into oxygen and carbon, at least if nascent hydrogen be present, so that the carbon, by union with the hydrogen, may be rendered more aeriform than it is by itself, and thus may form the basis of some Essence by which the fragrance of the vegetable kingdom may be added to the vital air which, in these circumstances, that kingdom must constantly tend to evolve. Add to these things and to this mode of action the elevation out of the earth towards the periphery of the plant, that they may be diffused and suspended in the air to the utmost, the fixed earth-particles of carbon or diamond, potassium, silica, phosphorus, calcium, sodium, magnesium, sulphur, iron, &c., and it will be seen how much the root-system of a plant has to do.

But, for success in the accomplishment of this analytical function, it is wholly indispensable that the descending system which originates in the air and belongs to the leaf shall co-operate in energy; for as the ascending or root system is essentially analytic, or in the interest of aeriforms, so this, the descending or leaf-system, is essentially synthetic, or in the interest of concretes. An atom of carbon will not leave those of oxygen with which it is combined in carbonic acid merely to fall down and clog the plant as soot. While the root-system solicits the oxygens and carbon to part company, and offers nascent hydrogen for union to both, it is the descending, the leaf-system, that which has light and heat as its energizing principles, that actually effects the exchange. The leaf-system calls for molecules still more and more highly-compounded, for the construction of which, above all others, hydrocarbon is well-suited. But how, it may be asked, shall highly compounded molecules be able to maintain their existence if originating in the leaves and destined to encounter in the plant the analysing system of action that is ever ascending from the roots? For this they must be able to fulfil one or other of these two conditions: *first*, they must escape out of the cells in which the analyzing plant-action is going on, and get into places or vessels apart; or, *secondly*, they must possess in themselves molecular stability while in the plant. Now, under one or other of these two conditions, it may be shown that all the permanent products of vegetable nature fall. Wax, one of the most highly compounded of them all, even often gains the outside and reposes on the leaf or the fruit, as does also sugar sometimes. All essential oils, resins, alkaloids, crys-

tals, &c., exist in cells, apart; while as to starch, it is a vegetable substance constructed in such harmony with the whole action of the plant, that it is no more to be expected that a fully-developed plant will break starch up, than if it were the acknowledged embryo of cellulose. It is otherwise with sugar. But these views cannot be followed up by the ordinary lights of the laboratory. With the single exception of the sugars, all the formulæ of the tectonic elements of the vegetable kingdom are uncontrolled and destitute of significancy.

Now, it will be immediately perceived that to this theory of the natures of a plant, and the position of the vegetable kingdom in the economy of nature, a definite system of cultivation attaches; and certain great questions in agriculture receive a definite solution.

A plant, according to the view which has just been given of its nature, must consist simultaneously of air-elements and of earth-elements. These elements, therefore, must be its food. And it will grow well in proportion as it can succeed in simultaneously rendering the air-elements concrete and quasi-terrene in the lower part of its form, and the earth elements aeriform, volatile, or fragrant, or quasi-aerial, in the upper part of its form; as, for instance, distributed in lace-work all over its surface, and suspended in the air by the plant-tissue as a scaffolding.

The whole secret of successful cultivation, therefore, must lie in securing for the plant a never-failing supply of both classes of elements in contact with the organs appropriate for absorbing them, and that in the state most suitable for being absorbed and assimilated by these organs.

Now, on entering on details with a view to practice, it is encouraging to have to observe, in the very first place (inasmuch as practical proceedings can scarcely be applied to the air), that there is not one of the air-elements, unless it be atmospherical nitrogen itself, which is not an earth-element also; so that, through the soil, we can operate upon the whole plant, and so far develop or control its growth. Oxygen and carbonic acid enter largely into the composition of the crust of the earth, and the abundance of water below has gained for the world the name of the terraqueous globe. Ammonia, also, is no less terrene than atmospherical; it is even found among the products of the volcano. Even nitrogen (as I believe), when it meets with highly tectonic earth-elements, such as lime and potass in the presence of oxygen, tends to become concrete along with them, and to form beautiful efflorescences. But whether this be granted or not, it is obvious that the air-elements generally are earth-elements also, and have therefore a right to enter the plant by its earth-roots or spongioles, as well as by its air-roots or leaves, the first organic product of both being cellulose.

Hence, although the air cannot be modified to any great extent in the interest of a crop, yet by operating on the soil much may be done to develop or modify the entire plant, according as it is quantity or quality, foliage or fruit, stem or root, that is wanted by the cultivator. That he must keep the special end he has in view continually in mind, follows from the incompatibility of several of these products as simultaneous maxims. This incompatibility extends in fact to foliage and fruit or seed. It is impossible in the same plant to have a maximum of both. In order to obtain a maximum of foliage, conditions of existence must be secured which are most favourable to the extension and life of the individual where it is now growing. Its axes will then tend to maintain a character suitable for indefinite extension. New branches, bearing leaf-buds only, will manifest themselves, or, more generally speaking, foliage only. The plant will delay flowering till the last moment possible. In order to obtain a maximum of fruit or other seed, on the other hand, the conditions of existence must be such as, while promising the life of the species, they rather threaten than favour that of the individual. The individual plant-form in that case will not venture to extend itself. Its axes will tend to become finite by terminating in ovules (with their accompanying floral envelopes); for ovules are repetitions of the spongioles of the roots, and thus complete the symmetry of the axis and close the form, and permit the plant to die in peace, the continuation of the species provided for. A rational system of cultivation, according to our views, must therefore consist in providing especially for these three things:—

1. *An ample area for each plant*, that there may be abundant air-food for the foliage, and earth-food for the root.

2. *The full development of the root, and the prevention of injury to it*, whether by mechanical obstructions or poisons in the soil.

3. *The storing of the soil with food for the plant;* that is, with those concrete air-and-earth elements of which the plant under cultivation consists, and that, so that they may severally present themselves to the rootlets in a state fit for absorption at the several epochs during the growth of the plant, when they are needed for its development, whether soon after germination

for the foliage, or afterwards for the seed or fruit.

The reader will be able to deduce for himself the practical operations which these requirements suggest. Here I shall content myself with stating that the theory of Plant-life here adduced gives no countenance to such an idea as that a crop can be immediately fed at the root, in a healthy manner, on raw chemicals, acids, alkalis, or salts dissolved in water, or indeed on anything in a highly analyzed or dissolved state. As our theory gives analysis as the function of the ascending system in the plant, so it implies that the root normally commences operations on molecules in a highly synthetic state, on lakes composed partly of organic or aerial, and partly of earthy or saline constituents. It presents to us the perfection of cultivation, as consisting in making the soil in which the special crop is to grow a general compost, answerable in its constituents to those of the crop which is to be grown in it, and at the same time such as to mechanical condition, that it is thoroughly permeable to the growing roots, to the full extent to which they tend to stretch. From the wonderful power of soil as a filter for giving pure water, it appears that earthy, saline, and organic matters unite with it very readily; and the direct application of salts to crops, and the ploughing in of growing crops, may be excellent ways of generating the molecular compost which a well-conditioned field ought to be. But our theory certainly points with favour to the old doctrine of an abundance of well-rotted manure as the grand desideratum, when our object is to carry off as much vegetable matter from a field in one year, as that field would only give in several years if left to the course of Nature. It finds no necessity, however, for the water which usually constitutes the bulk and the inconvenience of such manure; it apprehends no material loss from the desiccation of manure to a great extent; and it proposes the reduction of the bulk of manure, so that it may be carried like seed, and sown with it, as the great object which the enlightened agriculturist ought at the present day especially to aim at. It repudiates all extreme conceptions, however, in this matter, as in all others, and approves of the wit of the old Scotch judge, who, when his brother judge assured him that the new chemistry would enable a farmer to carry out the entire manure for a field in his waistcoat pocket, replied—"Yes; and bring home the crop too." The anecdote refers to the chemistry of Lavoisier, however, and not that of Liebig, who, though sometimes over-sanguine, no doubt, has yet more insight into the economy of organic nature than any one who ever lived before him, and has laid the world under deep and lasting obligations to him for what he has done, and is doing, for agriculture.

Boiled Wheat.

It is possibly not as well understood as it should be, among housekeepers, that a healthful and nutritive food may be prepared by boiling wheat to be eaten with milk or molasses—the former to be preferred when attainable. It is a first rate thing for children, while adults may use it to advantage. Some have the wheat cracked in a mill before using, which is perhaps the preferable plan, but it will answer well without this preparation. A lady correspondent of the Ohio *Farmer* says, "The wheat should be cracked in a mill. Take one quart and put it into half a pot of warm water, and let it stand upon the stove several hours; then boil slowly, and stir it occasionally, till it becomes thick; put in a handful of salt. For children it can be used with milk. If left standing till cool, it is very nice to cut in slices, and use it with cream and sugar, or fry it like mush; the last mentioned I prefer for general use, but it can be prepared in various ways."

If boiled whole, the wheat should be allowed to soak in tepid water before boiling. that the grain may have a chance to soften and swell. When properly boiled, use with milk suitably seasoned with salt and pepper, and it will be found a nourishing, healthful and palatable dish.

Salt for Fattening Swine.

A correspondent of the Annalen des Landwirthschaft states some interesting experiments to test the use of salt in fattening swine. He selected two pairs of barrow hogs, weighing 200 pounds apiece. One pair received, with their daily allowance of food, two ounces of salt; the other pair, similarly fed, none. In the course of a week it was easily seen that the salted pair had a much stronger appetite than the others, and after a fortnight it was increased to two ounces apiece. After four months the weight of the salted hogs 350 pounds each, while that of the unsalted, five weeks later, reached only 300 pounds. The experiment was repeated with almost precisely the same results. The author feeds young pigs, according to their age, a quarter of an ounce daily; breeding sows very little during pregnancy, and during the heat of summer withholds it in a great degree from all, as it induces thirst and liability to disease.

Meadow Land.

Meadows cannot be expected to produce heavy crops if they are mowed, year after year, without the application of manure in the shape of top dressing. Nothing exhausts grass land more than repeated mowings, and on this account the most intelligent farmers manage to alternate pasture with meadow, occasional grazing being considered a rest for the land when compared with mowing. In the rich fattening pastures of Great Britain and Ireland the farmers never wish to meadow or mow the best feeding grass, if forage can be raised in any other way, as meadowing is considered to injure the pasture in various ways, such as giving weeds an opportunity of springing up, ripening their seeds and sowing them extensively.

When a field is "meadowed" or put up for mowing, the coarse grasses grow taller than the good feeding varieties, which spread along the surface, forming the sward so much relished by stock; these latter being overshadowed become weak, and do not recover from the effects of the meadowing for at least one year. Another cause of injury is mowing the grass close to the ground and removing the leaves and stems altogether from the roots. In pastures, the grass is removed gradually, and unless in dry seasons, and in over stocked lands, the surface is never completely bare. The mowing of meadows in the heat of Summer, thereby removing all shelter from the roots, and exposing them to the direct rays of the sun, has a very unfavorable effect on grasses of every kind.

When we want to destroy perennial weeds, one of the most effectual methods we have for doing so, is cutting the leaves and stems close to the ground, and keeping them down by the frequent use of the scythe or hoe, yet we expect grass to be an exception to all other plants, for we feel disappointed when a meadow which has been mowed in the heat of Summer, and grazed closely in the Fall, does not yield a full crop the ensuing year.

Farmers who are careful of their good meadow land, never permit stock to eat the aftermath; it is allowed to grow and protect the roots from the sun, and also to extract such ingredients as the atmosphere affords. The aftermath is cut down by frost in Winter, and rotting on the surface, furnishes an excellent mulch for the roots of the grass. In the vicinity of Edinburg, Scotland, meadows have been made to produce six or seven crops of grass annually by a plentiful application of liquid top dressing, obtained from the city sewerage. The description of grass which furnishes these abundant crops of soiling is generally Italian Rye Grass, a species which grows very tall, and produces fodder very much relished by horses and cattle. Every farmer should have a liquid manure tank, into which the urine of stock should be conveyed by drain-pipe from the stable, byre, and hog pens. Liquid manure is a very valuable top dressing for grass land. It should be applied with a watering cart constructed especially for the purpose of distributing it evenly over the field. The liquid manure, however, can be used more economically for saturating muck or compost that is intended for top dressing, as by this means it will be much more lasting than if applied in a liquid state.

A large portion of the old meadow land in the United States is deteriorating and evidently stands in need of annual top dressing with liquid or solid manure, bone dust, guano, ashes, &c.—Plaster, although very good for leguminous crops and artificial meadows, is not equally beneficial to the natural grasses, and is of no manner of use on wet soils. The following questions were addressed by M. Boussingault to agriculturists living in different districts of France, in order to determine the value of gypsum for grass and other crops: 1st. Does gypsum act favorably on artificial meadows? Forty-three answers returned. Forty affirmative, three negative. 2d. Does it act favorably on artificial meadows when the ground is extremely wet? Ten answers returned. No, unanimously. 3d. Can it take the place of organic manure or of humus in the soil? In other words can a sterile soil, by the mere act of using gypsum, support artificial meadows? Seven answers returned. No, unanimously. 4th. Does gypsum in a sensible manner increase the growth of cereal crops? Thirty-two answers were returned to this question, of which only two were in the affirmative.

Marls are compound earths formed of carbonate of lime and clay, in different proportions. Sometimes sand takes the place of clay, hence the term clayey marl and sandy marl. When marl has been exposed to the atmosphere for some time it crumbles into dust or powder, and in this state is in a proper form to be applied to land, the minute particles of carbonate of lime being easily spread over the ground. When applied to stiff, clayey lands it has a tendency to keep the soil from running together into hard blocks, and to allow water to drain through. Upon light, sandy soils a marl containing much clay acts beneficially in a two fold way. First, by the carbonate lime, and secondly, by the clay. Some marls have an extraordinary effect in renovating worn out grass land.—*Ex.*

Shelter for Sheep.

It is very well known by those observant of the habits of sheep, that they are impatient of confinement. This is not so much the case with the larger breeds, which are more quiet and less given to roving, yet all sorts, while they need less protection than cattle, fail to thrive so well if kept to anything like close quarters, which cattle will submit to.

We have often remarked that the most thrifty and healthy flocks are such as have had no protection but a pine thicket, and have been allowed free range of the pasture during the severest winter weather. We should not, however, trust a flock, generally, to such treatment, but would take a hint from it, and combine with sufficient protection, under an open shed in bad weather, as much freedom of moving about as circumstances might allow. This we mean for stock sheep. Those which are fed with grain, for fattening, during cold weather, will not suffer from the comparatively short period of confinement if allowed perfect ventilation.

We get the following from a correspondent of the *Germantown Telegraph:*

For several years past I have noticed in the columns of the *Telegraph* various communications on the benefit of proper shelter for farm stock, and although I agree with their authors in the main, yet there are cases in which too much shelter may be given to some kinds of farm stock.

I well remember the maxim of "one-third more shelter one-third less feed," but we must not lose sight of the idea that economy of food is not all we are to look at in the care of our domestic animals.

As far as my experience and observation go, I have found sheep to be a class of farm stock which, during the winter, may have too much shelter for their own benefit or the real benefit of the owner. With them shelter seems to produce a different effect on cattle or other farm stock.

Cattle, when sheltered, will consume about the same amount of food as when not sheltered, but it is evident that as it takes less to keep up the warmth of the system a larger amount is devoted to the increase in weight, and hence, "shelter is equivalent to food" only in the amount of extra fat and muscle formed, and not in the saving of food.

With sheep this is not the case, for if well sheltered they will consume considerably less food, but will neither fatten nor grow as well, and I therefore argue they may readily be, and often are, too much sheltered for the highest profit to the owner of the flock.

From the above remarks I would not wish to be understood to argue that this class of farm stock should have no shelter—far from it—but there is in everything a "golden mean" for which we should strive. Sheep do not need much protection against direct cold, but suffer much more in fleece, flesh and fat from wet than from cold. Hence, all they need in the shape of shelter is a tight-roofed shed, boarded up on three sides, but entirely open on the side next to the yard.

During the first four years of our experience with sheep, I kept them *entirely* under a roof closed up tight on three sides, with slats in front. Every winter I was sure to lose from ten to twelve out of fifty or sixty, but was satisfied on comparing notes with others of my sheep-keeping neighbors, that my sheep consumed one-third less hay and fodder than those not sheltered, but it was also very evident that they did not come out in as good order in the spring as those not too well taken care of, nor were the ewes as successful in raising their lambs. Of course I was not long in looking around for the remedy, or rather for the cause, trusting that if this was removed the effect would cease.

Since then I have removed the front part of the shed, and have added a small yard for the sheep to run in, and I find that, no matter how cold the weather, (if not stormy,) the sheep seem to prefer the yard to the shed, and when not eating spend their time there.

One very important point in the care of sheep in winter is to furnish them with plenty of pure air at all times: with other kinds of stock it is best to guard against direct draughts of cold air, but protected as the sheep are they will not feel that which to a cow or horse would be injurious. This desideratum I have attained by constructing a ventilator through the hay-mow over the sheep-pen, and through the roof. At all times there is a perceptible draft through this ventilator, and if a breeze is blowing in at the open side of the shed the draft is strong enough to raise straw and chaff clear to the roof.

Another point which many of our sheep breeders and feeders neglect, is that in their business two and two do not always make four. That is, when they have had a given profit from thirty or forty on a given amount of feed, they will not always double their profit with double the number of sheep consuming double the amount of feed.

Fifty will be found to be as many as can be profitably kept in one enclosure during the winter, and if more are kept there should be two flocks and consequently two enclosures. If this

trouble is taken there will be a reasonable chance to double the profit on double the feed and sheep, but without it disappointment is almost sure to result.

My rule is that five sheep are equivalent to a steer or cow, and hence with my facilities for keeping ten steers I either keep five steers and twenty-five sheep or fifty sheep, from which I can make more profit.

New York Agricultural Implement Trial.

The great trial of Agricultural Implements at Auburn, N. Y., after continuing eighteen days, was concluded. July 27th. The report of the judges has not yet been made public. Some little time is, of course, necessary to properly prepare such a document. It will be looked for with interest, and will doubtless be of much practical value. This trial was the most careful and thorough one of the kind ever held in this country. No one doubts the ability of the committee, containing as it did, men well known to the agricultural public, and men of national reputation for their scientific attainments. Not only will the decisions of the committee be of interest, but the facts which led to these decisions will be of much value.

One of the principal advantages of the trial will be, or ought to be, the benefit the manufacturers and inventors will derive from it. Not only had they a fine opportunity to advertise their respective machines, but the bringing of them together, giving them opportunity to see, not only their own, but many other machines subjected to tests, and to learn why each one succeeded or failed in any given particular, must have resulted in the acquiring of much information which will manifest itself in modifications and improvements in their machines.

The principal contest was among the Reapers and Mowers. Of these there was a very large number of entries, and very great interest was manifested in the different tests to which they were subjected. Next to them in the number of entries were the Horse Hay Forks and Hay Rakes. It is to be regretted that manufacturers of various other kinds of farm implements and machinery did not take this opportunity to prove by practical working in public that their claims are correct. In some classes for which prizes had been announced there were no entries, and in others but one or two entries made their appearance. These men labored under a disadvantage, as the same degree of interest was not excited as would have been had there been greater competition. In some cases, as in those of the Hay Loader and Hay Tedder, there are very few patents, and as these were novelties, they would attract a fair degree of notice.

We can only say, in general terms, that a very large proportion of the machines of all kinds did their work very well, and exhibited a wonderful advance within a very few years in the work of applying improved machinery and the muscles of the horse to many kinds of labor which farmers formerly did with only simple tools and their own physical strength.—*Western Rural.*

London Cattle Market.

An interesting sight to me has been the Metropolitan cattle market beyond Islington. I suppose it is the largest cattle market in the world, and is the point, it will be remembered, from which the rinderpest is supposed to have taken its rise, or from whence it spread through England. It is an immense yard, with a tower in the centre, and nicely paved with stone flags, provided with railing, to which the cattle are tied, and alleys between. It has pens for the sheep, calves and pigs. I was there when the number of cattle was said to be 5,000, and 20,000 sheep.

A large number of the cattle were foreign, Dutch, French, Danish, Spanish, Scotch, &c., &c. It was quite a study to go through the alleys and and note the different character of animals, for beside the imported there was every breed in the kingdom. The Spanish cattle, with their soft dun color, their club heads and long horns, were interesting, because they differ so much from other breeds. They were very fat, and their horns were monstrous. Many of them had horns between three and four feet in length, and the distance between the tips would measure at least five feet. I hope none of my agricultural friends will think from my description that I am telling a horny story, or that I have I been "taking a *horn*," for I am simply recording the fact, "hard and horny" as it may appear. All the cattle are tied, and fast as sold are driven away.

Here are found all the breeds of sheep bred for meat in England. The Downs, the Leicesters, the Cotswolds, and different crosses. To a farmer desiring to study the best breeds for the shambles, I am sure no better school for a day can be had than at the Metropolitan market, because you see a vast number of beasts, and hear the remarks of those who are skillful in pointing out all the good as well as the weak points.—*X. A. Willard, in Utica Herald.*

Better till twenty acres well, than a hundred badly.

Early Fall Transplanting.

It has long been a commonly received opinion that all deciduous trees should have one good hard frost exposure, before being dug and transplanted in the fall. That such frost assists in hastening maturity of tree, we acknowledge; but that it is necessary to await frost and the falling of the foliage therefrom, before transplanting, we do *not* believe. The leaves have their part to perform, grow their growth, perform their appointed duty, and gradually fall to the ground. This falling of the leaves takes place much earlier in the season with some varieties of trees than with others. The cultivated sweet cherry commencing to drop more or less of its leaves in July, and mature nearly all of them early in September, while the Mahaleb does not mature much of its foliage until in August, and rarely drops any of it until the middle of September. The gooseberry and currant drop nearly all the foliage on old wood in August, and much of that on new wood early in September. The pear and apple rarely make any additional extent of growth after the middle of August, and most of their foliage is mature and ready to drop by the twentieth of September. The ash, birch, and many other forest trees have their main leaves all mature by the above time.

Looking at this we some fifteen years ago commenced planting out one or more of a sort of tree and plant early in the season, and continued our experiments until within the past two years, we have planted our cherries, pears and apples as early as the 10th of September, and our currants and gooseberries the first week of that month, and have rarely lost a tree or plant. We dig and plant in the usual manner, with or without water, as may be, but we make our shortening in pruning, either before the plant is dug, or as soon as it is out of the ground. The pruning, of course, takes off all the young and immature wood, and the ground being warm, the roots form anew without delay. One tree we examined last fall had made new roots over an inch long in two weeks from the time of planting. Lindley's Theory of Horticulture, together with general practice, make it much safest to transplant after the leaves have fallen in the ordinary maturity and extent of season, and undoubtedly such is the correct theory and practice, when trees have to be taken from a nursery, packed and shipped a distance; but where they can be removed from a part of one's own grounds, or obtained from a nursery within a few miles, we believe the early transplanting to give the most vigorous growth the following year.

Living With Cows.

Mr. Morton visited no less than 51 cow-houses in London, finding two classes—one neat, well-arranged and with every convenience, and the other dirty and ruinous They vary from a few cows up to 80 or 100, and sometimes even more than the latter number—almost, or quite invariably, Short-Horns, or Dutch black and white cattle. In one or two cases the cow-house is on the lower floor, and the family of the owner dwells above. Mr. M. says:

You will meet in London with men who have been engaged in the business thirty or forty years, with a staff of servants, too, who have been in their employ almost as long. When the St. Pancras committee went around to inspect the cow-houses of the parish, and to condemn especially all of them which were, in any way, connected with the dwelling houses, they were met at the door of one, to whom they announced the decision against him, with an introduction to his grandfather and father, then living with him, both of whom had carried on the business there before him; "and here, too, are my children, gentlemen—four generations of us. It does not look as if the cows had been injurious to health, close by themselves."—*Co. Gent.*

Save the Fertilizers.

Much matter of a fertilizing character is suffered to go to waste on farms for the lack of a little care in gathering, preserving and applying it to the soil. Being distributed in small parcels at various points, it is regarded as of little consequence, but if brought together the several amounts would assume an importance which the separate parts failed to indicate. If the parcels of manure one frequently sees about sheds, hog pens, hen roosts, door yards and the like, were carefully gathered and applied to the farm and the garden, the products of each would be materially increased, while the cost of the gathering and application would be fully repaid by the superior healthfulness resulting from their removal. When this refuse matter is not in a proper state for immediate use, it should be gathered into heaps for fermentation—the masses being augmented from time to time, as material accumulates, till the preparation of the wheat ground shall call for its application. Save all should be the ruling idea with the farmer.—*Rural New Yorker.*

A Mississippi farmer says very many horses and mules and some cows have died in his region from a singular disease, which often causes death in a few hours.

Beet Sugar.

A correspondent of *The Nation*, writing from Germany, thus describes the condition of the peasantry on the great sugar beet plantations, and also the manner of making beet sugar:

After an hour or two I began to come into the midst of the great sugar beet plantations, for which this part of Germany is celebrated. The fields in which the root is planted here are often of vast extent, sometimes two or three hundred acres, reminding me of the prairies of the great West, or the plantations of the South. I was inclined to continue the comparison last made much farther after seeing the manner in which they are cultivated. The beets are drilled in rows about fifteen inches apart, and the whole labor of tilling them, from first to last, is performed with the hoe. Never before had I seen so complete a reproduction of some of the scenes I have witnessed in the Southern States on the cotton plantations. Here were at work men and women together, from fifteen to eighteen in one gang, hacking stolidly over the ground with the same mechanical stroke that marked the slaves. In one row I counted eighty-one, and they were principally women. When their labor is ended, however, and at the nooning, they display the same buoyancy, and often playfulness that are characteristic of the blacks. When the village bell in the distance, or the winding horn calls them to their simple fare, they often caper and chase across the fields in a rough buffoonery that shows the German elasticity of temperament is still unimpaired.

The clothing of these peasants is, of course, of the simplest and cheapest; a short, thick dress of woolen, and a close hood of the same for the women, and cheap, substantial store fabrics for the men. The women wear almost entirely material of their own manufacture, even to the shoes, which are mere soles of wood with a little leather tip or socket to retain them on their feet; but the men wear much less of it than our country people in America.

The wages that these people get are, for American needs, utterly insignificant, and they are certainly small enough for the supplying of German wants. The men get from sixteen to nineteen cents a day, the women from thirteen to fifteen, and that for a day of fourteen hours—for they generally begin at five o'clock and work till seven. Their labor is not severe, but very tedious and exhausting.

At Strassfort, a thriving city of about 10,000 inhabitants, I found the manufactories of beet sugar more numerous, perhaps, and certainly greater than in any other city in Germany. One of them employed a thousand operatives, another six hundred, and several others four or five hundred each. The beets are brought from the fields and elevated to the upper story of the building, where they are cleaned, crushed, filtered, &c., the juice descending from story to story, through curious processes, until it reaches the last one in the shape of beautiful "sugar hats," or cones of about two and a half feet in length, of the best quality of white sugar. The juice of the beet is red, a shade lighter, perhaps, than claret wine, but when boiled down without purification the sugar is only slightly tinged. This is called the "red sugar," and is converted into wine by the use of blood. It is cast in earthen moulds, of the size of the "hat" above mentioned, in which it is dried eight days and then taken out and polished for market. Take one of these clear solid cones up on its edge and strike it with a key, it rings like the purest steel.

The price of this sugar at the factory at the present time is ten cents a pound, and after testing it a hundred times, I pronounce it not at all inferior to the best article from Louisiana. One establishment, employing six hundred laborers, turns out six million pounds a year. The beets cost ten cents per hundred pounds, taken from the fields.

Gas Lime for Fruit Trees.

Gas lime was recommended as excellent to repel the borer from entering fruit trees near the surface of the ground. W. S. Carpenter thought the borer which is doing so much injury to our orchards, might be destroyed or repelled, by the use of this lime. He has employed it, with the most satisfactory results, in repelling bugs from squash and cucumber vines, by sprinkling a small quantity of the lime near the growing vines. The poisonous effluvia arising from the lime, will soon stupefy and kill every insect that approaches the vines.

One person had used this lime twelve years ago for this purpose, and no bugs nor insects had appeared since in that locality.

Grease the Wheels.

Oil and black lead is supposed to be the best substance, but we have always found lard and flour apparently as good. If the wheels are kept well lubricated, very little difference will be found between the ease of running wooden and iron axles in ordinary farm work. The smaller the axle, the less will always be the friction, other things being equal; because the spokes have a greater purchase, the friction being the resisting force, and being nearer the end of the lever when the axle is small.

The American Farmer.

Baltimore, October 1, 1866.

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BALTIMORE.

Fall Growth of Wheat.

We have, on several occasions, called attention to what is, in wheat growing, the very "root of the matter," viz: that the excellence of a crop of wheat, and its exemption from the familiar evils which trouble it, will depend mainly upon the supply of good roots which it may make during the fall growth. Hence the importance of early seeding, and the value of the application of a concentrated fertilizer in immediate contact with the roots. They are to be developed, chiefly, now. They are laying underground, during the fall months, the good foundation of the future crop. We must give them all the opportunity, and all the encouragement we can. That *winter killing* is prevented by early sowing, and *rust* shunned, and *midge* anticipated, and disasters by storms, and rainy seasons, avoided, are ideas familiar enough; let us go further into the matter, and see that the reason that lies behind all is, that early seeding affords the opportunity the plant needs, of making its root growth in the fall, and guards it against these disasters, by insuring an early, vigorous, healthy, spring growth of stem and seed. Independent of all this, the full fall growth of roots is indespensible to the production of the largest crop of which the soil is capable. If we suppose that fertility of soil or increased manuring, will compensate the loss of this advantage, and that deficiency of growth in fall may be made up in spring, we overlook the character of the plant we have to deal with.

Wheat, to be grown in its perfection, requires two seasons for growth. It will, indeed, make its whole growth, and ripen seed in one season; but it is well known how poor a substitute spring wheat is, for that which we are all familiar with in the grain growing country proper. Wheat is essentially biennial, and partakes of the characteristic of biennial plants. A chief one of these is, that the root and blade, the plant proper, make their growth during one season, and ripen their seed the next. The first is devoted, so to speak, to the laying up provision for the important work of supplying the seed, which is the work of the second season. Some of our most familiar edibles illustrate this. The parsnip, the carrot, the beet, the cabbage, &c., make root and leaf during the first season's growth. During the second, when they ripen their seed, the whole vital energy of the plant is given to that purpose, there being no increase of root or leaf. It is so with the wheat plant; and if it fails to make a sufficient supply of roots in the fall, the opportunity for the season is lost.

We allow ourselves to be deceived by appearances in this, as in other matters. A late sown crop of wheat, on good ground, will shoot up, as warm weather approaches, and make as fair a show of straw perhaps, as the early sown; but we have never seen or heard of a maximum crop from late seeding. Apart from the disasters peculiar to a late crop, it has not the supply of roots capable of perfecting a full crop of seed.

The fact that the growth of straw and stalk is not so dependent on the growth of root, is well known to practical men. They speak familiarly of a heavy growth of straw, and poor turnout of grain, as of common occurrence; a good crop of seed by no means follows the other, as a matter of course, because certain qualities of soil, and warmth and geniality of climate, will force the blade and straw entirely out of proportion to the underlying roots. A late planted crop of Indian corn, say as late as the first of June, in this latitude, will spring up rapidly, and make, perhaps, as much show of fodder as that sown early, but will want the root to make a full crop of grain; but the early planted, while its growth of blade and stalk is seriously checked by cold atmosphere, is still pushing out its roots in the warmer soil, and providing for the future necessities of a vigorous growth.

The tobacco planter is still more familiar with the disproportion often occurring, between the leaf and the root of the plant, because he has oftener occasion to observe them. He chooses, always, to sow his seed at the earliest time that the ground can be got in order, and knows that plants subjected to the changes and checks of early spring, are still forming their roots under ground,

while the late sown will come up quickly, grow rapidly, and make as much show of leaf by planting time, but will be deficient in root. He will plant his crop rather with those of yellow cast and stunted growth, but big root, than with large, green, vigorous-looking plants, with small roots.

Recognizing the fact here illustrated, and bearing in mind that mentioned, that the wheat plant is biennial, and makes its necessary growth of root the first season of its growth, we see the necessity of giving it all possible opportunity, by early sowing and manuring, to make its roots in the fall.

Arrangement of Fields for Cultivation.

With the necessity we are under of limiting our cultivated crops to smaller areas, will arise questions as to new arrangements of our lands, or new systems of rotation This will be especially the case with those who find themselves obliged to re-fence their land.

The heavy cost of fencing will compel the utmost economy in that respect, and it will be matter for consideration how far fences may be dispensed with, where we have found it convenient to have them before. This will involve the consideration of field arrangement. Let us say in passing, as to this matter of fences, that we hope old habits will not so far prevail as to make them necessary where they are really not so, and that every one will make a point of incurring the least possible expense on this account. We are sure that, in a great many cases, where it has been thought necessary to fence three or four or five or seven fields, that a standing pasture fenced off may answer every purpose, aided by a small lot near the stables, and that one enclosure may protect all the arable land. But we started to speak of the matter of rotation. We propose to call attention to several familiar ones, that those interested may compare them, and exercise their discretion in the application of them to their own circumstances.

SEVEN FIELDS

The first of these which we may notice, is the system long in use in some of the best farmed counties in Pennsylvania, and to some extent practiced in the northern portions of Maryland. It does not make permanent grass lands, but gives several years to grass of each of the divisions of land, and gives one to corn, one to oats, and one or two to wheat, as more or less grain or grass may be desired. The system may be applied to divisions of land ever so small, and there is no necessity, however desirable in some respects it may be, to have them separated by inside fences.

Supposing the rotation to begin with corn, a cleansing crop, it is followed by oats, which has the same effect in that respect as the corn crop, though not hoed. It makes a dense shade at midsummer, calculated to check the growth of weeds, and the stubble being shortly after ploughed, it has all the effect of a hoe crop, and with the previous corn crop, combines to leave the ground in the best condition for grass seeds. The common practice manures this oat stubble, at midsummer, with the contents of the farm yard, and an admirable foundation is laid for a good crop of wheat, and of grass following.

Whether clover seed alone, or timothy or other grass seeds, be now sown, depends upon whether one or two crops of wheat are to be taken from the course. If two crops, then clover seed only will be sown the following spring. From this sowing, a crop of clover hay will be taken the next year, and a fallow prepared for wheat the coming fall. Upon this wheat is sown timothy, or other grass seeds, to stand as many years as experience, or the previous arrangements of the farm, may indicate to be desirable. If there be seven divisions, there will be three crops of grass. On such a farm, stock is fed, either for the dairy or the butcher, or for both, to some extent. It is a system which accords with what seems to be the soundest agricultural theory, and from which we should expect the best results. It makes variety in the crops; gives the soil the benefit of the preserving effects of a long standing sod; devotes full half of the period of rotation to what is considered ameliorating treatment, and returns not only the coarser products to the soil, but feeds at home a large proportion of the grain.

FOUR FIELDS.

While we can but commend this system, yet, when we compare it with one common to many portions of Maryland and Virginia, which seems to violate the favorite theories of culture, we have no facts on which the latter can be condemned. On the contrary, we have seen lands grow fertile, and farmers grow rich, where, three years out of four, heavy grain crops were taken from the ground, and of the fourth year, not more than four months were given to improvement; where no sod was allowed to protect the soil: and where the grain was all sold year by year, no manures purchased but a little plaster, and nothing returned to it but the straw and fodder of the grain crops. This is the famous four-field system, which is peculiar to clover-growing dis-

tricts. It begins with the Indian corn, the most scourging crop known to our agriculture, which requires us to keep the land bare, and exposed to the heats of the summer, while, with its greedy and all-pervading system of roots, it searches every inch of the soil and appropriates the most valuable of its elements.

After this comes a crop of wheat. Since the introduction of guano and kindred fertilizers, they have been used to an enormous extent upon this crop, and on lands which could not profitably be cultivated on this plan, it is now found to be a good one, so far at least as present profits are concerned.—The fertilizer gives an impetus to the young clover, which is always sown at this point of the rotation, and on it is based the success of the whole. The use of guano, or other fertilizer, has never, however, been deemed essential in those districts to which the system was peculiar; the clover, and about two bushels of plaster to the acre in four years, included all the external aid given, except in certain sections, as on large portions of the Eastern Shore of Maryland, where plaster seemed to produce no effect, but marl, or lime in some form, took its place in ensuring a good growth of clover.

The third year of the rotation, the clover sown the year previous attains perfection in June, and in August the field is turned for the great crop, wheat on clover fallow. No other mode of preparation for a wheat crop can compare with this when we consider its cheapness and results. That which is taken after the exhausting corn crop is only justified, when guano is not used, by the trifling cost of putting it in the ground. Many farmers sow with the drill, immediately after cutting off the corn, without plowing at all, and maintain that this is the best practice. But after a well managed clover field, there is every element of success. Its dense growth has smothered out the blue grass, and every native plant which might interfere with the wheat; the close shade and moisture, with the summer heats, have thoroughly rotted the dead vegetable matter on the surface, and made manure of that which would have been hurtful to the growth of the young plants; its broad leaves, spreading themselves in the atmosphere, have gathered its fleeting wealth, while its long tap-roots have struck down into the subsoil, far below the range of the fibrous rooted wheat plants, and brought to the surface the mineral stores hid there. This, then, is the opportunity for a profitable growth of grain, and the farmer bestows upon it his utmost attention. The best practice is to break it early in August, and let it be till late in September, or early in October, when the surface only is again stirred, and the seed sown.

This crop closes the rotation. It is sown without grass seeds, and the following year the corn crop comes in again. The custom is to give all the manure to this crop, and the common practice is to begin immediately after harvest to haul out and spread upon the surface all the material, of whatever kind, and however rough and coarse. The higher points of the fields, and the thinner portions, are dressed first, and heavily, leaving the valleys to their own strength, and, the washings from above. This covering with the remains of two crops of wheat and one of corn, the product of three-fourths of the arable land, together with the decaying stems of the great growth of rag weed, which always follows the fallow wheat, fortifies the soil with an amount of vegetable remains, that amply compensates the absence of the sod, and insure a heavy crop of corn.

As we said in the begining, a system which takes away three exhausting grain crops in four years, is at variance with our established theories, but facts in agriculture are of more weight than theories, and this rotation has stood the test of practice for forty years, yielding heavy crops, and maintaining the fertility of the soil.

FRUIT CULTURISTS.—We have on hand about forty inquiries from Southern States for persons competent to plant and take charge of vineyards and fruits generally. Many of them offer extremely liberal terms to competent and reliable men. Persons of this class who wish to make advantageous engagements should advertise in the columns of the *Farmer*.

FINE CONCORD GRAPES.—Mr. Barker has been so kind as to send us from the Agricultural College a basket of very fine Concord Grapes. We have rarely seen handsomer bunches of any kind, and their quality justifies what we have heretofore said of the improvement of the Concord as it comes South.

SEEDLING STRAWBERRY.—We acknowledge receipt of circular describing Perry's Seedling Strawberry, recommended as a very superior variety, from Geo. Perry & Son, Georgetown Connecticut.

LARGE BERKSHIRE HOGS.—A friend at Waynesboro Augusta Co., Va., says: "I wish to make the inquiry through your paper, where the genuine large Berkshire Hog can be procured."

Raspberries.

The raspberry has been much overlooked as a market crop, chiefly, we think, from their want of firmness, and fitness for transportation, and because of the want of hardiness of the finer sorts. Brinckle's, Orange, Fastolf, and other kinds of good quality require to have the canes laid down in winter and slightly covered with earth. The improved Black Cap is of inferior quality, but hardy and extremely productive, and brings a fair price in market. As a market crop it is perhaps the best except in the immediate neighbourhood of cities.

The Philadelphia Raspberry, a comparatively unknown variety, from recent accounts promises to fulfil in great measure the requisites of a good berry for general cultivation, combining hardiness and productiveness with good quality. The *Rural World* gives the following account of it:

We have had this variety now for three seasons, and from the present season's experience with it, do not hesitate to pronounce it the best red Raspberry we have in cultivation. We do not say the fruit is as large or as high flavored as the best European varieties, when these can be had in perfection as they grow in an European climate; but these are all so tender and difficult to grow, that they have been practically abandoned, and are therefore worthless and useless to us.

We do not say that the canes are as hardy as an oak, and never get injured or killed—because the past winter has killed most of the canes down nearly to the ground—the two winters before, they escaped entirely unharmed. But then it should be remembered that grape vines and other hardy plants occasionally get injured—but nobody thinks of abandoning grape culture on that account. So of the Philadelphia Raspberry, our belief is that it is as near hardy as any upright raspberry ever gets to be in our climate; and we further believe that no raspberry of the above class can be found that will withstand our peculiar and changeable winters—and we may add, falls and springs—without occasional injury. We write for the latitude of St. Louis—a thousand miles inland—and not for the same or any other latitude, near the sea-board, which latter we believe, indeed know, has an ameliorating influence on the hardihood of plants.

So much for its negative, qualities, which, so far as we can see, are all named in the above.

Now, for all its good qualities, as they appear to us. It is a robust grower, canes strong and stout, much branched, almost entirely smooth, with only here and there a spine; foliage heavy, thick and healthy looking; very little given to sucker, an excellent feature for market-growers, does not grow too tall (4 to 5 feet) nor too weak, as some varieties do, but stiff and upright, and will scarcely need stakes or trellis. As to its fruitfulness, am inclined to place it with the Lawton Blackberry, Albany Strawberry, &c., and that is, get the growth of wood—uninjured—and you are pretty sure of a good crop of fruit; or, in other words, it is extra productive. The fruit is of good size, dark purplish red, quite firm, and fair to good in quality—indeed quite good, may be said of it, with a fine raspberry perfume and flavor. From present indications, we should consider it by far the best variety we have, and a most decided acquisition—coming nearer to filling the great desideratum among red raspberries, than any variety heretofore introduced, and that it should be in the garden of every family who love this delicious fruit, as well as being most promising to the market cultivator.

Tree Planting—Small Trees.

In tree planting as in many other good things the old adage *festina lente*, make haste slowly, is applicable. We mean as to the size of the trees. Young planters, especially, aim to have big, fine looking trees. They think that to get full grown trees quickly, they must plant large ones. It is a great mistake. An extreme case will illustrate what we wish to impress upon our young readers. A friend of ours, with a very commendable desire to have a plantation of grown-up trees, to adorn a site for building, incurred great expense in moving those of full size. With all the facilities he could command, and the utmost care he could use, he succeeded in saving the life of one indifferent specimen. This, we say, was an extreme case, but we may be assured that the obstacles here met with are only in less degree, as we go down the scale of size and age. Those which are freest from them are the smallest and youngest. Our object must be to get them at such a stage of growth, as will give as much size as is consistent with the preservation of the roots in their removal, and the preservation of the natural growth of branches. If roots are destroyed in moving there must be a corresponding cutting back of branches, which unless done with great discretion, is destructive of the natural symmetry of the tree, while there is nothing gained in point of time. The folly of planting tall stems of twelve or fifteen feet, limbless and rootless almost, must be apparent. We must be content to take young trees from their place of growth, when they are so small as to feel but

little the change, and giving them the best possible chance by careful planting, in ground well prepared in advance, we may soon enjoy, if not large trees, at least such as are vigorously and rapidly developing both beauty and utility. There is a pleasure to be derived from healthy young trees, which is not to be overlooked because it does not come up to the measure of the advantages we look for in their maturity. The following is a printed plea for small trees, which we cannot do better than append to these remarks:

"We beg a little consideration for small trees. Go to the open field, or to the nursery and select a good specimen of almost any good tree—say the beech, or maple, or tulip, or hemlock. Take one or more of each, three or four feet high, that have branches well formed on each side. Save all the roots and fibers in digging them up, and in carrying them home, don't bang them to pieces, root and branch, but treat them with the utmost tenderness. Prepare large holes, in rich soil, and set them out, so they will grow vigorously. Clip the ends of the branches just a little, but do this so as to preserve the original symmetry. Now, watch these trees from year to year. How healthy they look in every limb and and twig and leaf. How happy they look, shooting out their branches on every side and dancing in every breeze. How graceful in every part and as a whole. Small as they are, they are perfect in form, and plainly predict what they will be when full grown. Age will only enlarge their bulk and bring them nearer the time of their decay.

"He who sets out large trees is compelled to top off at least the lower branches to enable the top ones to live. The roots are so mutilated in digging them up, that nearly all the branches have to be trimmed up and shortened in to restore the balance of things. But such a tree, so marred in root and branch, is only half a tree. It is a fragment to which the lost parts can never be restored. Begin, then, with small trees. How they enjoy life! They will, ere long, outstrip the large stumps you set out at the same time. Set them on your lawn and pleasure ground. Throw away your pruning saw, and let them work out their own ideal. If you interfere at at all, let it be only with your thumb and finger. Never fear their wanton ways. They will attain near to perfection if you will only let well alone.

THE AGRICULTURAL AND HORTICULTURAL SOCIETIES of York county, will hold their Annual Exhibitions at York, Pa., beginning on the second day of October and continuing four days.

Grass Growing and Manuring.

We urged last month the supreme importance of clover culture in the Middle and Southern States. We propose, at the risk of being tiresome to many of our readers, who are already sufficiently convinced to press upon the attention of all the grass growing generally, in maintaining and increasing the present fertility of their lands. In the circumstances in which Southern landholders find themselves just now, there is peculiar temptation to occupy the lands best suited for grass growing, in the more paying crops of grain or tobacco. But in the worst circumstances we should look ahead and make provision for the times to come. Better reduce the surface cultivation of annual crops one-half, and husband the fertility of the remainder by covering with grass, than by a greedy appropriation of the best resources of the farm, deprive it of the means of self-support, and recovery.

In every good system of cultivation known, grass culture is the foundation upon which it is sustained. No grass no stock, no stock no manure, no manure no grain, is an old and familiar saying, teaching the value of this feature of good farming.

The celebrated Thaer, in his *Principles of Agriculture* says, "When we manure our meadows plentifully, we are quite sure of a sufficient supply for our arable land." He thus assumes a large proportion of grass to arable land, and the stock necessary to consume the grass or hay at home. In such case it may not be found necessary to manure directly the arable land at all, for the treatment which gives full crops of grass, ensures sufficient fertility for all other crops.

The New York State Agricultural Society gives a premium for the best cultivated farm, and the question is always asked of each competitor, "What do you consider the best mode of improving the soil on your farm?" with reference to the different kinds of soil, clay, sand, or gravel, and it is curious to remark the uniformity of the answers given. Taking a volume of the Transactions we find, that one plows greensward under in the spring for corn, and "likes to have a coat of grass on the turf to turn under." Some apply manure during the course of cropping, before seeding again to grass. Another says, "My method of increasing the product is by the use of plaster (sown on clover,) on the home farm I also use barn-yard manure." Another top-dresses his meadows to increase the growth of grass, with a portion of his stock manure, while another puts all his manure on his newly-seeded grass lands. These are mostly

dairy-farmers, who yet grow considerable crops of grain for home consumption.

Turning to the grain-growing farms, we still find grass, and clover particularly, the basis of their improvement. "A clover lay of two or three years, turned under in May for corn, or in August for wheat," is the general rule, applying manure, if at all, to the corn crop before plowing. Another takes care to return to grass before his soil is over-cropped with grain, depending upon the former for the power to produce the latter; a dependence not misplaced, if the grass crop receives the attention which it merits, both from its intrinsic value and the place which it must hold in all self-sustaining systems of agriculture.

As to the best and most economical treatment of grass lands, we corroborate the method we have so often recommended by facts which we find in some of our prominent journals. The journal of the New York State Agricultural Society contains an account of a visit of its editor to a section of that State, and in speaking of its farming, he says: Near E. G. Faile's the grass crop was light, owing to the severe drought prevailing in that section of the State. But Mr. Faile's grass land had been top-dressed, and his yield this year was larger than usual, averaging, we think, three tons to the acre; his meadow fields showing a fine, healthy, green aftermath," while those around were generally scorched by the sun. The editor well remarks, "Mr. F.'s practice is undoubtedly the true one, and every farmer in that region will consult his own best interest by enriching his meadow land by a thorough top dressing of manure."

The editor of another farm journal gives the practice of a farmer whom he visited, in composting his barn manure with swamp muck—"the compost," he says, "when well rotted, making an admirable dressing for grass—or indeed any other crop; but he values it especially for the former purpose.". He saw a twenty-eight acre field of timothy, (four years from seeding,) that was top-dressed with this compost the early part of last winter. The crop, he says, is remarkably even all over the field,—"We never saw anything handsomer." Two and a half acres of compost-dressed timothy had been cut, and yielded seven large loads of hay, that, it was thought, would weigh 25 cwt. each. This would be three and a half tons per acre. Four acres of top-dressed clover had produced eleven large loads of hay. On another eight acre field of timothy forty loads of raw muck per acre had been applied with decided benefit, though not as great as when the muck was first composted with manure.

Of another very successful farmer the same editor says: "Mr. S. is much in favor of top-dressing his grass lands. One field of timothy of thirty acres was top-dressed, with from ten to fifteen loads of rather strainy manure, the early part of March. The manure has all disappeared in the dense sward, and the crop of timothy is very fine."

It is needless to multiply proof on the value of top-dressing upon grass-land. Fortunately, the use of manure for this purpose has not been so uncommon as to have been unobserved in its beneficial effects. We wish, however, to impress our readers especially with the economy of using our farm-yard and stable manures chiefly for this purpose. We have no doubt that there is more direct increase of crop from a limited supply of manure than by any other mode of using it, and we have, besides, the great advantages resulting from the growth of grass upon the land that we have so often remarked upon.

We speak of the economy of using manure as a top-dressing for grass, and many are willing to acknowledge it, who yet insist in plowing it under in all other cases. This is mere prejudice, the result of long habit. The proper method of applying manures is on, or as near the surface as practicable. There is no more liability to waste in one case than another, and we hazard little in saying, we lose ordinarily half the value of the manures we make, when we plow them deeply under the ground.

To Insure Eggs for Winter.

If an old hen has been laying well all summer, and is late in moulting, she requires rest and time to recover from the moult; and if cold weather comes on her when but partially moulted, she will, perhaps, be a long time recovering the proper condition for laying. If, however, she is allowed to set late in summer, so as to rest her from egg laying, and during the time she is tending her brood she is encouraged to moult, by warmth and generous feeding, she will, when her moult is completed, soon get into a laying condition, and, by good management, may often be kept laying all the winter, and lay better and larger eggs than pullets. I give a little barley and oats, mixed, each day, and have the run of a small field. To prevent their wanting to set, I regularly take up all the eggs so laid, and never leave but two in a nest.—*Corres. London Field.*

Southern Relief.

We are indebted to Col. J. V. Jones, of Herndon, Ga., for copy of proceedings of the COTTON PLANTERS' CONVENTION, assembled at Macon, Ga., on the 3rd of September.

Many resolutions were adopted looking to the interest of the Cotton growers of the State.

We find also the following among the proceedings:

"In view of the magnificent charities dispensed to the destitute and suffering people of the South, by those of Baltimore, flowing from a pure sympathy and unaffected benevolence, they have caused all eyes in this section to be turned towards her in admiration and gratitude, which will be cherished and strengthened into a future intimate and durable relationship; therefore, be it resolved

"That this Convention, in behalf of the people of Georgia, return grateful and heartfelt thanks to the "noble and patriotic women of Maryland," and their sympathizing helpers, for such substantial outpouring and affectionate sympathy in the great cause of Southern relief."

In alluding to the subject some time back, we remarked upon the great necessity, that those who had this holy work of relief on their hands, should not soon be weary of well-doing. The following from a recent address of the lady managers of the Southern Relief Association, will show how they have realized this necessity, and how they propose to meet it.

"Deeply grateful for the blessing which has rested on their undertaking, they are obliged still further to invoke the generosity which has already answered their appeals so nobly. The large fund derived from the late fair is already exhausted. The good which it has done is incalculable, and yet every step in its distribution has developed hundreds of cases of suffering, which, but for the hope of relief through the agency of the association, would have been endured in silence unto the end. So long as they are without the means of giving succor to their destitute and suffering fellow creatures, the ladies of the association do not feel that they can conscientiously leave untried any fair and reasonable mode of adding to the resources of their charity. Nor would they regard themselves as doing justice to the good people whose hands have been so open to them heretofore, were they not officially to announce the continued existence in the South of an awfulness of destitution, whose appeals now daily make their own hearts sick. It has been suggested to the association that lists might be advantageously opened for small subscriptions of one dollar or less, at prominent places in this city and State, and elsewhere throughout the country. For the present they have concluded to adopt the suggestion, and they respectfully and earnestly entreat the co-operation and assistance of their friends and the whole charitable public."

With the purpose of carrying out this enterprise, the ladies have had printed a convenient form of circular for subscription lists, which will be put into proper hands, and distributed to different points throughout the city and State, as well as sent to other States and the District of Columbia. None will withhold their dollar or other mite, and many will add larger sums, and heads of families will doubtless often take pleasure in putting down a dollar for each member of the household. Thus many thousands of dollars may be raised, and vast numbers of the destitute and suffering be relieved, and among them, some snatched from death.

An independent association for the especial relief of the orphan children of the South, has raised recently a fund of about ten thousand dollars, towards building an Orphan Asylum at Richmond

Correspondence.

James Alfred Pearce, Esq., who bears the honourable and honored name of our long-time Senator in Congress, says: "I welcomed your reappearance after your forced suspension—though a young farmer without personal knowledge of the value of your paper—but my father's opinion of it was so high, and his attachment to agricultural pursuits scientifically followed so great, that I am already prepared to fill his place as a staunch friend of your paper."

It may not be so well known to our readers as it is to us, that the late Senator Pearce, while he stood for so many years in the foremost rank of the Statesmen of the country, took the greatest interest in agricultural improvement, and was one of the most intelligent and successful practical farmers of Maryland.

We are in receipt of letters from two ex-editors of valuable agricultural Journals, one in a State North, and one South of Maryland, whose friendly regard, and flattering appreciation, are very agreeable to us for the two reasons, that their opportunities have made them familiar with the character of the Agricultural Journals of the country, and their opinions may be considered those of professional experts.

One with the most kindly expressions of interest in the prosperity of the "Old Farmer," sends

for a number of extra copies for additional subscribers he volunteers to get.

The other says: "I enclose two dollars for my subscription. I rejoice to see your Journal revived, because I regarded it, and so expressed myself, as the *best of all the Agricultural Journals of the country.*"

A subscriber proposes to discontinue his subscription to the *Farmer*, and sends back the last number with the inscription, "Take your paper back."

We have often said that it is important when we are written to in a matter of this sort, to have the name of the writer's post-office. Our mail books are kept by post-office lists, and as we mail to some twenty-five hundred offices, it is too much of an undertaking to hunt them over, to find a name for the purpose of erasing it. In the case of an acquaintance, or other person of some sort of consequence, the post-office may be known —but this person is neither one nor the other. We know neither where he hails from, nor who he is, and all he accomplishes, is to give us his unimportant name, and a clue to the quality of his manners.

Another—who undertakes to prate upon politics, and glorifies Yankees as "Saviours of the Nation," spells 'proper' *prop-per*, and 'Yankee,' *yan-key*. He retains all the Yankee self-conceit, but has lost the spelling book.

Per contra, as the merchants say. A Maryland Senator, who worthily fills his position, writes about the same date, and whose style, penmanship, manners and spelling are in most marked contrast with the other, says: "I have the pleasure of adding two more subscribers towards making up the "ten thousand Maryland men" that should give you a helping hand, so worthily deserved, and enclose four dollars in payment therefor."

A subscriber writing from Gadsden, S. C., says, "I was at Dunn's Rock Post Office, Transylvania County, N. C., before the war. You had other at Davidson River, same county. *We your subscribers*, have *all* left that section of the country, and are now scattered in various sections of South Carolina. We were murdered and burnt out of North Carolina (Western) and East Tennessee. I trust I shall ere long see the *Farmer* extensively circulated on the plains of Brazil."

Communications.—Several communications received too late for this number.

Book Notices.

We are indebted to Rev. Mr. Van Bokkelin, Superintendent of Public Instruction, for copies of—

The History of Maryland, to which are added brief Biographies of Distinguished Statesmen, Philanthropists, Theologians, &c., prepared for the schools of Maryland, and

A Geography of the State of Maryland, *designed for Schools.*—These little works are designed to supply our Maryland Schools with what was much wanted, much more of Maryland History and Geography than has heretofore been attainable, in form and language suited to the capacity of young children, and the design, we think has, on the whole, been well executed.

The Cultivation of the Native Grape, and Manufacture of American Wines, *by George Husman, of Hermon, Mo.*—We are indebted to Geo. E. & F. W. Woodward, Publishers, No. 37 Park Row, New York, for a copy of this valuable little manual. It is commended as the work of a practical grower of long experience and great success, whose object, he professes, is to aid beginners, and to make grape-growing as easy as possible. The author thinks it is a defect in all books on grape culture, that the manner of preparing the soil, twaining, &c., are on too costly a plan to be followed by men of little means.

It is mailed, postpaid, to applicants for $1.50.

De Bow's Review.—This very able Southern Review maintains its high reputation. The contents of September No. are 1. Progress of American Commerce. 2. Life and Times of John De Witt. 3. Sketches of Foreign Travel. 4. Commerce, Ways and Civilization. 5. Future of South Carolina. 6. The vast Resources of Louisiana. 7. The South and direct Foreign Trade. 8. Old Maids and Old Bachelors. 9. The National Census. 10. The Massachusetts Slave Trade. 11. Department of Agriculture. 12.—Department of Commerce. 13. Department of Freedman. 14. Department of Internal Improvement. 15. Department of Miscellany.—16. Journal of the War. 17. Editorial Notes.

$6.00 Per annum in advance. Offices, New York and Nashville.

Vick's Illustrated Catalogue of Hardy Bulbs and Floral Guide, *James Vick, Rochester, New York.*

The Edinburg Review for July.—This Number will maintain the high character of this celebrated Review. The American reading public are under great obligation to the Leonard Scott Publishing Company, for the re-publication of

these English Reviews at the very moderate prices asked for them. Blackwood, or any of the Reviews, $4. Blackwood and any one Review, $7. The four Reviews, $12. Blackwood and the four Reviews, $15. The four are, the London, Edinburg, North British and Westminster Quarterlies.

GODEY'S LADY BOOK.—For October is received, and as usual, very full of interest for its lady readers. It is worthy the commendation of a contemporary, which says: "There is no work of the kind in the country that equals *Godey's Lady's Book* Price $3, a year. Published by L. A. Godey, corner of Sixth and Chestnut sts., Philadelphia.

HOGS, SHEEP, &c.—We have numerous inquiries for stock of various kinds and breeds, some of which we cannot answer because the owners of improved stock fail to advertize in this direction. We much prefer that those wanting stock should deal directly with the owners, and not through our agency, and that would be the *case* if the latter would advertise.

NEW BRUNSWICK OATS.—We are indebted to Edward J. Evans & Co., York, Pa., for a sample of this variety of oats, said to be very productive and profitable. "It weighs forty-four to forty-five pounds to the bushel, and we think, will yield us almost double the number of bushels (by weight) that the common oats has given on the same ground."

SINCLAIR'S ARLINGTON MELON.—We are indebted to Mr. Robert Sinclair for the finest specimen of Cantaloupe, under this name, that we have met with. It is in size, larger than the best sold in the market, and in fragrance and flavor unsurpassed. We think Mr. S. may claim to have the very best melons of this class.

FINE STOCK.—The Richmond *Whig*, speaking of South-Down Bucks, offered for sale by our friend Dr. John R. Woods, Ivy Depot, Albemarle county, says: "Everybody knows their value, and everybody knows that Dr. Woods has always the best of everything that can be had."

THE HOG CHOLERA.—During last month the hog cholera destroyed a large number of hogs in Miles River Neck, Talbot county, Maryland. Colonel Edward Lloyd lost in the neighborhood one hundred; Captain Richard Tilghman lost over sixty, and others lost a number.

CLASSICAL AND SCIENTIFIC SCHOOL.—We call the attention of those interested in such an Institution to the advertisement of St. Clement's Hall, at Ellicott's Mills, under the Rectorship of Rev. Dr. Avery Shepherd. After long experience at the South, Mr. Shepherd comes to Maryland with the very highest recommendations as a practical instructor and trainer of boys, and has chosen an admirable location for the fine building he has erected for his school. We feel assured that there is no school of its class in Maryland, which can be more safely commended to parents who would have their sons, in all respects, well taken care of. St. Clement's Hall is a suitable accompaniment of the well known Patapsco Female Institute, and gives parents the opportunity of having their sons and daughters educated in very convenient proximity.

The Best Grape Sets.

In answer to a writer in the *Horticulturist*, who complains of the high price of what he calls basket layers of grape vines, Mr. Griffith, grape grower of North East, Pa., says "a good, strong, well grown yearling plant can be grown for about ten cents, and as the cutting or bud (except of the 'new and rare' sorts) can be obtained for about a half of a cent, such vines ought to sell for something less than twenty cents. From an experience of more than twenty years, during which time I have grown some millions of grape vines, one hundred thousand of which I have fruited in my own vineyards, I am fully able to demonstrate that a well-grown one year old vine, produced from a single bud, in *open culture*, is the best and most valuable plant that can be grown."

Sir Archibald Alison has recorded the opinion "that the husbandry of Flanders on our plains, and that of Tuscany on our hill-sides, would easily raise food enough for double our present population."

"Prof. Johnston expressed his deliberate conviction that Great Britain does not at present produce one-half of the food for man which it might."—*English Paper.*

CATTLE PLAGUE IN KENTUCKY.—A communication published in the Lexington Kentucky, "Observer and Reporter," addressed by G. Clay Smith to the President of the Kentucky State Agricultural Society, describes a peculiar disease which has broken out among the cattle in that State, and which the writer believes to be similar to that which has been prevailing in Europe.

California Grapes.

To the Editor of the American Farmer:

I have carefully examined the catalogues of several prominent nurseries without being able to find the California Grape! Why is it? I lived for several years in the town of Los Angeles, the grape region, *par excellence*, of California, and since then have had opportunity of comparing many of the famous varieties of the Eastern States with the California, and have never found any grape to compare with the latter, either for wine-making, or for the table. The soil best adapted to grape-growing in and about Los Angeles is a dry sandy loam; with a gravelly, porous sub-soil—the sand largely in excess over all other substances. One thousand vines are planted upon an acre. Holes are made eighteen (18) inches deep with a crow-bar, and the cuttings (prunings from the old vines) are put down to the bottom. One man makes holes, another places the cuttings, and a third follows with a large watering pot, from which he pours water and kicks the soil into the hole until the sand and earth settles about the cutting firmly to the surface. About six inches of the cutting is left above the ground. From the middle of April to November there are no rains in California, consequently the cultivator must have recourse to irrigation. During the year of planting a vineyard the vines are copiously irrigated three times. I estimate a copious irrigation as equivalent to four (4) inches of rain. After the first year a vineyard does well when irrigated only twice. After the sap is well down *all* the runners are pruned off nearly up to the main stem, leaving three or four buds to produce grapes. The first season after the planting, the vines must be made to grow upright by driving beside them a stake twelve inches above ground, to which the vine is tied.

In pruning, a "leader" should be allowed to go upright so as to gain, say an inch in height, per annum.

These grapes require no trellisses, delight in sandy, dry soil, are superb for eating, and their vines have no equals. Yield, per vine, one (1) gallon of wine, or ten lbs. of grapes, per annum. It strikes me very forcibly that they will succeed admirably in all our southern States where the soil is similar to that described in the beginning of this paper.

If any of our nurserymen feel inclined to try them, I would recommend them to address Matthew Keller, Esq., Los Angeles, California, a gentleman much more competent to give information on this subject than the writer.

GEO. W. GIFT.

MEMPHIS, *Tennessee*, Sept. 15, 1866.

DINWIDDIE CO., Petersburg Post Office, Sept. 12, 1866.

To the Editor of the American Farmer:

We have been forced to give up our cherished surface cultivation and are turning our attention to the enrichment of a better cultivation of smaller fields. We are remote from market, still would willingly make use of the little means we have left to buy fertilizers if we can hope to employ them profitably. Will you not through your valuable paper furnish some plain directions for the *permanent* improvement of poor lands? Would you use lime, guano, or what fertilizer—and how—with what crops, and what system!—say, upon a farm of 150 acres to be worked and improved without reference to the necessities of the family living upon it, and at the same time, give the best plan for eradicating and destroying broom-straw, especially upon lawns and yards filled with shrubbery, and you will oblige, AN OLD SUBSCRIBER.

[The request of our correspondent comes too late to be answered in full in this number of *Farmer*. We will give it attention at large next month. In the mean time, we shall be glad to hear from any of our readers on the topics suggested. We know of no method of eradicating broom-straw from a lawn short of taking up carefully every bunch as it makes its appearance.]—ED.

For the American Farmer.

About Clover.

I find our farmers experience difficulty in geting a stand of Clover. I have never failed in getting a stand of clover, or other hay seed, when planted in corn. At the last working of corn (which I think should be cultivated *level*, and which is my practice.) I sow clover seed. A mule, with a light brush attached, is driven once in each row, which is all the work that is necessary. Your corn-field ought to be in the very best condition when it is laid by. The young plant (clover) is protected from the sun by the leaves of the corn without being in any way smothered. By the time you strip for fodder the clover roots are sufficiently in the ground to keep the plant growing. At any time between fall and spring, cut your corn stalks (I use a sharp hoe) close to the ground. If your clover is to be mowed the first season, (which will give you a full crop.) rake and haul off the stalks. If not, allow the stalks to remain. They will not interfere with you the second year. With a roller, when the soil is moist, the corn stumps can be pressed in out of the way of the mower. F. W. J.

GARDINER, S. C. Sept. 7.

Some Considerations on the Changes of the Phosphates in the Soil.

Messrs Editors:—It is now generally conceded that the functions of the soil are by no means so simple as was formerly imagined by agricultural chemists. It was at one time regarded merely as an absorbent for certain solutions which are to be appropriated by the roots of plants, a sort of sponge to hold these dissolved salts until the little rootless could appropriate them. In reality, however, a number of very delicate, and still obscure reactions are now known to occur in this mass, once believed to be absolutely inert. We see a selection of materials, made by the earth, certain bodies being retained with great tenacity, while others are allowed to pass as through an ordinary filter. Nor only so, but decompositions, requiring no slight force of chemical attraction, are constantly going on. Of these, many are extremely complex, and require for their comprehension a careful study of a great number of factors: others are more simple and can be detected with greater facility. To one class of these latter reactions my attention was long since called by the study of the phosphates used as fertilizers.

Of these salts, that in most common use, and most fully known, is the tribasic phosphate of lime, ordinarily called bone phosphate. So general is its employment that it has been taken as a convenient standard by which the agriculturalist can measure the value of any other compound of phosphoric acid, and consequently, in analysis, it is customary to compute that acid in its equivalent proportion of bone phosphate. Furthermore, it used to be considered as the only form in which phosphoric acid can gain access to plants.

It is strange that such an opinion could prevail in the face of notorious facts. Thus, in no case does the ash of the cereals contain any very large proportion of phosphate of lime. Of the grain of wheat, for example, the ash contains (according to Fresenius & Will) 49.21 parts in the hundred of phosphoric acid, and only 3 06 of lime. Some of the phosphoric acid is in combination with potash, some of it has been generated by the oxidation, during combustion, of the gluten and other protein compounds contained in the grain. The lime, too, is partly a carbonate, partly a sulphate. Even, however, if we suppose the whole of this base to be combined with the acid in question in the ordinary proportions, we shall have only 2.61 of the acid saturated by it against 46.70 not so combined. In Indian corn the case is still stronger. There we have 50.10 per cent. of phosphoric acid, and out of all this, only 1.40 can possibly be combined with lime in the form of a tri-basic phosphate.

Unless, therefore we admit a dissociation of the acid and base by the physical properties of the soil, so that the one adheres to the surface of the minute pores as organic coloring matter is supposed to do to charcoal and alumina, we must suppose an interchange of bases to take place somewhere. Now, while I am by no means disposed to deny this peculiar physical action of surfaces in finely divided matter, I think I can show before I get through, that there is here a genuine chemical change, and that it probably takes place in the soil.

My attention was at first directed to these reactions by the examination of a remarkable guano brought in to this port some years since from the Caribean Seas. It had very much the appearance of the famous hard guano of Monk's Island, and was sold for that fertilizer in the northern cities. Upon its arrival here, it was found to be a different compound, rich indeed in phosphoric acid, the percentage proportion of which was 40 to 45, but containing little or no lime; sexquioxide of iron and alumina being the chief bases present. It was at once condemned as worthless, because it was assumed that the phosphates of iron and alumina were wholly insoluble in the soil, and therefore worthless. I did not believe this, because I saw many pieces of this rock traversed in all directions by roots which certainly would not have gone thither if they had not found nutriment. Besides, farmers had used this guano with beneficial results.

This led me to look into the question of solubility. The ordinary solvents, carbonic acid, the salts of ammonia, &c., were tried, but they exerted little or no action upon the substance. It then occurred to me to try the silicates. On the application of a gentle heat, a chemical action was immediatly apparent. The solution of the silicate became at first turbid, and then gradually cleared up in consequence of numerous purple flocculi rising to the surface. Analysis proved these flocculi to be compound silicates of soda, alumina and iron, partly gelatining with acids, and partly resisting their action. There remained, at the bottom of the vessel, a heavy sediment, darker and more ferruginous than the original phosphate, and consisting of the insoluble silicand unaltered mineral.

A statement of one of these experiments will probably be more satisfactory than a general account of the reactions. The guano or rock phos-

phate operated on had the following composition:

Sesquioxide of iron	8.16
Alumina	21.05
Lime	Trace
Phosphoric acid	29.09
Chlorine and Sulphuric acid	Trace
Water	17.13
Sand	23.79
	99.22

This guano was reduced to a fine powder and then heated for an hour, in the proportion of 1.608 grammes, to 9 cubic centimetres of a solution of silicate of soda containing 0.2468 grammes of silica to each cubic centimetre. After the reaction, it was found that there remained in solution 2.0365 grammes of silicic acid. Hence the amount consumed was 0.3467. The quantity of phosporic acid in solution was 0.4258. The silicic acid consumed bore to the phosphoric acid the proportion of 59:72, or, in equivalents of 4:3. The percentage of phosphoric acid transferred to soda was 26.46, leaving only 2.63 insoluble.

It is not material which side of the controversy we take in reference to the manner in which plants derive their food from the ground, whether it is absorbed in a state of solution in the soil, or dissolved by some special juice of the plant. High authorities can be found on either side of the question. Interpret this as we may, it is very certain that a solution must at one time have taken place in the surface of the earth, in order to bring the inorganic ingredients of plant-food into that finely divided condition without which they cannot be absorbed. So, if we would comprehend the absorption of these materials by the plant, we cannot be absolved from the study of the reactions of the soil.

We know very well what are the usual solvents of phosphate of lime. Carbonic acid generated from decomposition of animal and vegetable matters, or descending with the rain and dew, and the salts of ammonia, accomplish this result. But for the phosphates of iron and alumina these solvents do not answer, and yet some change must be effected in them if they are to be reduced to the impalpable powder required by Liebig's theory of plant-nutrition. We find their solvents, as has already been shown, in the silicates, which are of necessity present in every soil capable of supporting vegetation. It is well known that the action of carbonic acid and water upon feldspathic rocks, which in some form other, or are almost universally distributed, results in the formation of alkaline silicates. That these are mingled with others of a more complex character we all know, but nevertheless, the ultimate result of the decomposition is an alkaline silicate. These interchangeable reactions of the silicates and carbonic acid, appear to me to be an admirable provision of nature for the economy of phosphoric acid. Let us suppose phosphate of lime to be in solution, whether by the agency of carbonic acid, or any other solvent. It comes at once in contact with alumina and sesquioxide of iron in a state of extremely minute subdivision. Immediately a transfer of the acid to one or both these bases takes place, and this chemical change is aided by that physico-chemical action of the soil which so much resembles that of charcoal. The result is the formation of a phosphate far less soluble in the liquids of the soil than that originally acted upon. This refractory salt, however, is in its turn attacked by the slowly generated silicates, resulting in the formation of an alkaline phosphate on the one hand, and a double or triple silicate of alumina, sesquioxide of iron and the alkali, on the other. This, like the original feldspar which commenced these reactions, remains in the soil to be again decomposed by the perpetually generated carbonic acid. Thus alumina and red oxide of iron constitute the central point about which play all these delicate affinities, while carbonic and silicic acids are the agents by which the changes are effected.

After I had completed and published the above results of my inquiries, I was gratified to see that the distinguished French chemist, Thenard, had pursued a parallel line of investigation and arrived at similar results. He had been struck by the absence of phosphate of lime in the fertile soils resulting from the decomposition of the gurassic rocks. He further found that a solution of phosphate of lime in carbonic acid water was entirely stripped of its phosphoric acid by being kept in contact with these soils. and that the same result took place when it was mixed with alumina, or oxide of iron, prepared in the laboratory. Thus it became abundantly evident that phosphate of lime could not exist in a soluble condition in the presence of these sesquioxides. A consideration of these facts led him too, to consider the action of the silicates. His attention was especially called to the silicate of lime which was largely present in the soils he was studying. He mixed phosphate of alumina with a solution of silicate of lime, and charged it with carbonic acid, and obtained large quantities of phosphate of lime in solution. The same result was obtained by substituting the soil itself for the phosphate of alumina. Thus there is a

continual interchange between the bases of lime and alumina precisely similar to that I have already shown between alumina and the alkalies, and a perpetual storing up of phosphoric acid in the soil.

Phosphate of lime, therefore, appears to be a transitory constituent of soils, appearing and disappearing continually, while the permanent phosphate which keeps up fertility has alumina or sesquioxide of iron or both for its base.

Yours, &c.,

A. SNOWDEN PIGGOT,

59 S. Gay Street, Baltimore.

Hop-Growing.

A correspondent lately presented the *Rural New Yorker* the following as the method of hop-growing in Kent, England. The plants are raised from the cuttings of the old stocks, made in the spring. Every cutting should have three joints. These cuttings or sets are planted in rows, with the two lower joints below the surface of the soil, about three inches apart in the rows, and the latter one foot apart. If the ground is clean, they need but little attention the first season. The following spring the sets are taken up and planted in the yard. To set out a yard right the planter requires as many small sticks one foot long as he will have hills. A land measuring chain is the best thing to lay out the hills. Take white or red paint and make marks on the chain six feet apart. A cord or garden line will stretch so as to bring the hills at uneven distances apart. Our hop yards are all planted with the hills six feet apart. The small stocks are placed in the ground by the marks of paint on the chain.

The next thing done is to prepare the soil in the hills for planting. Dig the hill up one foot deep, and mix a shovelful of well-rotted manure with the soil; place the stick in the centre of the hill. Then plant the sets, three in every hill, in a slanting direction, the tops of the sets close together on the surface, with the upper joints a little above ground; the roots of the sets are trimmed pretty close before planting. The young gardens, as we call them in England, are not poled the first year, as it is said to weaken the stock. Two stakes, six or eight feet long, are sufficient the first year. The second year, two poles, fourteen or sixteen feet long, are set. If the poles are cut shorter, three are put to a hill. They are placed firmly in the ground, one foot from the centre of the hill. The land is dug with potato-forks every spring and the old vines are cut off with a knife. The space between the hills is cultivated with horse cultivators three times during the summer, and the hills are rounded up with five or six shovelfuls of earth about midsummer.

The hop is known to be ripe by the leaves closing, and the inside of the leaf being covered with a bright yellow substance. The hops are packed by the poor of London and other large towns, who grow fat and healthy during this merry season. Every day's picking is taken to the drying-house and dried on a tightly-stretched cloth made of horse-hair. Great care is taken in drying not to scorch or over-dry them. Brimstone is burned to give them a deeper yellow color. When the hops are dried they are shoveled into a cooling room and packed in bags 7½ feet long and 6 feet round, holding about 180 lbs per bag.

A dry loam or gravel soil suits hops best. They will not thrive on wet land. Sheltered vales, if the land is drained, suits best, as the wind often injures the crop. A ton per acre is a good fair crop; 3,000 lbs a large crop. One more thing—the vines are trained to the poles by tying them with rushes. This is women's work, and is fine, healthy exercise, giving them rosy cheeks.

VIRGINIA AGRICULTURAL SOCIETY.—Hon. Willoughby Newton, President of the Virginia State Agricultural Society, has invited the farmers of the State, whether members of the Society or not, to assemble in Richmond on the 29th of November, for consultation upon the interests of Virginia in her social, agricultural, and industrial relations.

HIGH PRICED TOBACCO.—On Wednesday, Messrs. Stokes & Co., of Richmond, sold one box leaf tobacco, at 116 per hundred. This tobacco was raised by A. Slade, of Caswell county, N. Carolina. Jones and Hewitt sold eighty-one boxes manufactured tobacco, "Persimmon" brand, which netted about $6,000.—*Richmond Whig.*

GRASS FOR LAWNS.—The June grass, otherwise Kentucky Blue grass, (*Poa Pratensis*) makes a close green sward for lawns, which attains its verdure early in spring and retains it until winter. Timothy, Perennial Rye Grass, or Orchard Grass are coarse grasses unfit for lawns or grass plots.

☞ He who maintains the right, though countenanced by the few, must forego all expectations of popularity till there shall be less to censure than applaud in human conduct; and, when this is the case, the millennium will have dawned.

Sunday Reading.

It shall not be amiss to speak a word or two of the *naming* of your children. "In this thing" Chrysostom, or godly father, saith, "both the godliness of the parents, and also their great care for their children, is declared, and how they have forthwith and from the beginning taught the children which were born unto them, giving them warning by the names wherewith they call them, that they should practice virtue." Let them carry the names of the Apostles, of the Prophets, of the Martyrs, of such who have been constant in the faith, and have suffered death for Christ's sake; that so they may be taught by their name to remember whose name they bear, and that they neither speak nor do anything unworthy of their name. As, if any be called "*John*," that he pray for grace, and deserve to be "filled with grace," that he give witness of CHRIST, that He is "the Lamb of God which taketh away the sin of the world." that he rebuke vice boldly, as John did in Herod, though he were a mighty Prince; or if he should be called Paul, &c., &c. Thus should our names teach us, that whither we write them, or utter them, or hear them spoken, they may put us in mind of Christian duty and godliness.

Let the sea be proud, "whose waves know their bounds;" let the beasts be proud, who live agreeable to the laws of their nature; the locusts and caterpillars, who are God's armies; the wind and storm, that fulfil His word; but let not man, the only rebel in nature that stands distinguished from the rest of the creations, not so much by his reason as by his guilt, the only heir of wrath and shame and misery, let him not be proud—pride was not made for him.

Now (in Holy Baptism) we begin to be reckoned in a new *Census*, or account. God is become our Father; Christ our Elder Brother; the Spirit the earnest of our inheritance; the Church our Mother; our food is the body and blood of our Lord; faith is our learning; religion our employment; and our whole life is spiritual, and heaven the object of our hope, and the mighty prize of our high calling.

It is no great thing to be humble when you are brought low; but *humiliatas honorata*, to be humble when you are praised, is a great and rare attainment. *In alto non altum sapere*, to have lowly thoughts when on an elevated position, as it is so seldom found among men, so is it most pleasing to God.

If a laudable practice, by being extremely difficult, is a mark of a great soul, humility must not be denied that character; for this is a virtue more difficult to excellant than to ordinary souls. In other cases, a hero is to contend with his vices or his passions or his open enemies, but to be humble he must overcome his virtues too, and that when they act, unitedly, as one body; since though other virtues naturally assist one another, they all conspire to ruin humility, which, having pride to contend with, is to deal with so subtle an adversary that sometimes by being foiled he overcomes.

The birth of CHRIST is the origin of His people, and the birthday of the Head is that of the members also. As we are crucified, together with CHRIST in His Passion, raised up with Him in His Resurrection, placed at the right hand of the Father in His Ascension, so together with Him, in this, His Nativity, we are congenite, born and brought to life.

The Divine eye looks upon high and low differently from that of man. They who seem to stand upon Olympus, and high mounted to our eyes, may be but in the valleys and low ground unto His; for he looks upon those as highest who nearest approach His Divinity, and upon those as lowest who are farthest from it.

Truth haunts no corners, seeks no by-ways. If thou profess it, do it openly. If thou seek it, do it fairly. He deserves not to profess truth that professes it fearfully; he deserves not to find the truth that seeks it fraudulently.

The Spirit makes His approach to the understanding; He will not work in a dark shop. The first thing he doth, in order to faith, is to beat out a window in the soul, and let in some light from heaven into it.

Why did our Lord choose a stable? Evidently that He might reprove the glory of the world, and condemn the vanities of this present life. *Ipsa infantila membra non-silent.* This very infant Body has its speech.

The noblest spirits are those which turn to heaven, not in the hour of sorrow, but in that of joy; like the lark, they wait for the clouds to disperse, that they may soar up into their native element.

It was pride that changed angels into devils; it is humility which makes men as angels.

Baltimore Markets, Sep. 22.

ASHES.—Pot, $9.25; Pearl, $11 50a$12 00 per 100 lbs.

COFFEE.—Rio, 17½a19½c. gold, according to quality. Laguayra 19¼. and Java 26½ cts gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	25	28
Good do	28	31
Low Middling	32	33
Middling	33a37	39

FERTILIZERS.—Peruvian Guano, $85; California do., $65; Rodunda Island, $45; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $60; G. Ober's (Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone ,$45; do., Poudrette, $20; Baugh's Raw bone Phosphate, $56;—all per ton of 2,000 lbs., Plaster, $4.75 per ton. Shell Lime, slacked, 6; do., unslacked, 10c per bushel.

FISH.—*Mackerel.*—No. 1, $23a27; No. 2, $18a24; large new, No. 3, $14a15.25. *Herrings*—Shore- none. Labrador, $5 50a6.50; Potomac and Susqueh'na, $8.50a9. Codfish, new, $7 50a$8.50.

FLOUR.—Howard Street Super and Cut Extra, $10 25a $10 50; Family, $13.50a14 50; City Mills Super, $10a 10.50; Baltimore Family, $15.50a16.

Rye Flour and Corn Meal.—Rye Flour, new, $6.00a 6.50; Corn Meal, $4.50a4.75.

GRAIN.—*Wheat.*—Inferior to fair Red, $2 65a2 75; prime to choice Maryland, $2.85a2 95. Choice White—scarce—$3.40; good to prime, $2.90a$3 per bushel.

Corn.—White, 90a95 cts; Yellow, 88c. per bushel.

Rye.—90a98 cts. per bushel.

Oats—Heavy to light—ranging as to character from 46 a47c. per bushel.

HAY AND STRAW.—Timothy $23a25, and Rye Straw $21 a22 per ton.

BEANS.—Common, $1.50a2.00 as to quality.

POTATOES—$3 50a4 00 per bbl.

PROVISIONS.—*Bacon.*—Shoulders, 20a20¼ c.; Sides, 20¾c; Hams, plain bagged, 24c.; sugar cured, 26c. per lb.

SALT.—Liverpool Ground Alum, $2.15a2.20; Fine, $3.10 a3.25; Turk's Island, 60c. per bushel.

SEEDS.—Clover, held at $5.00; Timothy, $4.00a4.25 Flaxseed, $3 45

TOBACCO.—We give the range of prices as follows:

Maryland.	
Frosted to common	$2.00a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10 00a15.00
Fancy	17.00a25.00
Upper country	3 00a30.00
Ground leaves, new	3.00a12.00
Ohio.	
Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13 00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.37a2.42 per gallon, in barrels.

WOOL—We quote: Unwashed, 30a32 cts. per lb.; Tub-washed, 50a53 cts.; Fleece, common, 44a45 cts.; Pulled, No. 1, 30a35 cts.

CATTLE MARKET.—Common, $6 75a7.25; Good, $8.00; Prime Beeves, $8.25a8.50 per 100 lbs.

Sheep—5a7 cents per lb. gross.

Hogs—$15.00a15.50 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Sep. 22, 1866.

BUTTER.—Ohio, in brls. and kegs, solid packed, 28 to 30 cts.: Roll, 35; Virginia and Pennsylvania in kegs and tubs, 28 to 30; Glades, 35; Goshen, 44.

BEESWAX—42 cts.

CHEESE.—Eastern, 20; Western, 18 to 20.

DRIED FRUIT.—Apples, 10; Peaches, no supply.

EGGS—In barrels, 20 cents per dozen.

FEATHERS—70 cents for good Southern.

LARD.—Brls. 22, kegs 23, jars and other country packages 25 cents.

TALLOW.—12 cents.

CONTENTS OF THE OCTOBER NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, NOVEMBER, 1866. Vol. I.—No. 5.

NOVEMBER.

THANSGIVING.

"The spring's sweet influence, Lord, was thine,
The plants in beauty grew,
Thou gavest the summer's suns to shine,
The mild, refreshing dew.

"These various mercies from above,
Matured the swelling grain;
A kindly harvest crowns thy love,
And plenty fills the plain.

"We own and bless thy gracious sway;
Thy hand all nature hails,
Seed-time nor harvest, night nor day,
Summer nor winter fails."

Farm Work for the Month.

THE CORN CROP.

The corn crop should now be gathered and housed, as expeditiously as possible; except that which was of late growth, and needs longer time for drying. All such should have been left to cure upon the stalks as they stood in the field. There is danger always of large bulks heating in the corn crib, and there may be more than usual this wet season, but whenever the condition of the crop is such as to cause no risk in this respect, no time should be spared in getting it secured from depredations of all sorts.

CORN FODDER.

In the use of the corn fodder, which is supposed to have been well saved, let the stalks be fed early in the season, that the refuse may have the longer opportunity to rot before the season of hauling out manure. Blades should be kept for working and driving stock, in spring and summer. The shucks make good provender for working oxen. Corn fodder of every description is valuable for milch cows, and those especially that are kept to their milk during the winter months should be well supplied with it, for not even good clover hay is superior in promoting the secretion of milk.

FEEDING STOCK FOR SLAUGHTER.

If hogs have been some weeks in their pens, they may now be put upon full feed, and the fattening process promoted by all necessary means. Comfort and quiet, in addition to sufficiency of food, are what they need. Give these by such means as you can command.

Ground and cooked food are greatly more economical, but in the press of fall work we hardly hope to have the food of stock thus prepared, when it is so extremely convenient to throw in the ears without preparation. At any rate, a tight floor of plank, or a perfectly dry one of earth, should always receive the corn, unless the fattening hogs are raised from the ground, and store hogs have the opportunity of acting as scavengers to save the waste from the pens.

The feeding of beeves should be carried on with system and regularity, avoiding especially excessive feeding, and remembering that their digestive powers do not allow so fast feeding as those of hogs. They must be fed a longer time and in moderate quantities. Otherwise, there will be great waste of food. If not in their stalls, let them be, at least, always dry and comfortable.

The same is to be remarked of sheep. Do not, under the impression of their being so well protected by a woolen fleece, allow them to be exposed to storms of rain, and to lie on the wet ground. Feed with regularity, and moderately,

and protect them against alarm from dogs, or any other cause of disquiet.

STORE STOCK.

The principles which apply to fattening stock, are equally applicable to growing and store cattle of all kinds. The chief difference being in the quantity of food allowed, and the degree of confinement.

Sheds open to the south, and protected on the other three sides, and from twenty-four to thirty feet deep, will afford sufficient protection against weather, and keep the stock in better condition than close houses which cannot be thoroughly ventilated. Pure, fresh air, is very necessary for all sorts of stock, and can do no harm, even if frosty, unless there is exposure to wet at the same time.

Working oxen, milch cows, and calves, should be fed separately. Horses do much better unhaltered, in boxes where they may turn freely, than in stalls.

Sheep should not be confined to sheds, but allowed the free use of them in bad weather, and calves do very well, if fed and sheltered with sheep.

Hogs should be kept away from other stock, and never allowed to sleep in damp litter, or manure heaps. A range in a wood lot, and a bed of leaves on a south hill-side, under cover, is a very suitable arrangement for them. Sows should go to the boar the latter part of the month, and will bring their litters early in March. This will give the young stock advantage of the whole season's growth.

Water should be provided in the yards, if possible. There is great trouble and inconvenience, and, often, suffering on the part of stock, for want of this necessary provision. They need it more in winter when kept on dry food, than in summer, and should not have it in large quantities, but little and often. During the settled cold weather, there is no occasion for cattle going outside of their yards at all, if water be provided.

POTATO CROP.

There should be no loss of time now, in securing the potato crop. Dig in dry weather. Let them lie, only long enough to dry off the surface moisture. Then pile them in conical heaps of from twenty to fifty bushels, as you may think most convenient, on ground perfectly drained, and cover with six inches depth of straw and as many of earth. They may stand so until it begins to freeze hard, when another layer of straw, and twice the thickness of earth should be put; or if you mean to keep them in a cellar, they may be removed there. Access of water to the roots after being buried, must be especially guarded against.

RUTA BAGA AND OTHER ROOTS.

These may be put away in the same way as potatoes, but are not so liable to damage by frost. Beets and carrots for family use should go into the cellar. Parsnips and salsify should be left where they grow, and taken out in moderate supplies, as wanted.

TOBACCO.

Tobacco houses should be now closed, except in fine, sunny weather, when they should be opened, to dry off the accumulating moisture. Do not strip until the leaf stems are quite dry.

ICE PONDS.

Put them in order, see that the dam is quite secure. Cut off weeds and grass, and let the water on at once.

Durham Cattle.

The short horn Durham cattle hold their reputation well, wherever bred; and the prices at which they are sold remain as high as ever. Mr. Thorn, of Duchess county, N. Y., paid $5000 for a Durham bull a few years ago in England, and was offered a fair advance on that price, by a gentlemen who wanted to retain him in that country.

The Durhams are best adapted to smooth, rich lands, where the grasses grow very luxuriantly —pasture lands where clover grows a foot high, all over the field, is what they need.

As milkers, it is only occasional animals that are noted for the large quantity of milk produced, not every cow, nor so many of them as to render that breed particularly desirable as dairy cows: but for *beef* no cattle in the world excels them in the quality of the beef, and the weight of the carcass.

A good young Durham cow, full blood, is worth from $200 to $300, and yearling heifers, about $100; and they will, probably, bring those prices for many years to come.

Our native cows are much improved by crossing with the Durhams, as many stock breeders can testify.

☞If 17,000.000 acres in Holland and Belgium support 8.000,000, 77,000,000 acres in the United Kingdom ought to support 36,000,000, nearly 5.000,000 more than her present population, whereas the land does not half feed the people, and its supplies of corn and milk are falling off.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER, Maryland Agricultural College.

NOVEMBER.

Clear off all decaying substances, and stir the surface of the soil on dry days among growing crops, as cabbage, spinach, lettuce, endive, &c. Get vacant ground manured and spaded, or ploughed up quickly as possible that it may be exposed to the influence of the winter; every opportunity of favorable weather should be made available in carrying out whatever spading, trenching, ploughing, and draining have been laid out for the winter months. Cabbage, lettuce, celery, and all other vegetables should be trimmed at the rubbish heap, and not on any part of the garden, as it not only looks unsightly, but forms a hiding place for grubs and other insects injurious to gardens.

BROCOLI and CAULIFLOWER where grown, and is required to head late, should be dug up and laid in trenches in well sheltered places, in nearly a horizontal position, covering the roots and stems up to the leaves, which will check their luxuriant growth, and protect the hearts of the plants in severe weather.

CABBAGES.—Those planted out last month, and sufficiently advanced to admit of being earthed up, should have it done before severe frost sets in.

CELERY.—It is necessary to take advantage of every favourable opportunity to earth up all that requires it; rather let it remain as it is than to attempt to do so while wet, as it will afterwards rot in a very short time.

LETTUCE PLANTATIONS for spring use should be frequently looked over and kept free from weeds, slugs, &c. If the latter are troublesome, sprinkle fresh lime over the ground early in the morning or late in the evening, when the weather is mild; any now ready for use must be protected from frost.

ENDIVES.—Transplant as many as possible into frames, where they may be protected from frost, rain, &c. Nothing is more injurious upon young advancing salads than sudden frosts after heavy rains.

POTATOES.—The land intended for their culture next season, would be greatly benefitted by being roughly spaded up, or ploughed at the present time.

SPINACH.—Protect by covering lightly with corn stalks, or other litter free from noxious seeds, and which is not liable to being blown away by the wind; be careful in picking the leaves, to tread upon the ground as little as possible.

The Fruit Garden.

Continue the operations of pruning and planting fruit trees at every available opportunity; fork up the ground about young fruit trees, to destroy insects; scrape the moss and lichen from the stems, stir up the soil around fences, walls, &c. Such places afford a ready refuge for insects and other vermin to hide in security. It is a good plan to shake fresh lime over the ground thus disturbed. Attend to the directions given the two preceding months.

The Flower Garden.

In the absence of frost, a variety of works incidental to this department may be continued; borders and beds not cleaned should be at once finished up. Pinks, of doubtful hardihood, tea and Bourbon roses, should have a little protection. We repeat many instructions, inasmuch as the weather may continue open and mild, thereby beguiling some of us into forgetfulness of the approach of winter. Fuchsias, and other half hardy plants recently removed, should be protected; dahlia roots should be occasionally examined, in order to counteract the effects, if damp. Continue to plant for summer, hyacinths, tulips, narcissus, crocus, snow-drops, &c., in pots and glasses. Refer to direction for October.

THE HYACINTHS.—Of all flowers that grow and adorn our clime, not one has more universal patronage than the "hyacinth." It is the ladies' flower, indeed, it may be called everybody's flower, as it is so admirably adapted for the position it holds, being very easy of growth, most beautiful in appearance, deliciously fragrant, and last, but not the least, the pleasure it affords, may now be purchased at a trifling expense. The cultivation of the hyacinth, for sale, is confined to Haarlem, (Holland), and its neighborhood, where *hundreds* of acres are entirely occupied by it; a field of hyacinths, in full bloom, is a sight gorgeous in the extreme. For the benefit of the ladies, who are readers of the *Farmer*, who are fond of the cultivation of them in glasses, we subjoin the following hints:

From the first of October until the end of December, fill the glasses with water, (rain water is the best,) place the bulbs so that the base just touches the water; place the glasses in a dry, dark place, and when the roots are about three

inches long, they may be brought to the light, but not too suddenly exposed; as the flower and foliage advance, give all the air and light you can, otherwise they will be drawn up weak. When brought to the light, the glasses should be filled with water to the base of the bulb, afterwards fresh water should be given whenever that in the glasses becomes stagnant, taking care that it is of the same temperature as the room in which they are growing: turn the glasses frequently to prevent ill-shaped plants.

CULTURE OF HYACINTHS IN POTS.—Hyacinths to flower in spring, and for succession, should be planted in October, November, and December. The best compost we have used for them was equal parts of good, turfy loam, well decomposed cow dung, and sharp river sand, the sized pots, used for ground cultivation, from five to six inches. Hyacinths, like all other plants, require good drainage, we place about one inch of broken pots at the bottom of each pot, with half an inch of good, rotten cow dung upon them, then fill up the pot with compost, with a little river sand upon the top, on which place the bulb pressing it down firmly, filling round with the soil, just leaving the crown out. When this is done give them a good soaking of water, taking care to let them have plenty of time to drain before ploughing; for plunging, we choose a hard, dry place out of doors, covering them to a depth of ten inches with old bark in coal ashes being careful to protect them by mats, or otherwise, from severe frosts. Let them remain until the pots are well filled with roots, then remove them, with a frame, gradually exposing them to light; in a short time place them in a house where the temperature is about 60 degrees. Pay good attention to watering, and as the foliage and flowers advance, occasional waterings of liquid manure is very essential. When the flowers commence to expand, the temperature may be gradually lowered, and when fully expanded, the plant may be taken to a cool house or room where there is plenty of light.

☞ "Eighty years ago," observes Mr. Fisher, "Arthur Young, who travelled on the continent with a mind prejudiced against small farms, exclaimed, 'The magic of property transforms sand into gold. Give a man secure possession of a bleak rock and he will turn it into a garden; give him a nine year's lease of a garden and he will convert it into a desert.' Can we doubt which to choose?"

☞ The industrial establishments of New York employ 50,000 females.

For the "American Farmer."

Renewing Orchards.

BY DANIEL BARKER,

Md. Ag. College.

I have, in the course of my experience, during the past sixteen years, in this country, seen many grave errors made, in planting and after management, of the roots of fruit trees. I have had for a long time a desire to say a word of warning against the many mistakes which I have seen so frequently made. In many different parts of the States I have noticed orchards from a half acre to fifty acres in extent, with the bodies, stems, and branches of the trees, thickly covered with lichens and moss, the consequence of which must be the closing up of the pores, whereby the trees were of course dwarfed and unproductive, what fruit there was being exceedingly poor and unfit for market. This is, of course, a state of extreme bad management upon the starving principle. Again, I have witnessed many small and large collections of fruit trees, pears especially, that had grown so luxuriously that they seldom produced anything but wood. This is the consequence of too high and gross feeding.

Now, as it is probable that some of your readers intend to plant orchards, or have them already, in either one or the other of the above mentioned unprofitable states, I will endeavor to point out the methods we have adopted in order to remedy both evils.

We will suppose an orchard of apple and pear trees in the first named condition, put under our care to be improved and brought into a condition to produce plentiful crops of large, high-colored, and rich flavored fruit. Supposing that the trees were not too old or too far gone to be restored. The first thing would be to examine the soil, which, most likely, I should find not very deep, the subsoil in all probability an adhesive, wet clay, or some hard soil of a similar nature. I should then, during the early months of fall, cut drains from three to four feet deep, or as deep as an outlet could be got for the water to pass off. If *very* wet, I should lay the drains fifteen feet apart, but if not so wet, then from twenty to twenty-five feet, according to circumstances. At the bottom of each drain I should lay two-inch tile, which are procurable in most of our cities and towns. I should be very careful to do this part of the work myself, as upon its being well done depends the entire success of the operation. I would pack the tiles firm in their places with stone or brick ends, covering them over to the depth of six inches. I would then fill up to within one foot of the surface with

branches of Red Cedar, "Arbor Vitæ," or Hemlock, or of such other hard wood (Evergreen branches) as might be at hand. In the disposal of the branches in the drain we are careful not to displace any stone, brick ends or tile. The draining completed I would have all the bodies, stems and branches well scraped and cleaned of all lichens and moss, and when all the foliage had fallen. I should paint the whole of each tree with a mixture of fresh or quick lime, fine clay, and fresh cow dung, mixed together into a paint-like consistence.

In order to give the roots of the trees a fair chance, I should, after the draining was completed and the trees well cleaned, trench or plough the ground. Should the orchard be of small extent, I should adopt the first named method, by setting out on one side of the space a breadth of about fifty feet (more or less) broad. I should then open a trench the length of the piece set out, and about three feet wide, all the soil from that trench should be taken away and laid on a ridge where the trenching of the entire space would be finished. When this is done, set out with a line the next trench of the same width. I should take off about six inches of the top and throw into the bottom of the trench, upon which I should lay all the soil, and a portion of the subsoil, unless it should be very bad indeed, by exposing the subsoil to the air it ameliorates and is much improved. By this deep trenching there is a large space given for the roots to roam in. As I proceeded I should of course come across the trees, the roots of which I should carefully preserve without injury even to the smallest fibres. I should carefully examine all the roots and any that were decayed I should cut with a sharp knife clean off to a sound part, and in order to balance "root and branch," it might be necessary to prune away some of the branches at the same time; at all events I should be careful to cut away all that was in any way diseased.

If the situation of the orchard is exposed to strong currents of wind, and the heads of the trees large, then I should have them secured so that they would not be loosened or broken down. The best way I have found to do this, is to procure a sufficient number of strong stakes, and drive down, very firmly, four of them to a tree, at the opposite points of the compass. If the trees are of a moderate size, the stakes should be driven in about twelve or fifteen feet from the body of the tree; if smaller, ten feet would be sufficient. I then fasten four lengths of tarred rope to the tree, the other ends to the stakes, the stays will then support the trees from every quarter the wind may blow from. I have repeatedly proven this method, not only in the protection of fruit, but large forest trees, after removing them from a distance, and have found it the best plan of the many I have tried to prevent the winds from blowing down newly planted trees, or those which have been deeply trenched around.

If, in trenching, any of the trees should be found to be in a state of decay, I should discard them and plant young ones in their places. Having attended to every tree on the place that was trenched or ploughed, and done all that was necessary in a workman-like manner, I should expect, in a few years, to see the trees restored to perfect health and producing abundant crops of fruit—sufficient to repay all the labor and expense they might have caused in trenching, clearing, &c. Having put all into good order in the orchard, attention should be paid to keep them so, by giving a good coating with a compost of shell lime, soil, and manure, about every third year. The compost should be put together and turned over several times for twelve months previous to laying it on. I should keep the surface stirred during the summer months by the harrow or cultivator, never spading or ploughing, as these operations are sure to destroy the best of the roots, which lay near the sun, thus preventing them from having the benefit of the air and sun. Orchards, generally, are converted into a pasture for horses, cows, sheep, &c., which we think a bad system; the evil is three-fold, the ground is trampled upon until it becomes very hard, which cramps the roots. The trees are rubbed against, which injures the bark; the lower branches are disfigured and injured by the cattle browsing upon them. I would not allow any horses, cattle or sheep in my orchards. This I know is a great objection with the farmer, who has often said to me, in reply to the above, "cannot I make some use of the land after the heavy expense of draining, trenching and planting?" Yes; when the trees have made good roots and fair sized heads, you may then plant it with such crops as will not injure the trees; and when the trees approach each other I would sow the ground with grass seeds, but should always mow the grass and feed it to the cattle out of the orchard. This, to many, I know, will seem needless; but I have witnessed in my journeys through "the States" more orchards, if not destroyed, rendered unproductive, by turning cattle into them, than from any other cause (need of drainage excepted) whatever. I conclude this part of the subject by reiterating that in the first place make a good provision for the root, *take good care* of them, afterwards the result will be *fine, healthy, productive and profitable* orchards.

Farming Prospects in the South.

CLIFTON, FAIRFAX CO., VA., Oct. 1, 1866.

MR. EDITOR: It is a gloomy, rainy day, and I do not know of any better occupation than to sit down and give you my views on a vital question. I think, that of all the important questions for us farmers, none goes farther and reaches deeper in our pockets, than the *labor question*. We cannot disguise, even with the greatest indulgence for the negro, that free negro labor cannot be depended upon. Of course I except well brought up negroes of ripe age, but their number is *now very small*. The growing up generation of negroes is worthless and will remain so in general. Their idea of liberty is laziness, and they will rather now and then pick up a small job, which will *barely* enable them to provide for *bread* enough not to starve, or go and steal, than they will go to work regularly and make something. I make this statement by the experience I have had this last year. A plain farmer may manage to get along with this trifling set of hands, but how with the cotton, rice, and tobacco planter? As I used to plant cotton in Georgia, before, and in the beginning, of the war, I know that it would be foolish of a man to attempt, in general, to plant this staple without a *perfect* control over his hands. For instance, you have hired, say fifty hands, you prepare your crop for this force, and everything goes on swimmingly until in May, when the cotton is about 4 to 6 inches high, one of the heavy rains, which we have in the South, sets in for about a week. Before the rain, your cotton field was perfectly clear of grass, but after the rain you will not be able to find a spot free from grass, large enough to place your foot. (I am, of course, speaking of rich land.) It takes three or four days after the rain before the ground becomes sufficiently dry for work. Meanwhile the sun shines so hot, that if you put your hand in the ground you can hardly keep it there, and you may imagine how the grass continues to grow. At last, after having waited anxiously for three or four days to get to work to relieve your cotton; the *moment* to do so has arrived, you go through your quarter to start your hands, but lo!—one has got the belly ache, another rheumatism in his leg, another pain in his back, another headache, still another is sick *all over*, and so on. By the time you have got through, you find that six or eight hands are sick, or PRETEND to be sick, because they know heavy work is at hand, and you have to be satisfied to start forty-two or forty-four hands, where the FULL work of fifty hands is ABSOLUTELY needed, the consequence is, that you either have to work your entire crop imperfectly, and risk to lose a big part of it, or you have to throw out thirty or forty acres, and work the balance as required. Under *all* circumstances there is a loss for you of from fifteen to twenty bales of cotton. No amount of work after this period can redeem this loss. You perceive plainly that this loss is brought on by your hands PRETENDING to be sick, but you have no power to force them to fulfil their contract, to give you the amount of labor they agreed to do for you for the wages you agreed to pay them. It may be said, deduct from their wages any loss of time, but, my dear sir, a few paltry dollars would poorly compensate for the loss of thousands. But suppose you get over this period all safe, and you make a full crop, still you are apt to suffer by the same disadvantage: when the cotton has opened fully over all the field, and you cannot pick it at the proper time, a storm may come and blow it out, and you will have to pick it from the ground, full of sand and dirt, it having lost several cents per pound in value. How is a man to risk what little the war has left him under such circumstances? You may say, engage white labor, take emigrants; well, it MIGHT do after *a* year or *two* when they have been *taught how* to work, but white labor can *not exist* on rich cotton and rice plantations. They may *exist* on poor pine-land where they make sixty or seventy pounds of cotton to the acre, but this certainly would not pay so well as planting corn, west, where they would enjoy health and a more moderate climate. This is the reason why the South never *has* been and NEVER WILL BE settled thickly with white labor; another objection is the prices which are demanded for white labor. I wrote two weeks ago to the American Emigrant's Aid and Homestead Company in New York, being desirous of obtaining some hands. By return mail I received the following answer: "Good farm-hands can get $30 per month and board in *any* parts of the East, West, and North, and female servants $10 to $12 per month and board." Now, any man, least acquainted with farming South, knows that it is *impossible* for a farmer to pay such wages. Suppose a hand cultivates thirty acres with corn, at twenty-five bushels per acre, makes 750 bushels, at 75 cents per bushel, would make $550:

His wages would be.....	$360
Board per month, $10.....	120
One horse for three months	45
	$525

This would be under very favorable circumstances, but how, if any misfortune happened

to the crop? Under such circumstances what are we to do? All there is left to us is to be worried to death by worthless negroes. It *might* certainly be otherwise, if the worshipped negro vagabond was treated like a white vagabond in the North, that is, if he was *made* to work, or punished by being sent to the workhouse, where he would have to work for a living; but, in these glorious negro times such things are not to be thought of, and we poor white slaves have to submit.

The cotton crop, coming in this year, will prove what I have said. I see the Commissioner of Agriculture estimates the cotton crop to be 1,800,000 bales, at 400 lbs per bale, but I tell you there will not be made 1,400,000 bales against 6,000,000 bales before the war, and, instead of increasing, the crop will decrease, as the greater part of Northerners and former officers of the Northern army, who now are engaged in planting cotton, will find it unhealthy to continue; besides Congress has taken care to throw another obstacle in the way of cotton planting, by imposing a tax on the planter of three cents per pound in favor of the Northern manufacturer who gets the three cents back after having manufactured the cotton.

I wish you would put this communication in "sorter" shape and publish it, as I think it might help to enlighten some of the public on the labor question.

With high regard, yours,

L. A. Hansen.

The Pine Hills of Georgia Again.

Mr. Editor:—My article in your September number, descriptive of a portion of Middle Georgia, has, much to my surprise, involved me in an extensive correspondence. Persons in the Western and Middle States have written to me, asking for further information on the subject, and expressing a desire to go with me to live among the Pine Hills; while persons at the South have taken the occasion to set forth the attractions of their respective neighborhoods, or to describe lands which they are willing to sell to industrious, well disposed people from the North; and all assurring such immigrants a hearty welcome. Among the letters from the South, called out by the article referred to, is the following, which I think, you will agree with me in saying, ought not to be confined to my private reading, as the information it contains is of public interest, and will meet, in part, the want which my Northern correspondence shows to exist of just such statements of facts from well informed sources; and I trust the writer will excuse me for the liberty I have taken in sending his valued communication to you for publication. I am sure that your Northern readers will join me in sincerly thanking him for it.—D. H. Jacques, 389 *Broadway, New York.*

Summerville, near Augusta, Ga.
September 13th, 1866.

D. H. Jacques, Esq., 389 *Broadway, N. Y.:*

Sir:—I have seen your communication to the *American Farmer*, announcing your intention to make a home in that part of the State of Georgia where I live, and though not personally known to you, I have learned enough of your character and antecedents to make me desirous that you, and those whom you propose to bring with you, should receive a welcome to our State. I therefore have determined to write you a few lines to this effect; and propose to enhance this welcome by adding something to the information which yourcommunication imparts in relation to the Pine Hills, which you seek as a home, and in which, or the neighborhood of which, I have found a home for fifty odd years.

You have said that the higher portions ot this belt of country were not very fertile. Left to their own resources, after a few years cultivation, this is true of them. But, it is also true, that the industrious hand of man can produce from them results, which are, perhaps, more remunerative than similar exertions can produce in other latitudes. In the soil of nearly all this region the energies of production are stimulated in a remarkable degree by deep ploughing, sub soiling, and manuring. Peruvian guano, applied in connection with such effective upturning of the soil, produces, what it is not extravagant to call, wonderful results. Influences of soil and climate are such here as rapidly to effect disintegration where deep ploughing is used, and afford a matrix in which manures quickly and powerfully serve the generative forces of nature. I could mention some surprising results which have been effected in this region by certain of our large corn and cotton planters in past years; but it will be more satisfactory and useful, perhaps, for me, in this communication, to show what can be done among us by careful agriculture upon a smaller scale. One or two illustrations only have I room to give.

A thrifty farmer, who is my neighbor, is engaged in the butchering business, and incidently cultivates, chiefly with his own hands, about three acres of what may be called poor pine land; which, however, as does most of the land in this section, possesses a good subsoil of clay. This

land he ploughs and harrows thoroughly, and applies to it broadcast, stable manure in moderate measure. The present summer has been the most unseasonable by far, that I have ever known; yet in June, from about three acres of this land, this man reaped nearly fifty bushels of wheat. He immediately put the ground, without other application of manure, into Indian corn and cow peas. His corn is now (September 13th) in the silk, and will probably average for him, about twenty-five bushels to the acre. His crop of peas, and pea fodder, grown on the same ground with the corn, will be nearly, if not quite, equal in value to the corn. If he were to apply no other manure to this land for several years, with deep ploughing, good crops of corn could be grown upon it, or more than a bale of cotton of five hundred pounds to the acre. But, if, on the contrary, he continues to apply manure in moderate quantities, its productive energies will become very great. A part of this ground would probably yield him five hundred bushels of sweet potatoes to the acre.

In my own garden, notwithstanding the unpropitious season, I have made, on the same square of ground, two crops of corn for the table; the second being now nearly fit for use. I have done this often; one year for the sake of the experiment, letting the first crop of common Indian corn (not the six weeks', or Sugar corn,) harden and dry, so as to be fit for the mill. Then I planted the same piece of ground from it, and had another crop before frost. In that garden I have had a ripe cantelope in the last days of May. I have frequently had tomatoes, green peppers, and the egg-plant, until Christmas day, and once I had green peas in January. This garden is on the sandy slope of one of the picturesque hills to which you refer, elevated some two hundred and fifty feet above the plain of the Savannah river. It is due to this elevation, and the dryness of the air, that frosts are slower to effect vegetation than in the plains, and that we have vegetables and fruits, earlier and later, than in the more fertile vallies.

It is easy to see, from these facts, that though our lands may not be so fertile as in some other portions of our country, yet that to the small farmer, who employs careful and thrifty tillage, perhaps, as much, if not more, may be gained by double crops, without injury to the land, but rather adding to its fertility, as in more fertile soils, where only one crop can be made on the same ground in the same season.

It should be remembered, also, that in our land thus cultivated, there is a mine of riches in its cotton-producing capacity, to which the farmer, by way of variety in his agriculture, can appeal, and from which he can derive a staple of quality only surpassed by the cotton of the Sea Islands. And the seed from his cotton will afford the finest sort of manure for his corn. In past years many of our planters manured all their corn with their cotton seed.

It is true that all the finer grasses of the North, clover, &c., do not flourish well with us, though some of them do very well. We have grasses, however, which afford fine pasturage, and by careful tillage, abundant and profitable crops of hay. Sometimes, crops of hay are thus reaped from the ground after another crop has been removed, and frequently good yields of crow-foot, crab-grass, and pea-vines are obtained from the corn-field, which have their growth after the corn is made, and without additional cultivation. But the pea-vine is the clover of our fields, and is very prolific in yielding fine and nutrious hay This vine, deriving much of its nutriment, as it does, from the atmosphere, does not exhaust the land, and may be very profitably employed in soiling for other crops.

Crops of turnips are very heavy on our properly cultivated lands, and afford food for man and beast during the whole winter; continuing to grow until about December, and remaining in the ground all winter. Cabbages can also be cultivated successfully in the same way, and sweet potatoes in proportion—often of from one hundred to five hundred bushels to the acre.

Then, as to fruits, you know that peaches, figs, and melons of the most delicious varieties, grow here in the greatest abundance, and when a little pains is taken, from June until November. Large and profitable crops of peaches and melons are made for market, and many go yearly to the Northern cities. And what has been done by negro-labor is slight indeed, compared with what can be done by some of your friends among the intelligent and industrious farmers of the North. Our people, in former years, did not give much attention to the improved varieties of apples, pears and grapes; but a change, in this respect, has been gradually going on, in with which, my neighbor, Dr. Berckmans, that exellent gentleman, his son, Mr. P. C. Berckmans, to whom you refer, and your friend, the intelligent and energetic Mr. Redmond, have had much to do, and now we have some fine orchards.

Our trees are not so productive, perhaps, as in other soils; but the long continuance of a fruit maturing season, gives us great advantages. By careful planting, the varieties may be so cultivated as to afford a supply of fruit for a longer

season than in most countries. On the 31st day of May last, I pulled a ripe pear from one of the the trees (*the Madeline*) in my small orchard: we have had pears of other varieties all through the summer, and will continue to have some for weeks to come, though the drought, which prevailed a part of the months of July and August, has injured much fruit, and some trees. When my Lawrence, and Easter Beurre trees, shall be a year or two older, I may hope also for a winter supply.

Usually an abundant grape crop can be produced on our lands, though the Catawba, upon which we at first mainly relied for wine, has failed to a great extent. If we could continue to cultivate this grape successfully, (and perhaps treatment by some of your skillful Northern vine dressers might succeed with it here) a very delightful wine can be made from it in this section. There is much more of sugar in this grape, when grown in our climate, than at the North or West. The wine, therefore, has more of what is called body, is less acid, keeps well; indeed, seems to mellow with age. I have this wine, of the vintages of 1860 and 1861, on my farm, which persons of tastes cultivated in Europe, have pronounced fully equal to some of the best light wines in the Rhine countries. My neighbor, Mr. Berckmans, makes wine from several varieties of grape, and is quite successful with the Clinton grape, which yields an excellent wine, similar in character to the Claret or Bordeaux wines.

The foreign varieties of grape, so far, have not succeeded well with us, though sometimes we get a yield from some of them for the table; but the vines soon die out, and require renewing, in order to have a regular succession of crops, unless they can be more or less sheltered by glass from alternations of heat and moisture. But some hybrids from these varieties, crosses upon the native varieties, among which are some very fine grapes, succeed very well with us. The delicious little Delaware Grape does very well on our hills, both as a table and wine grape; is not subject to rot, and is moderately prolific. If I had time and space, I could mention others, which I either have tried, or known tried sufficiently to say that they can be cultivated with profit. I should not omit to say, that the Scuppernong grape grows here in the greatest luxuriance, one vine frequently covering many square rods of space, and yielding very many bushels of fruit, from which I have known a wine made, which after five years' age, resembled a good, and somewhat mellow Madeira. Wild grapes, as you have said, (some of which, with the aid of sugar, make a palatable wine,) abound in our woods, as do nuts and wild fruits of many sorts.

As to climate, what you have said is very true. The heat is by no means severe. During the summer, refreshing breezes prevail from the South. The extensive forests prevent radiation, and keep down the temperature to a considerable extent. Though this has been an unusually warm summer, I have not heard of the thermometer, in the shade, exceeding 96° of Fahrenheit, whilst at the North in many places you have had 100° or more. Innumerable sun-strokes have occurred with you, and I have not heard of one in Georgia. There is a difference between us as to heat in the longer continuance of our summer or warm season, though a great portion of this consists of very agreeable autumn or Indian summer weather. Our winters are mild. Almost any day in the year, women and children can go out and work without inconvenience. And what is more practical, though not more satisfactory, the husbandman all winter long can either put forward the preparation of his land, or other of his arrangements for the ensuing crop.

As to health: our bills of mortality will compare favorably with any in the world. The absence of extremes in heat or cold, partially accounts for this result. The dryness of the atmosphere—possibly the affluviae of pine trees and pine wood—will account for the absence of severe colds, and of pulmonary affections, in winter, as well as malarious diseases in summer. The silex of our hills affords the finest filter for the rains, and gives rise to streams of sweet and health-preserving water. In our gentle undulating country, these streams are numerous and perennial.

Whilst on the subject of the streams I may as well mention that they abound with excellent fish. They also afford to farmers good opportunities of constructing fish-ponds, where they can combine pleasure with profit, and raise large supplies of bream, red-breasted perch and trout, (so called,) all of which are delicious fish, unsurpassed, perhaps, for the table, are prolific, and can be bred at little expense in great numbers. This is not speculation on my part, but positive evidence as to practical facts.

As to taxation, it is a notorious fact that the public debt of Georgia is small. As you know the war has not added to it, our Legislature having repudiated the war debt. Our State railroad brings in a large revenue to the treasury yearly, and relieves the people from considerable taxation. Our credit is such that the Governor has been able to negotiate with Northern capitalists such

loans as we now need, and as serve to lighten in this crisis, the burthen of taxation upon the people.

The length of what I have written admonishes me that I must not much longer trespass on your patience. I can only say, in addition, that our people, Mr. Jacques, are anxious to escape as soon as possible from the desolating effects of war. They wish their lands, now the chief sources of their wealth, to be improved in quality, and increased in value. They desire to preserve their children from degenerating in the scale of civilization. They wish to have among them the strong preponderance of the industrious, moral, christian, and educated elements of society. And they reason that these can be insured by the execution of such plans as you propose, by the settlement among them of men like yourself, and such as you would bring with you; and therefore, they are willing to part with portions of the lands which possess the advantageous that you and I have pointed out, on advantageous terms, and at bargains. Thus, in the simple principles of an intelligent interest, you can find, if you choose, sufficient evidence of the sincerity, with which, for myself and friends, I welcome you and your friends to Georgia.

Very truly, your obedient serv't,

E. STARNES.

Commission Hucksters.

A correspondent, writing from Onancock, Accomac county, Va., representing the growers of Irish and Sweet Potatoes, cultivated largely in that section, says:

We have a complaint to make of Baltimore Commission Hucksters. During the war they got the commission up from 8 or 10 cents per barrel to 25 cents per barrel. Well, during the war, prices were high, and expenses were double what they had been, so there was not much complaint; but now there is a general complaint, and I think very justly so, that they still charge 25 cents on every barrel of potatoes, fruit, &c., that is sent to your market, and that is not all, the very men who sell our produce, sell to themselves, as they are the largest retail hucksters in the market.

Now, Messrs. Editors, nearly all of this business is done by a very few men, I think 3 or 4 do nearly all the commission business in that line. True their lincenses are high, $50.

But see, very often there are from 2 to 3,000 bushels there on a Monday or Wednesday morning; those there on Monday are sold out, and leave on Tuesday; those on Wednesday leave on Friday, sometimes Thursday. The sellers have nothing to do, but receive the money; and when the vessel is out, pay over to the Captain the amount of receipts, save the 25 cents per barrel. Now, Messrs. Editors, is there, or can there be no remedy for this. We are willing to pay a fair commission, say 10 cents per barrel, which will amply pay them. It is altogether a cash business, and consequently no risk to them. I am the owner of a small vessel that runs potatoes, &c., and the freighters all say that they would sooner take a little less somewhere else than send them to Baltimore, on that account, and consequently she runs to Washington, where they have no commission to pay. For my part I would much prefer her sailing to Baltimore; but so it is:

Charges in Baltimore 27 cents per bbl. commission and wharfage.

Charges in Washington 2 cents per bbl. for wharfage.

To the Editor of the American Farmer:

In your August number I see a piece headed, "Cows' Tails," on which you remark: "Can it be that there are dairies of cows with short tails, and can it be that anybody 'likes the style?'" Well, I must confess, that I "like" the "style," and that you will find this "style" in most all the different parts of the old country where dairies are the principal branch of farming. The reason why the tails are cut off at the end of the bone, is to prevent it from trailing in the urine and manure when the cow lies down.

Besides the precaution to cut the tail, the tail is tied to a rope, suspended from another rope on rollers, running parallel to the ceiling, on the ends of which rope there are weights heavy enough to keep the parallel rope straight; but, at the same time, light enough to allow the parallel rope to give away, in case such should be required if the cow lies down, and the rope to which the cow's tail is tied, should get under her.

Cutting the tail does not deprive the cow of the full use of the same when needed, because it will have obtained its full length by spring, when it is required to keep off flies.

Being an old planter and, farmer of thirty years' standing, who has a good deal of experience, both here and in the old country, I hope you will not consider it arrogant for me to have made the above remarks.—*Fairfax county, Sept. 26, 1866.* L. A. HANSEN.

Our objection was not to cutting off the switch of the tail, but the whole tail, bone and all, as seemed to be indicated in the paragraph commented on. The trimming of the switch while

the cow stands in the stable, and allowing it to grow again by "fly time," is a different matter. —Ed.

Elements of Vegetable Life..

BY GEO. M. VILLE, PARIS, FRANCE.

In consequence of the persevering efforts given to the study of plants of late years, agricultural production has been raised to the ranks of a scientific problem. It is in this spirit that I have for many years studied it at the Museum of Natural History. Here, my language will be more simple, familiar, and practicable; it will, nevertheless, retain its scientific character, science being the essential basis of everything I have to tell you.

If we seek to define the conditions which determine vegetable production, the influence which modify its growth, and the forces which govern its manifestations, we must commence by going back to the elements of vegetables themselves. We must separate from the vegetable its organic individuality, and consider only the chemical combinations of which it is the seat and result.

The analysis of all known vegetables or the products extracted from them, leads to the unexpected fact,—that fifteen elements only concur in these innumerable formations. These fifteen elements, which alone, serve to constitute all vegetable matter, are subdivided into two groups:—

First—The organic elements, which are encountered only in the production of organized beings, and the source of which is found in the air, and in water. They are carbon, oxygen, hydrogen, and nitrogen.

Second—The mineral elements, which resist combustion, and which are derived from the solid crust of the globe. They are potassium, phosphorus, sodium, chlorine, calcium, iron, magnesium, manganese, silicium, aluminium, and sulphur.

Vegetables are, in fact, and from the special point of view where we place them, only the varied combinations of which these fifteen elements are susceptible. In the same way that a language expresses our most delicate and profound thoughts, as well as the meanest, by means of the small number of letters which compose its alphabet—so do vegetable productions assume the most varied forms and dissimilar properties by means of these fifteen elements only, which compose the true alphabet of the language of nature.

Now; if it be so, we are justified in likening the vegetable to a mineral combination, a more complicated one, doubtless, but which we may hope to reproduce in every part, by means of its elements, as we do with the mineral species. This proposition, how astonishing soever it may appear to you, is nevertheless the exact truth. To prove it to you, permit me to establish a parallel between vegetables and minerals, from the different points of view which more especially characterize the latter. We will commence with their mode of formation and growth.

First, we perceive only differences. A crystal suspended in a saline solution, grows by the deposit of molecules, on the service, similar in composition and form to those which constitute its nucleus. These molecules, diffused through the solution, obey the laws of molecular attraction, and thus increase the mass of the primitive crystal. The vegetable, on the contrary, does not find diffused vegetable matter in the atmosphere, nor in the soil with which it is in contact. Through its roots and leaves it derives its first elements from without, causing them to penetrate into its interior, and there mysteriously elaborates them to make them ultimately assume the form under which they present themselves to our eyes.

We can, nevertheless, say that the process of vegetable production has something in common with the formation of a mineral. For in both cases I see a centre of attraction, which gathers up the molecules, &c., received from without. In the more simple case of the mineral, the combinations of the elements is previously accomplished; only a mechanical grouping takes place. In the more complex case of the vegetable, the combination and mechanical grouping are effected at the same time, and in the very substance of the plant. In both cases a formation is engendered by the union of definite or definable material elements.

From the point of view of composition, vegetables appear at first more simple, since they are derived from fifteen elements only, while at least sixty concur in the production of minerals; but in reality they are more complex, since each plant always contains the fifteen elements at once, while minerals, taken individually, never contain but a very small number, five or six at most. Among vegetables, the combination is also more intimate. In minerals, each of the constituents preserves up to a certain point, its individual properties. In the sulphates, for example, it is easy to prove the presence of sulphuric acid by adding baryta to it, which gives the insoluble precipitate of sulphate of baryta in these salts as well as in sulphuric acid itself. Besides, in thus withdrawing the sulphuric acid from a sulphate, we have not destroyed the sulphuric acid, we have only displaced it. But with

the group of elements which form a vegetable, it is not so; in them, all individual character disappears. Who can perceive the carbon, the nitrogen, the potassa, &c., which constitute the plant? Only the whole manifests its properties, and we cannot separate an element from it, except by destroying it past recovery. Notwithstanding these essential differences, we have, nevertheless, in both cases, to do with material combinations, that is to say, with phenomena of the same nature, one of which is more complicated than the other; they are two distant terms of the same series.

Let us conclude this parallel by comparing the forces which, in both cases, determine the grouping of the elements. When attraction is exercised at great distances, in the planetary spaces, for example, it depends only on the re-acting masses, and not upon their nature; when, on the contrary, attraction is exercised in contact, as in chemical combinations, it depends at the same time upon the mass and the nature of its elements. This new and more complex form of general attraction is called affinity. Gravitation, the first term of the series, which we call universal attraction, governs and harmonizes the movements of the stars; affinity, the second term of this same series, regulates the play of mineral combinations.

If we examine the formation of vegetables from this point of view, we shall see that it represents a still more complicated case of universal attraction, a third term of the series, if I may be allowed the expression. Here, in fact, the result depends at the same time on the re-acting masses, on the nature of the elements present, and on the action of a new force, in the embryo, which diffuses itself from thence throughout the vegetable, and impresses its special stamp upon the combination produced. Take two seeds of the same sort, having the same weight, remove from each of these seeds a morsel also of the same weight, only let one include the embryo in the amputation, and in the other let the embryo be left out, and take instead a fragment of the perisperm, then put both upon a wetted sponge The seed without embryo will soon enter into a state of putrefaction, the other, on the contrary, will give birth to a vegetable capable of absorbing and organizing all the products resulting from the disorganization of the first. There is then in this embryo a new power of organic essence, which modifies the ordinary course of affinities, and impresses upon the combinations present a special form, of which it is itself the prototype.

The formation of the vegetable is not the only case where foreign forces come thus to modify the ordinary play of affinities. Mix hydrogen and nitrogen together in the dark, there will be no combustion. Submit the mixture to the action of the solar rays, an explosion immediately takes place, and the gaseous mixture is replaced by a new product—hydro-chloric acid. Here then are two elements incapable of entering into combination by themselves, but which acquire this faculty by the intervention of a foreign force—light. Mineral chemistry abounds in examples of this kind.

In the greater complication of vegetables under these different relations, I consider it then to be correct not to see a sufficient reason for believing that nature has traced a line of absolute demarcation between minerals and vegetables, nor to admit that the laws of their formation have nothing in common with those better known laws which regulate the productions of the inorganic kingdom. I think, on the contrary, that nature is uniform in her general laws, and that by attentive observation aided by experiment, we may arrive at knowing them in all their effects. I perceive then nothing irrational in the attempt to arrive at the artificial realization of the conditions in which they are exercised to produce vegetables, as science has already succeeded in doing with minerals. This conclusion will acquire, I hope, a stronger and stronger evidence as we penetrate deeper in our researches, and I shall at once give a very striking confirmation of it, in showing that nature does not pass suddenly from the mineral to the vegetable, from crude matter to organized matter, but that there exists on the contrary, a class of compounds which lead us insensibly from the one to the other, and form the bridge which unites these two series of productions.

Preserving Eggs for Winter Use.

A country minister's wife writes to the Scottish Farmer: "Every evening I take all the eggs collected during the day, and rub them carefully with butter or the finest and purest lard. Every pore of the shell must be thoroughly filled, otherwise the air cannot be excluded. I have ready a box or tin canister, and plenty of salt. I put a layer of salt in the bottom of the box, and then place in rows my buttered eggs. Go on alternately with layers of eggs and salt until you leave perfect room for the lid closing firmly. The exclusion of air is the great secret of preservation. I have many different sizes of canisters stored in my pantry (on an *open* shelf) with preserved eggs. Those canisters I get from the baker or grocer for a trifle. My one and a half dozen canisters are 3d. each. My largest size

contain ten dozen eggs, and cost 1s. The lid is quite as important as the box. Be sure it is close fitting, otherwise you will be vexed to find the eggs like those one gets in London, very unlike *wise-like* Scotch eggs. Many ladies tell me they have particular positions for placing the eggs, but I find mine are delicious after four months, by merely placing them *comfortably*, without reference to top or bottom."

Horticultural Improvement.

A few years ago, it was predicted that "in a short time fruit would be a drug," but this "time" appears to be far off, if we are to judge by the prices obtained for all kinds of fruit at present, and there are no indications that the supply will be greater than the demand, at least for several years, for the population of our cities, towns and villages is increasing rapidly, and this class are not producers, but consumers. There is an European demand springing up for choice American fruit, which promises to grow into important dimensions after some time, and to open a new channel for the production of the great West. An orchardist of the present day enjoys many advantages which were unknown to his predecessors in the same business. The pioneers of horticulture, in a new country, have always difficulties to contend with which are not in the way of their successors. Horticulture, instead of being neglected and uncared for, is now established in high places, enjoying the protection of organized societies, and the assistance of valuable periodicals. It has made wonderful progress within a comparatively recent period. In the beginning of the sixteenth century there were very few kitchen-gardens in England, and fruits and vegetables were imported from the Netherlands. Since that time the surface of the globe has been traversed by enterprising naturalists, and almost every country made to contribute something to furnish the gardens, hot-houses, and conservatories of England. Cauliflowers were originally brought from Cyprus, artichokes from Sicily, lettuce from Cos, shallots, or eschallots, from Ascalon, cherries and filberts from Cartaus, in Asia Minor, the peach from Persia, the plum from Syria, the pomegranate from Cyprus, the quince from Sidon, the olive from Greece. Every year brings contributions from various parts of the world.

The Royal Horticultural Society of England, which has grown up to such magnificent dimensions, and now wields such a potent influence in furthering the cause of Horticulture all over the world, did not exist until the commencement of the present century, at which time the "London Horticultural Society" was formed, through the exertions of Mr. Knight, Mr. Wedgewood, and Sir Joseph Banks. The Experimental Garden of the Society was not formed until 1817, and in 1822 it was removed to its present situation at Chiswick. Since that time Horticultural Societies have sprung up in almost every part of Great Britain and Ireland, and horticultural improvement has been "marching on" triumphantly in every part of the civilized world. In the United States it is making "giant strides," being compelled to do so in order to keep up with the progress of the arts and sciences and the wonderful development of agriculture and commerce. The establishing of Agricultural Colleges in all the States, with experimental gardens on their grounds, would be a most effectual method of forwarding "Horticultural Improvement," as the suitableness of fruit to the climate and soil of each State could be fully ascertained by actual experiment, and the most approved fruits, together with all the modern improvements in horticulture, disseminated. It is true that the peach crop is liable to failure in this country, and that dwarf pears and the choicest varieties of cherries sometimes disappoint the too sanguine expectations of the orchardist. It must be admitted that those pests of the orchard—the borer, the tent caterpillar, the apple-worm and the curculio, dispute every inch of ground with the horticulturist, but, with all these drawbacks, the United States surpasses every other country in climate and soil adapted for raising the greatest variety of fruit.—*Southern Ruralist.*

Home Decoration.

Next to wholesome food, home pleasures are necessary to enliven our spirits, promote our good health, and give a zest to rural life. What can give greater satisfaction to a family of refined taste than to have the grounds around the homestead decorated with the beauties of nature so bountifully furnished us? The species and varieties of trees, shrubs, roses, vines, &c., are now so numerous that a choice selection can be made to suit every clime, soil and exposure, and to bloom and fruit all the growing season. See them tastefully arranged and gorgeously dressed with foliage of various colors, and decked with blooms far transcending the most costly jewelry in brilliancy, and perfuming the air with their fragrance. In windy days they gracefully bow, prance and whirl around like sprightly youth in the dance, and the melody of the breeze serves them for music. How beautiful the picture and

the great enjoyment, to those who can appreciate it. It makes a cot a palace, and a home a paradise; the owner a king, and his wife a queen; it imparts a dignity to the manly graces of sons, and lustre to the beauties and virtues of daughters. The passing wayfarer is delighted with the scene, and sets it down in his mind as the abode of the great and good in heart, and the virtuous and wise in actions.

After planting climbing vines to clothe the veranda, and a few decidous trees around the house for shade in summer, all the other trees, shrubs and roses should be so arranged over the lawn that all will be seen at one view. Set the more dwarf nearest the house, and the taller farther off, and they will appear to rise in graceful folds as they recede from the eye, and the contrast of size, form and color, of the various individuals will show to greater advantage, and that will give additional graces to their charm.—*Rural Adv.*

Fruits in Southern Illinois.

A writer on fruit growing in Illinois says:

Three hundred and twenty-three miles south of Chicago, and forty-two miles north of Cairo, is the little town of South Pass, Union county, and the station Cobden, on the Illinois Central Railroad. The fruit farms here are all located on high hills, (bluffs they are called here,) the fruit trees and vines being in many places planted on ground so steep that it cannot be cultivated by horse labor. It is now the busiest of the berry season—the harvest of the strawberry crop. They began to ship from here on the 8th of this month, and have been daily shipping since, at the rate of from one to three car-loads of strawberries a day. Yes, my dear friends, from three to ten hundred bushels daily from this point.

As I write, over thirty spring wagons are unloading at the depot. To-day the shipment is three large-sized fruit cars full of boxes of rich, luscious strawberries. The country dependent on this point for shipping facilities extend for about four miles north and south by about five miles east and west of this station.

The "Wilson's Albany" is the only variety grown here to any great extent for market. These berries are large and very firm, keep a long time, and can be handled without bruising; hence the principle reasons for cultivating that variety. No one here pretends that this is a good variety to eat, yet they grow them, simply because they will bear shipping. Over three hundred acres of these, in many places almost precipitous hill sides, are covered with strawberry-vines, and are yielding more than an average crop this year. Yearly, this grand area is being extended; to-day many hands are engaged in setting new vines, and they will continue to so work until late in the summer. It should be remembered that every foot of this land was but eight years ago covered with the primitive forests, and that since that time the trees have been felled and burnt up, (in log heaps—not for firewood, but simply to get rid of it,) and the place made to put on somewhat of a civilized appearance.

The berries are picked by men, women and children, natives (as they are here called) "to the manor born." The growers pay from two to three cents per quart for picking, the lower price being paid for picking from the most prolific vines. The berries are all put up in quart boxes, which are all made here, there being three box factories within this fruit range. The manufacturers charge eight dollars per thousand for the box material, and the shippers have the boxes nailed together in their shipping sheds, where they are used. They pay children twenty cents per hundred for making the boxes, so that when ready to put into crates to ship, the boxes cost just one cent a piece. This, with the price paid for picking and for the crates, will make the berries cost the grower five cents per quart at the station here.

One week more will close up the strawberry harvest, after which time raspberries will begin to ripen, and be shipped. I cannot learn that there are more than from twenty to fifty acres in raspberries at this point, so it will be seen that the supply from here will be comparatively small.

Early apples will then be shipped, and by the time that crop is over, peaches will be ready; so that through the rest of this month, and through June and July, there will be a constant stream of fruit flowing northward from this point.

The pear crop will be large here. I was shown some trees that the owners estimated would net them ten dollars each. Pears are largely grown around here. One man has over twelve thousand pear trees on his place, while many have from one to six thousand. Dwarf pears are quite largely planted, but all plant standards for their permanent orchards, the dwarfs lasting only until the standards come into bearing.

The quantity of peaches to be shipped from this point is estimated by different persons at from 300,000 to 600,000 boxes. Even the lowest number seems almost incredible, yet when we know that there are about 200,000 bearing trees here, much of the wonderment will be "used up." He is looked upon as a small cultivator

who has not five thousand peach trees. One man claims to have shipped thirty-seven thousand boxes last year. I do not vouch for the truth of the statement, but so he assured me.

Vegetables are quite largely grown here—tomatoes and sweet potatoes especially. These grow in the valleys and ravines where the land is too low for fruit. One man here has over three acres of tomatoes, and another gentleman has about ten acres of sweet potato plants set out. General farming is not carried on to any extent here. Almost all the flour, pork, and so on, used by the first growers, is imported the ground being too valuable to be used for growing those staples.

Earth for Poultry House.

The employment of dry, pulverized earth as the means of deodorizing poultry houses, appears to be worthy of more attention than it has hitherto received, The fact that from four hundred to five hundred fowls can by its aid be kept in one building together, with less smell than can be found in any ordinary fowl-house, capable of accommodating a dozen chickens, is very conclusive as to its efficacy. In the building of the National Poultry Company, where this fact has been ascertained, seven or eight fowls are kept in each compartment, twelve feet by three feet, and yet there is no smell or trace of moisture.

Mr. Grevelin informs us that if a much larger number are put into each run the ground becomes moist, ceases to deodorize, and the birds become at once unhealthy. It should be stated that the droppings that fall from the perches at night are removed from the runs next morning, and that the dry earth only receives the manure that falls through the day; this has its moisture absorbed so speedily by the earth that it at once becomes pulverized, mixes with the soil and ceases to smell. So powerful is the deodorizing effect of the earth that it does not require to be renewed in the runs for many weeks together.

It appears a question how far this system may or may not be extended. It is applicable to private poultry houses? Can it be usefully employed at poultry shows? Would it answer in places where it is requisite to keep birds in close confinement? Can it be advantageously used in zoological gardens? The employment of earth closets as a means of deodorizing that which would otherwise become offensive sewage is well known, and we have no doubt that many of our "feathered friends" might be greatly benefitted by an extension of the system that has been so successfully inaugurated at Bromley.—*London Field.*

Points of a Breeding Sow.

S. Lewis, of Boone county, Illinois, gives in the Prairie Farmer his ideas upon the above subject: "In the first place she should be square built, have a short nose and short years, short legs and back, with latter hollow or bent. Shoulders should be heavy and deep. Never let her raise pigs until she is a year old, and never but one litter the first year. Then, if she proves a good milker, let her raise two litters per year. I speak of her being a good milker. This is as essential in a breeding sow as in a good mare. Such an animal will raise better pigs, and, of course, her progeny will be better hogs for the market. I find that hasty pudding and milk for the supper and breakafst, and corn for dinner, constitute a very good diet for the breeding sow. A great many farmers have fallen into an error in not allowing plenty of straw for a bed. Many build a warm pen in order to avoid giving her much straw. Let her run to a straw stack, and she will build a nest to suit herself. If this is not convenient, she should have plenty of straw in the pen. Attend to these matters, and I will warrant no trouble in raising pigs in the coldest weather."

Scientific Farming.

As Solomon condenses the whole duty of man into two precepts—"Fear God and keep his commandments," so the whole business and purpose of farming may be embraced in two maxims, as follows:

1st. To raise the largest possible crops with the least possible labor.

2d. To maintain the fertility of the soil with the least possible exhaustion.

The first of these maxims has commanded general attention throughout the United States, and a rage for large crops at whatever expense of future fertility, have become almost a mania in many parts of the country. The present system of giving prizes at our Agricultural Fairs, if it does not tend directly to produce this state of indifference to the future productiveness of our fields, certainly does nothing to counteract it.—

Who ever heard of a society offering a premium for the best series of crops on the same field for five or ten years? To maintain the fertility of the soil is not only one of the principle interests of the farmer, but it is a duty he owes to those who are to succeed him in his business. Fortunately the two maxims above stated in no way conflict with each other.

The largest possible crop may be produced this year without materially impairing the capacity of

the soil, and repeat the same next year, and each succeeding year indefinitely.

A good soil can be worn out only by criminal neglect and carelessness in its cultivation. In England, fields that have been cultivated a thousand years, are now producing forty bushels of wheat to the acre, and each year marks a slow but certain increase in the crop. The average per acre of crops in the agricultural counties of England has advanced twenty per cent. since the beginning of this century. The same is true of Sweden, and of portions of France, Germany and Belgium. This is to be attributed mainly to the application of scientific principles, pointed out by Sir Humphrey Davy in England, Sheele in Sweden, Bousingault in France, and Liebig in Germany. While this is true in the old world, how have we fared in this country? If we take the census of 1840, and compare it with that of 1860, we shall discover while the aggregate production has greatly increased, the average per acre has been constantly diminishing. Between 1840 and 1850 this was true of all the States in all the principle crops cultivated; but between 1850 and 1860 several of the States nearly maintained their average, while one of them, Massachusetts, and several counties in others, show a small advance.—PROF. R. T. BROWN—*Northwestern Farmer.*

Dressing Poultry for Market.

The following hints on poultry-dressing are gathered from a circular lately issued by Morrison, Taylor & Co., of this city. The instructions are so thoroughly practical, that we believe we will be consulting the interests of such of our readers as are in the habit of marketing fowls, by giving them a place in our columns.

"We would here remark that 'scrawling' poultry always sells low in this market, and that between a well dressed fowl and a poorly dressed one, the difference in price will make a fair profit, 1st. Food in the coop injures the appearance and sale, therefore, keep from food twenty-four hours before killing. 2d. Opening the veins in the neck is the best mode of killing.

If the head be taken off at first, the skin will recede from the neck bone, presenting a repulsive spectacle. 3d. most of the poultry in this market is "scalded" or "wet picked," "dry picked" is preferred by a few, and sells to a limited extent only, at full prices. Poultry may be picked dry, without difficulty, if done without delay after killing. The bird, held by the legs, should be immersed, and lifted up and down in the water three times. Continue to hold the bird by the legs with one hand, while plucking the feathers with the other, without a moment's delay after taking out. If skillfully handled in this way, the feathers and pin-feathers may all be removed without breaking the skin. A torn or broken skin greatly injures the appearance. 4th. The intestines should not be "drawn."

After removing the feathers, the head may be taken off, and the skin drawn over the neck bone and tied. This is the best method, though much comes to the market with the head on. 5th. It should next be "plunged," by being dipped about two seconds into water, nearly, or quite, boiling hot, and then at once into cold water the same length of time. It should be entirely cold, but not frozen, before being packed. 6th. In packing, use clean hand-thrashed rye straw. If this cannot be had, wheat or oat straw will answer, but be sure that it is clean and free from dust. Place a layer of straw at the bottom, then alternate layers of poultry and straw, taking care to stow snugly, back upwards, legs under the body, filling vacancies with straw, and filling the package so that the cover will drive down very closely upon the contents, to prevent shifting on the way. Boxes are the best packages, and should contain from, say, 150 to 300 lbs.—*Canada Farmer.*

Raising Stock.

A correspondent of the Utica Herald sends the following sensible hit in regard to raising stock: "Every breeder of mules knows that a good horse colt cannot be expected from a mare that has borne mules. The common theory of this is that the blood of the mare becomes permanently affected by that of the fœtus, giving mulish characteristics to her subsequent progeny. Applying this to the cow, is it not likely that the blood of the cow is permanently tainted when she is made to bear bad blooded calves? And can farmers expect ever to raise good stock from cows to which, for the purpose of making them milkers, they have been in the habit of using any runt of a bull they could pick up?"

WASH FOR BODIES OF FRUIT TREES.—One ounce of copperas to eight or ten gallons of water forms a good wash, and is advised for trial as a preventive against blight. One pound of bleacher's soda and one gallon of water forms a wash that cleans off all insects, and leaves the trees with fresh, young looking, healthy bark.—*Horticulturist.*

Agricultural Machinery.

The farmers of our Eastern States, compelled to till rocky and uneven lands, and used to small holdings, do not know by experience, all of the changes which *improved machinery* has wrought in agricultural operations on the great Western prairies. There, machines do the labor of men to such a degree, that the farmer's heaviest toils are lightened, and one man is enabled to achieve with ease, the work of half a dozen.

We saw recently, a corn-field of one hundred and sixty acres, on the "Grand Prairie," in the plowing, planting and cultivation of which, no man walked a step. A rotary spader drawn by four horses, and driven by a man upon the box, plowed the field to a uniform depth of eight inches, and gave such thorough tilth that it was not necessary to use a harrow at all. A corn-planter drawn by two horses, and driven by a man upon the box, next planted seed. A cultivator drawn by two mules, one walking upon each side of the knee-high corn, and driven by a man upon the box, completed the culture of a row at a single operation; and in the tool house lay another machine, also to be drawn by horses, which will cut down the corn when it is ripe, and lay it in regular rows, to be finally gathered by hand. But it is expected that by next year this machine will be so improved as to gather up the corn also.

When it is remembered that the farmer who follows the common plow or cultivator during a long summer's day, performs a march of from ten to fourteen miles, it will be seen what a boon is the machinery which relieves him from this toil. And when we remember how scarce were men during the last four years in the West, we shall see that but for such labor-saving implements our vast crops of cereals could have been neither planted nor gathered.

The farm of which the corn-field we speak of was a part, has seven hundred acres in a single field of timothy. Of what use would this be if it had to be cut by hand? But a half-dozen harvesting machines sufficed to cut it all in good time; and it will do without 'groaning,' the work of half a regiment of men; patent horse-rakes, gather it up, and two hay presses upon the place, squeeze it into bales fit for shipping. Seventeen and a half miles of board fence enclose a little more than half of this farm, which has as part of its furniture, comfortable sheds for 10,000 sheep, a rat-proof corn crib holding 15,000 bushels of corn, and extensive stabling for horses.

What machinery has thus done for the West it will do for the South, now that free labor is substituted for that of slaves. We see no reason why the cotton and sugar fields of a great part of the South should not be tilled by machinery. These fields are—in Louisiana, Mississippi, and indeed in almost the whole of the cotton and sugar region—level and devoid of rocks; and these are the only conditions necessary to the successful use of the most valuable farm machinery. The slaves, ignorant and careless because they had no interest in the work, used only the rudest and clumsiest tools; but in the hands of intelligent freedmen, the rotary spader or steam plow, or cultivator, can be used as well on the immense level bottom-lands of Louisiana, where sugar is grown, as on the prairies for corn and wheat.

Yankee ingenuity, too, will presently set itself to work to devise new implements for the more economical and rapid prosecution of such labor as cotton-picking and cane-cutting. The next ten years will witness an immense revolution in the methods of cultivating the great staples of the South, and the fruits of that change will be a greatly increased production of cotton and sugar by the help of free labor, and—what the use of machinery always brings with it—such increased rewards for intelligent labor, as will prove, even to the most ignorant of the southern population, the importance of schools, and the pecuniary value of Education.—*N. Y. Evening Post.*

☞ Wm. Griffith, of North East, Pa., in a letter to the *Country Gentleman*, says: "To the thousands of growers and lovers of choice grapes, the *best and fairest* of all fruits, I will here beg leave to state, that my family have for many years enjoyed the luxury, (are they not a luxury?) of luscious grapes, from November to May, picked, handled and packed in the manner already described, and kept in an out-house, (carriage-house,) until the frost of winter becomes quite severe, (they must not be allowed to freeze,) when they are removed to an unoccupied airy room in the house, where they remain through the winter—save that during a few of the coldest nights, and some few days if the cold be quite severe, they are placed in the corner of the dining-room, or some other room where they are not injured by high temperature. Wheat or buckwheat bran, sawdust or cotton batting, may be employed in packing the grapes, *without wholly destroying them;* but I recommend keeping these damaging absorbents in separate boxes, and if *convenient*, in separate rooms."

A silver chain around a dog's neck will not prevent his barking or biting.

The American Farmer.

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Arrangement of Fields.

CONTINUED FROM OCTOBER NUMBEE.

While the *four*-field system commented on in our last number, is inconsistent, apparently, with well-established theories, it has been eminently profitable in practice. Just the contrary must be said of the system recommended by John Taylor, in his, *Arator*, a book famous in its day; and his too, was a four-field system. He was the earnest advocate of what he called "improvement by enclosing." By this he meant the shutting up his fields during two years of the four; allowing no stock to come upon them, but having all the growth of the two years to perish on the ground. That this was better for the land than what he called the "execrable" three-shift system for which he proposed to substitute it, may not be denied. The accumulation of vegetable matter, and covering the surface for two years, instead of one, must add materially to the stores of plant-food. But after all, the result in crops, being one year of corn and one of wheat, rye or oats, was not eminently remunerative; and the natural growth, which should afford fertilizing material, was not of a character to satisfy the wishes of an improver. Weeds which would leave nothing but indigestible woody matter, while they sowed broadcast millions of noxious seeds; and grasses which, while yielding little in bulk, took such tight hold upon the land that it was the work of years to eradicate them, were not very promising elements of success. The corn might be a good crop, but the wheat, growing poorly always after corn, had now the crop of weeds from the abounding seeds to contend with, and worse still, the tenacious blue grass. Both evils increased in magnitude as the land grew richer, and as time allowed seeds and roots to accumulate in the soil. One year's cleansing cultivation in corn was not sufficient to prevent this increase of evil.

INTRODUCTION OF CLOVER.

When the clover culture came in, and was considered indispensable in an improving system, this condition of the ground, which was bad enough as to wheat growing, became altogether unbearable. Clover refuses absolutely to grow in a soil foul with the undigested remains of other plants. When we would have had it take the field after wheat the attempt was a failure. Thorough cleanliness was a *sine qua non*. A system, therefore, which gave ample rest, and abundant returns of vegetable elements, and seemed to comply with all the demands of an intelligent theory, failed. It did not work well in practice. But when a cleansing cultivation allowed the introduction of clover, when in the same number of fields a third crop was taken in four years, much heavier than the others, and usually considered, with the exception of Indian corn, the most exhausting of all, we have, with this additional draft upon the soil, a simultaneous increase in its power of production. The practice became most successful when the common theory would have objected that the land was being exhausted by overworking. It was improving fastest, in fact, while giving most crops.

The explanation of this is that the rapid cropping kept the land in order for clover. In the working of this system, neither weeds nor blue grass have any opportunity to establish themselves. The clover gathers more fresh material from subsoil and atmosphere in six months' growth of its second season, than the native plants would accumulate in two years. As soon as it reaches perfection, having in the meantime had entire possession of the ground, and just at the point when the native growth would begin to take possession, the plow comes in and turns down all that is left. The clover stems being very perishable, present no such impediment to the wheat crop as other plants of the same bulk would, and soon become incorporated with the soil. The *rag-weed*, an annual which always follows wheat, leaves upon the ground a large amount of vegetable matter, which, like the clover stems, is very destructible. It occupies the field from harvest through the following fall, and is finally plowed under in the preparation for a corn crop. The obnoxious natives have been kept in check, and the cleansing culture of the corn crop has put

the land in thorough order for the clover, which is sown with the succeeding crop of wheat.

The value of clover is strikingly illustrated in the difference in results between the four-field system of John Taylor, and that which prevails now. The former yielded two crops in four years, and left the ground foul with an accumulating evil of noxious weeds. The latter takes within the four years another crop, superior in profit to either of the others, and leaves the ground clear of weeds, and at a higher point of productiveness.

This difference in results exposes, too, the folly of the old notion that land needs rest. The more crops produced the more it is capable of producing, if so managed as to give it ample food. The necessary working of frequent crops puts it, physically, in that condition in which it profits most by absorption of fertilizing elements from the atmosphere, and in which its own material is operated upon and made available by atmospheric agency.

FIVE FIELDS.

Notwithstanding what we have said of the profitable experience of those who have practiced the four-field system with clover, we should be tempted to guard against any risk of ultimate failure by a change in one point. We should make the four fields five, and sowing timothy seed with the clover, take a crop of timothy hay, when we now take wheat, and have this follow immediately after the timothy. The year devoted to clover might, in this case, be a year of pasturage, and thus allow a very considerable addition to the stock. This stock would, advantageously, consume the large quantity of straw and corn fodder, otherwise entirely lost except for manure, and thus bring a large extra item of profit. If to this stock the corn be fed as it should be, the manure would be greatly increased in value, and the fertility of the soil proportionably improved.

The only objections that could be made to this change would be that the additional year given to grass might allow the native grasses to multiply to the prejudice of the clover; and that so old a sod might be unsuitable to the growth of wheat. These would be very material objections should they be realized in practice. The whole profit of the system is based upon the success of the clover, and that must be made secure at any rate; and the wheat crop on the clover fallow is the chief money crop, and deserves to be especially regarded.

As to the effect upon the clover, we think that a well-set sod of clover and timothy would, during two years, so completely hold possession of the ground as to exclude entirely all intruders, and that the intermediate workings between these and the next sowing would be sufficient to put the ground in a good state of preparation. As regards the wheat, assuming, as said above, that the clover and timothy will exclude native grasses which might prove hurtful to it; and being well assured that the sod of timothy which would prevail when we break the ground for wheat, is very congenial to that crop, we apprehend nothing on this score. It is said, indeed, to make a preparation for wheat, only inferior to clover, and, in this case, the good effects of the clover growing of the previous year are added to the good qualities of the timothy sod. Such a sod, it has been asserted, is especially advantageous on lands liable to heaving under the influence of frost. Wheat is said to be under no circumstances so secure against "winter-killing." No soil in the world is so uncertain as that of the prairie on account of winter-killing. Yet the early settler raises wheat on the original tough sward with very uniform success; so it is maintained that the sod of timothy is, in this respect, very favorable to wheat. Under the influence of these opinions we should be tempted to seek the advantages offered by the extra grass crop, and make at least a fair trial of five fields instead of four.

THREE FIELDS.

The system which has prevailed in the tobacco-growing region is a three-field rotation. In this, the plan of operations was adopted with reference to the requirements of the staple crop. There was no reason why the four-field system should not still have been practiced, but the fact that the most important periods of the wheat crop come when tobacco most demands attention. This system may have been indeed still more successful with tobacco than corn, because it is a more thoroughly cleansing crop. With the very nice cultivation that it demands is combined the dense shade of the later period of its growth, destroying every vestige of the natural grasses, and making a better preparation for wheat and clover than could be made by the corn crop. But the time for preparing the fallow for the main crop of the four-field plan, is the month of August or September, just the most engrossing period of the tobacco cultivation; and the time of harvesting this crop, the month of July, when both tobacco and corn need close attention. The one field of wheat is, therefore, as much as can be well managed with a full crop of tobacco on hand. The seeding of this field is a comparatively small affair, being done after the tobacco is

taken off, when the ground is already in the best condition for the seed.

This rotation embraces corn and tobacco in the first year. That is, there being three fields, only the best portion of a field is given to tobacco, and the remainder to corn. The tobacco is followed by wheat, and the corn by wheat, if thought capable of producing it. Since the introduction of guano and other fertilizers this is much more common than formerly. If not wheat, then rye or oats would take its place. The faults of this system, under the operation of which there has been less improvement than any other, and in some sections great deterioration, is not in the shortness of the course, as at first might be supposed. The preparation for corn or tobacco, beginning in the spring, and the crop of small grain, coming off in July of the following year, only about fifteen months of the thirty-six are consumed in the growth of exhausting crops; twenty-one months are occupied by the improving crop of clover. However "execrable" such a system without clover may have been, as pronounced by Taylor, with clover, it cannot be thought otherwise than ameliorating. Nor is its failure to be attributed, as is too commonly done, to the exhausting character of the tobacco crop. It is not found in practice to leave the ground exhausted; there is scarcely a crop known to us that does not flourish immediately after it. It returns, in the stalks and other waste, a large proportion of its bulk in valuable manure; a somewhat careful estimate has put the value of these returns from four acres of good growth as equal to that of a ton of Peruvian guano. When it is recollected, too, that no seed is allowed to ripen, except on a few plants, and that its broad leaves gather, necessarily, much from the atmosphere, we may understand how mistaken is the common opinion as to the very exhausting qualities of this crop.

The difficulty lies rather in its engrossing character. It commands, in the first place, nearly all the available manures of the farm. It selects the best portions of the lands and requires the manure to be placed here instead of on those parts which most require its aid to put them in a condition to improve by a growth of clover. It so occupies the labor of the farm that very little time can be given to gathering materials for manure, or to other methods of improvement. The fault then, is not in the system, or in the character of the plant. It is in the management which aims at very large crops of tobacco—improving the tobacco ground, and working it in a manner truly admirable, but leaving everything else to take care of itself under the "execrable" system of those fields without manure, and for want of manure to start with, without clover. The fertilizers of the markets have, of late years, in very great measure, supplied this defect; enabling the farmer to get a growth of clover upon these out lands, and at the same time an increased crop of grain sufficient to pay their cost.

Another great fault, not of this rotation, but of the management associated with it, was the failure to make independent provision for the necessary working stock. It was to be pastured exclusively on these fields, early and late. Nor was this all. The constant temptation to add a little to every class of stock, now a promising colt, now a calf, then a few lambs, and worse than all, a silently increasing stock of hogs, not only eating, but rooting out the substance of the land, were the common features of this system.

The temptations attendant upon tobacco growing are like those which attend its consumption, temptations to excess. Our weaknesses follow us in our pursuits as in our pleasures, and whether we cultivate too largely or smoke in excess, the consequent evils are attributed to the nature of the vile "weed." We think that in both cases the "weed" is a good thing when wisely used.

Pure Air for Feeding Cattle.

A writer in a New England Journal deprecates, even for that stern climate, what he calls the "new-fangled notion" of having tight stables for cattle. He thinks it a great mistake, because he has found by observation, that they do better, ordinarily, in open sheds, or in a house imperfectly, that is, not tightly, boarded. So the idea was, some years ago, very common with tobacco planters, that their crops would cure better if hung in sheds or houses slatted, instead of tightly weather-boarded. In both cases, a plenty of fresh air was needed, and the error, so far as it was one, was in supposing that there was no way in which a sufficiency of air could be had without the degree of exposure which is injurious to the cattle in the one case, and the tobacco in the other.

As regards the latter, nothing is clearer than the importance of a free circulation of dry air throughout the house, while curing, and the slatted siding effects this purpose. But, even while curing, it is sometimes desirable to exclude the air for a time, if it be very damp and warm; and, after curing, then it is well to exclude it as far as possible, the changes of weather being injurious to it as it as it hangs in the house. More

judicious managers have, therefore, so arranged their houses, by hanging on hinges an occasional plank of the weather-boarding, that the air is freely admitted through these and the doors in all good weather, and shut off when it is desirable to do so.

So as regards cattle, it is probable that most of us have remarked the superior thriftiness of cattle not much cared for in the way of protection over such as may have been stabled. Yet we may be very sure that warmth is favorable to the growth and fattening of stock. But if while we keep them warm, we give them slow poison in the shape of foul air, we may be sure they will not thrive. This happens to be too generally the case. On the other hand those which are habitually exposed to the open air are never so poisoned.

The extra cold they have to endure is counteracted by the excess of food which they consume—for they usually have free access to straw or hay, or corn-fodder. Each animal has within him a furnace in which this excess of food is burned to keep up the temperature of the body. He, therefore, if he can get quiet enough to supply fat and muscle, as well as fuel to keep him warm, may do very well so far as his health and comfort is concerned. But his master must look well lest he find the fuel furnished very costly, or lest it appear that the fat laid up in store in the fall has been drawn upon to keep his furnace in active operation.

The true economy of this case would be to have the cattle stables perfectly comfortable as regards warmth, yet perfectly well ventilated. This is especially necessary in cases of feeding with costly food for the rapid increase of flesh and fat. In order to secure perfect ventilation, let the opinion of an experienced architect be taken for some permanent arrangement, which will not depend upon the opening and closing of doors. There should be enough fresh air constantly introduced without allowing it to blow directly upon the animals, which are more liable to colds in proportion to their habitual comfort.

But cleanliness and pure air will depend still upon the internal keeping of the stables as regards the litter and droppings of cattle. The very attempts to preserve cleanliness are frequently the means of keeping the air foul, for the continued removal of excrement leaves the surface to dry by evaporation, and the air is kept in a state of continued pollution.

We can but think that the best remedy for this, as well as the best mode of management for the comfort of the animal and the convenience of the feeder, is what is called in England "box-feeding." This consists in keeping each animal in the stable in a box or pen some ten feet square, where he is at liberty to move and turn at pleasure; the animal to be well littered daily, and the dung not removed till the end of the season, if possible. It is alleged that, under the weight of the animal the manure becomes so well tramped that fermentation does not take place in any mischievous degree, and at a low temperature, such as we have during the winter, not at all; hence there is no loss or damage to the manure, and the expense is saved of daily cleaning the stables.

It has been found that from fifteen to twenty pounds of straw daily is sufficient to keep the animal clean, and to absorb the liquid part of the manure.

With this treatment there is little foul air generated, and no escape of ammonia, as there is no fermentation; the animal is kept dry and warm, and quiet; for he has always a good comfortable bed, and no disturbance of whatever sort. It is true, it requires much stable room, and an abundance of litter. On grain farms of any extent, the latter is no objection, for it is an object to convert the straw and litter into good manure.

In the spring the manure goes out as long, unfermented manure, and may thus be thrown on the grass land; or those who want it rotted, can throw it then into heaps for fermentation. It will be of the very best quality, having lost nothing by premature evaporation, or by the washing of rains, and being enriched by the character of the food given to stall-fed cattle.

Origin of Petroleum.

The question of the source of petroleum has been frequently discussed, but no satisfactory solution of the problem has yet been reached. Objections have been urged against every theory hitherto broached, and it must be admitted that this substance still remains a mystery.

The distinguished French chemist, Barthelot, has made a new suggestion, which has, at least, the merit of originality. Assuming that the interior of the earth contains the alkaline metals in a free state, he finds the carbonic acid everywhere present on the crust of the globe, capable of producing these oily substances. The first action is the formation of a peculiar substance, acetylene, which is always generated in imperfect combustions, by the reducing action of the alkaline metals upon the carbonic acid, or earthy carbonates. This combines with the alkaline metals to form acetylides. When these are decomposed in the presence of watery vapor, they give rise to various oily and tarry matters, such

as Barthelot has shown to result from the action of heat upon the substance in question.

If these speculations are well-grounded, there is no necessity for supposing petroleum to have resulted from the destructive distillation of coal, or vegetable matter, and the still wider diffusion of this remarkable body may be looked for. It must be borne in mind, however, that its author put this notice forward as a mere suggestion, and not as a well-digested theory.

Book Table.

THE AMERICAN JOURNAL OF SCIENCE AND ARTS. Conducted by Professors B. Silliman, and James D. Dana, in connection with Professors Asa Gray, Louis Agassiz, and Wolcott Gibbs, of Cambridge. And Professors S. W. Johnson, George J. Brush, and H. A. Newton, of New Haven. Published the first of every second month at New Haven, Ct. Price *Six Dollars* per year. We are in receipt of Nos. 124 and 125, July and September. The names of its editors leave us nothing to say as to the character of this Journal, so long and well known by scientific men throughout the country.

AMERICAN QUARTERLY CHURCH REVIEW, conducted by N. S. Richardson, D. D., No. 37 Bible House, Astor Place, N. Y., price $3. This very able Quarterly should be in the hands of at least every Protestant Episcopal churchman, who would fortify himself in the truths of his own faith, and inform himself thoroughly on the points which separate him from the Roman Catholic Church on the one hand, and the numerous Protestant denominations on the other.

LONDON QUARTERLY AND BLACKWOOD.—We are indebted to the Leonard Scott Publishing Company, 38 Walker street, New York, for these valuable re-publications. These famous reviews abound in magazine reading of the highest order, and should take the place of much of the trashy material of the same sort, originating in this country.

☞ We have to thank the publishers, Messrs. T. Ellwood Zell & Co., Nos. 17 & 19 S. Sixth street, Philadelphia, for a copy of "Mackenzie's 10,000 Receipts," containing a vast amount of useful and interesting information: many of the receipts being alone worth much more than the price of the book. 8 vo., cloth, gilt, 469 pages.

OHIO STATE AGRICULTURAL REPORT FOR 1865.—We acknowledge the receipt of this report, though too late for examination. It is a handsome volume of more than 400 pages.

DISEASES OF THE AMERICAN STABLE, FIELD AND FARM YARD, by Robert McClure, Veterinary Surgeon, Philadelphia, is received too late for examination and notice this month.

DR. JOHN O. WHARTON.—The numerous friends of this gentleman, and it is rare that any man has so many, will be sorry to learn that he resigned the office of Register of the Maryland Agricultural College at the last meeting of the Board of Trustees, to take effect on the first of November, and that he proposes to move to the State of Mississippi, where many members of his family are now residing.

Dr. Wharton has been, for more than thirty years, prominent among the public men of the State, and always one of the most zealous friends of whatever he deemed calculated to promote its agricultural interests. He was one of the projectors of the Maryland Agricultural College; one of the original corporators, and one of the very few, to whose earnest determination, it owed its origin. In the responsible and influential position of Register, he has given to it many of the best years of his life; serving it always with an energy and devotion, which grew out of an earnest conviction of the benefits to the agricultural community, of which such an Institution is capable. In leaving it, and the State, he carries with him the regrets and heartiest good wishes of a host of friends, whom his genial manners and warm heart have attracted, and his truth and genuine worth have attached to him.

THE MARYLAND AGRICULTURAL COLLEGE.—We spoke with some confidence, in our September number, of the probable reopening of this Institution about the first of October. Our anticipations were too sanguine. At a meeting of the Board of Trustees held in September, too late for notice in our last number, it was not deemed expedient to open again earlier than the first of January. We learn now that it is definitely determined to commence operations again with the new year, and that another meeting of the Board will be held on the twelfth of November, to elect Professors, and perfect the re-organization.

FINE GRAPES.—Mr. David Miller, of Carlisle, Pa., has sent us by express a box of Concord grapes, which we found to be of very superior quality. They are not so large as those noticed last month, but quite equal, if not superior in other respects. See his advertisement.

State Agricultural Society.

Having had numerous applications from gentlemen in various parts of the State who were members of the MARYLAND STATE AGRICULTURAL SOCIETY, to call a meeting with a view of taking steps to its re-organization, and believing that the time has come to organize an Agricultural Society, I respectfully request all gentlemen in the State, favorable to the organization of a State Agricultural Society, to meet at No. 67 *West Fayette street*, in the city of Baltimore, on WEDNESDAY, 14th OF NOVEMBER, next, at 12 o'clock, M.

JOHN MERRYMAN.

Hayfields, Oct. 20, 1866.

Just as we are closing up our matter for this month's issue, we have received the above which speaks for itself, and which we have only time to commend to the favourable response of our Maryland readers.—ED.

Gleanings from October Number of "Horticulturist."

Grape Cuttings.—Made as soon as the foliage of the vine drops, and planted out in well-prepared land, will start early in the spring, and make a stronger and better growth, than when made during winter and planted out in the spring.

Cause of Rot in Grapes.—In the discussion at the Lake Shore Grape Growers' Association, the cause of disease, rot, &c., was ascribed in a great measure, to *permitting the vines to overbear*, and thus reducing their vitality, and ability to endure extreme changes of temperature.

Seedling Grape Vines, Magnolias, and Ornamental Shrubs, should be protected the first winter. Many are destroyed the first winter that would otherwise prove hardy.

Norton's Virginia Grape.—Mr. Husmann does not say too much in praise of this grape when it can be successfully ripened. It makes a wine heavier than the best clarets, and approaches more nearly to Port, than any other with which I am acquainted. To those about to engage in vine-growing in our Southern States, especially in Tennessee, it will prove of the greatest value.

Basket Layers.—When properly managed, basket layers may be made to do much better than common layers of the same size. A good shoot from an Isabella vine, layered by the end of May, in an old half-bushel basket, separated from the parent plant by the middle of August, and removed on the fifth of September to its permanent location, ripened its wood so perfectly, that two arms of four feet each, (which had been grown while the layer was attached to the present vine,) were laid in at the winter pruning. Next year their arms threw up twelve vigorous shoots, all of which would have borne fruit if allowed to do so. But the fruit blossoms were all removed, as soon as they showed themselves, and the second season, each alternate shoot bore a full crop of grapes, without injury to the vine.

The great advantage to be derived from the use of baskets, is the facility it gives of transplanting the vines before they were done growing. A plant layered by the end of May will begin to throw out roots early in June. By the first of August these roots will have filled a large basket; if now, by the middle of August, the layer be placed upon its own resources, the roots and wood will ripen thoroughly. Remove the plant by the first of September to its final resting place, and the roots will not only heal up all their injuries, but will send out multitudes of new fibres, and the vine at the close of the season is equal to a good, healthy plant that had been set out in the previous spring, and had grown without check the whole season. *And it is not a whit better.* The great advantage to be derived from basket layers, lies in the fact that they can be transplanted so early in the fall, as to secure what is virtually equivalent to an extra year's growth. This, and this alone confers upon them their superiority to common layers or cuttings.

Purchasing Trees in the Fall.—We advise all tree planters, whether near, or far from a nursery, to purchase their fruit and ornamental trees, except evergreens, in the fall. If the ground is not ready for planting before the first of winter sets in, then select a dry place, if possible, shaded from the sun, and heel them in carefully. There are often times in winter when planting out may be done to great advantage; and, by having the trees on hand, the work can be performed leisurely and carefully.

The Kittatinny Blackberry.—This Blackberry promises to be more desirable, both for market and family use, than any other variety. It is stated to be as large as the Lawton; to ripen earlier, and continue longer, and to bear equally as well, if not better; the canes perfectly hardy, and the fruit sweet and high flavored.

BLOODY MILK—CAKED UDDER.—J. D. Churchill writes to the *Rural American* that the best remedy he ever saw for bloody milk or caked bag in cows, consisted of half a teaspoonful of saltpetre given once a day for a week.

Gleanings from the Gardeners' Monthly.

The Roger's Hybrids.—John M. Ives, of Salem, Mass., says: Of all the grapes that have come under our notice during the last four years, we have seen none to equal, taking into consideration all desirable qualities, the grapes known as Rogers' Hybrids, raised by E. S. Rogers, of Salem. His experiment in Hybridising has proved, and set at rest, a subject which has been some time in dispute among horticulturists and botanists. Mr. Rogers has given to the country varieties of hardy grapes; the most valuable of any heretofore known for this latitude, and also for more southern ones. These varieties, some forty or more, were produced by hybridising one of the best and earliest wild grapes, belonging to the species, *Vitis Labrusca*, with two of the earliest of the foreign species, *V. Vinifera*, known as Black Hamburg, and White Chasselas; and the change from the wild type in the new seedlings is immense, and apparent to the commonest observer; the new varieties having more of the foxy odor, peculiar to the native parent from which the seed was taken, and resembling in size, color, and delicacy of fruit, the foreign, and the berries like this species having the property of not dropping.

Mr. Rogers, knowing what was wanted, chose the wild variety on account of its hardiness and earliness, (in preference to the Isabella,) for the mother of the new variety; and for the male parent, the two hardiest of the foreign species, viz: the Black Hamburg, and the White Chasselas; and from these two species have come numerous valuable varieties, possessing many of the qualities desired; and such as hardiness of vine, earliness, and delicacy of fruit. These grapes are sent out by numbers: No. 15 has ripened four or five years in succession, where many other much praised kinds have failed. There are many other varieties, as Nos. 1, 3, 4, 9, 14, 28, 30, 33, 41, 43 and 44, which are thought nearly equal, and some quite as good. These are all earlier than the Isabella, and many of them earlier, larger, and much superior to the Concord in quality. Some of these grapes are considered equal in quality to many of the foreign sorts from under glass, and the most promising we possess for outdoor cultivation.

Soil and Manure for the Grape.—The best and most natural soil for the grape, is dry porous limestone. It should be well drained. Cold and wet situations are unfavorable for the vine. In manuring for the grape we should *never* use animal manures uncomposted. The mineral manures, in consequence of their ingredients, have the most effect on the quality of the fruit, while animal matter encourages the formation of wood too fast, and makes the vine tender, and subject to disease and mildew. Bone dust contains the most nourishing elements, with ashes and lime. These, with a good surface soil, well covered in the fall with dry leaves, are nearly all the materials necessary for the vine.

Keeping Apples—D. W. Adams, Wawkon, Iowa, says: In localities where the winter is sufficiently cold and *steady*, apples may be frozen up, perfectly solid early in winter, and remain wholly dormant, and consequently exempt from decay for three or four months. I am unable to discover that freezing injures in the least the flavour, texture, or keeping qualities of apples, if they are thawed very slowly, and in a situation where *air* and *light* are excluded. They are not damaged by any kind of transportation while hard frozen.

Root Pruning and Removing Large Trees.—The Editor says, that George Lee, of Cliveden, an English fruit grower, whose "bread and butter" depends on his success with his fruit trees, has two thousand trees of apples, pears, cherries and plums, which he lifts and removes every year. He has done this for many years, and he continues to do it, because he finds that it pays him handsomely in a profusion of magnificent fruit. He commences with one or two year old trees. The first time or two of their removal, he says, they have their growth checked, but subsequent removals do not seem to put them back any. In a recent paper published in the April No. of Transactions of the Royal Horticultural Society, he gives a list of varieties which have been under this treatment from 10 to 15 years, with their heights, "spread," and diameter of their trunks. Of pears, Doyenne d'Ete, 10 years planted, nineteen feet high, and with a stem eighteen inches in circumference, Beurre, Diel, Boussack, Urbaniste, and others, exhibit about the same proportions. Apples 12 years planted, twelve to thirteen feet high, with a "spread" of six to seven feet, and stems sixteen inches in circumference. These are all on what are called standard stocks, though the trees are grown as Pyramids. Dwarfs do, generally, just as well, and bear earlier, hastening the profits of the fruit garden. Mr. Lee has successfully moved pear trees that were twenty-five years old, and three feet in circumference, that had never before been moved.

The method he practices in removing, recommended also by the editor of the *Gardener's Monthly*, is, for a tree twenty-five to thirty feet

high, to dig a circle eighteen inches wide, ten or twelve feet from the tree; then dig and throw the soil out, at least two feet deep with the spade; a digging fork only is afterwards used, and the tree undermined, and the soil all carefully taken out from among the roots, by gently shaking them with the fork, and letting the earth fall into the undermine. The old notion of taking up a ball of earth with the tree is treated as absurd. The object being to get all the roots, and leave all the earth, instead of taking up a large ball of earth, and leaving the greater portion of the roots behind.

Mr. Lee's practice spoils the illustration of Dr. Franklin, when he says:

> "I never saw an oft removed tree,
> Nor yet, an oft removed family,
> That throve as well, as those that settled be"

The rationale of the matter is, that it being only the ends of fibres that draw up nourishment to the plant, by cutting back a little, one root with one point, is made to throw out fifty roots with fifty points, multiplying fifty fold, the acquisitive powers of the tree.

Cold Graperies.—The editor grows indignant over those who seek for advice, how to make "ærated, divided, and double-distilled grape borders," and want information about "bones, hair, lime and plaster, carcasses of hogs, horses, swine, and asses, and the concentrated essence of a score of fertilizers," and are seeking generally "to expend the greatest amount of money, on the smallest proportionate crop of grapes." He finds that the more care and expense bestowed on grape houses and grape borders, the more indifferent is the crop, and thinks that hundreds are deterred from having vineries, because they have seen so much spent for so little The material for a grape border recommended, is "one-fourth rotten stable manure, cow dung preferred; one-fourth of coarse, sharp, road sand; two-fourths of turfy sod from a pasture all mixed up together."

Quince Cuttings.—These generally fail when put in, in spring, but rarely if set in the fall, and the earlier the better. Throw coarse litter over them, to keep them from being thrown out by thawings in winter.

Milk Fever in Cows.—I observed an enquiry in the *Ohio Farmer* for a remedy for the fatality of cows after calving. The best remedy I know is to give two quarts of strong hop yeast just before calving, and afterwards give two quarts three times a day for two or three days; then if the cow seems well, taper off by giving it once or twice a day. It may be given in a little wheat bran. It is necessary to milk the cow for some days before she has her calf, in order to prevent throwing her into a fever, especially when high in flesh, and running on pasture.—W. B., *Guernsey county, Ohio.*

The Silk Business in California.

It is definitely settled now that experiments in the production of silk are to be made at San Jose, on a scale sufficiently large to test the question whether the business can be made pay. It is known that silkworms will thrive there, and that the climate is far more favorable to them than those of Italy, France, China and Japan—the principal silk countries of the world; but the price of labor is so high that capitalists have been unwilling to risk their money in the enterprise. They feared that the disadvantages in the matter of labor would more than counterbalance all the advantages of climate. Their motive was only a fear, not a belief, much less a conviction; their presumptions were in favor of success. But they would not venture their money on such a presumption. The legislature, however, has come to the aid of the enterprise, and offered rewards for the production of cocoons and the planting of mulberry trees in certain considerable numbers. These rewards secure the silk-grower against loss, while they are so small that the State will not feel the burden. If the experiment succeeds, the business will be at once established on an extensive scale, and silk will become one of the regular productions of the State.

Influence of Railroads on the Hatching of Eggs.—A peculiar effect of the proximity of railroads on the hatching of eggs has been mentioned in some French papers. It has been found that there are scarcely any chickens raised in all those poultry yards which are situated in the immediate neighborhood of the rails of a much frequented road. This fact has been observed in various parts of France, and is supposed to result from the earthquake-like trembling or shaking of the soil caused by a passing railroad train, which exerts an unfavorable influence on the eggs. It would be indeed interesting to learn whether something similar to this has been noticed on this side of the water.

☞ In laying out gardens for fruits and vegetables, place everything in drills or rows, so that they may be cultivated by a horse, and thus save the expense of hard labor.

Feeding Bullocks.

Major George Taylor, a noted feeder of fine bullocks, says regularity in feeding is indispensable. His regular ration to each animal is eight quarts a day of meal made of corn, rye, and oats mixed. His usual practice is to feed coarse hay first in the morning, then dry meal, and then two or three fodderings of finer hay and rowen. After the cattle are well filled, and about 11 A. M., they are turned out to water, and while out the stalls are regulated, cleaned and strawed. They are immediately stabled again, as they gain faster shut up, and are expected to lie down, and rest till feeding time again. About 3 P. M., dry meal is given, then one or two fodderings of hay, and lastly stalks, which answers for the night. Every stalk and leaf unconsumed is removed from the mangers between the feedings. Only such quantities and qualities are fed as are likely to be eaten entire and clean. The hay is mostly pulled with a hay hook, in order to draw from different layers of the mow, and thus secure greater variety.—*Co. Gent.*

Some Reasons for Raising Sorghum.

Wm. H. White, writing from South Windsor, Conn., to *The Working Farmer*, says: "The raising of Sorghum can no longer be looked upon as an experiment: for we have the practical results attending its culture for eight to ten years past. Then I would recommend to every farmer to raise a piece of Sorghum. But says the reader, will it pay? This certainly is a very fair and important question, and it is to be well considered. The fairest way of deciding this question is, to compare it with other crops of similar cost in producing.

"The corn crop requires nearly the same cultivation, but is more exhaustive to the soil, so that the two will approach nearer than any other that can be selected. For example, we take the average yield of the two crops in the State of New York for 1864 as reported by the Agricultural Department at Washington. Sorghum averaged 112.5 gallons per acre; and the average price for which it sold was $1.06, which would give as the value of the product of an acre $119.25. The average yield of corn was 29½ bushels per acre, at an average of $1.68 per bushel, or $51.28 per acre. From the product of the Sorghum, should be deducted the price of manufacturing, which in some places is 40 cts., and others only 25 cts. per gallon; we will reckon from the higher, and we have $75.25 as the net proceeds, or a balance of $22.94 in favor of the Sorghum. The labor being nearly equal, no account is made of it; neither of the fodder, as I consider the Sorghum leaves and seed quite equal to the corn fodder. The above average yield is below what I think it should be, as the past season we have produced it at the rate of over 200 gallons to the acre. At the rate of 160 gallons to the acre, which is a fair yield, the farmer who raises his half an acre would receive 80 gallons; and if he chooses, as is sometimes the case, he can give one-half for manufacturing, and still have for 40 gallons left himself without the outlay of one cent in money. Next as to its quality, and how far can it be used in household economy. As to its quality it equals the best syrup molasses we get and may be substituted therefor in many instances, as well as for the cheaper qualities of sugars."

Grape Vine of Santa Barbara.

One of the celebrities of Spanish California is the immense and beautiful grape vine now growing at the Montecilo, two or three miles below Santa Barbara. The planter of the vine was Donna Marcelina Felix de Dominguez, of the earliest expedition to Sonora, before 1780. It was planted by her over sixty-five years ago, from a slip which she cut from the young vineyard at San Antonio Mission, in Monterey Co., for a horse whip. Her husband had got permission to make a small garden near the warm springs of Montecilo, a favourite place for the washerwomen of the new settlement of Santa Barbara, and here she planted it on the edge of a knoll. It immediately took root and began to bud and leaf, and from careful attention before she died, it was made to produce more than any known grape vine in all America, North or South. Between 1850 and 1860 it had been trailed over some 80 feet in circumference, with a trunk of 12 inches diameter, rising clean 15 feet from the ground. Some years it has borne over 6,000 bunches of ripe and sound grapes, or close on to 8,000 pounds, and become the wonder of every resident or sojourner in that part of California. And what is more, for the last thirty years it has principally maintained the old woman and her numerous family.

Prof. Silliman, when he visited it last year, said he had never heard of such an immense grape vine in any other country, which is saying a great deal, as he has travelled much in the south of Europe.—*San Francisco Bulletin.*

A PROFITABLE CROP.—We understand that Andrew J. Schindle and Daniel Baker sold their crop of grapes raised on two acres of land the present season for $1008.—*Hagerstown Mail.*

Southern Agriculture.

BY DR LEE, OF KNOX CO., TENN.

GENTLEMEN:—Please accept my thanks for the four first numbers of the sixth series of the old "American Farmer" which you have sent me. Never before did Southern agriculture so much need the assistance of its wisest and most devoted friends; for it has received a blow from the sudden emancipation of four million slaves, without compensation, that will give pain, and work evil, for many years to come. Planters in the British West India islands were paid in part, at least, for the loss of their slaves set free by Government; but that measure of partial justice did not impart industry to freedmen, nor prevent flourishing estates going to decay and ruin. It was confidently asserted that free colored persons would produce more sugar for wages as hirelings, than they had done as slaves; and that the offence of slavery being removed, white laborers from Europe would go abundantly to these fertile islands and cultivate them as gardens to the incalculable advantage of the owners of all planting and farming lands. But white laborers have not gone there; nor will they go to the Southern States to raise tropical plants, like cotton, sugar and rice. There is, therefore, great danger that, to the loss of some two thousand million dollars in most active, productive, and reproductive property, an equal loss is to accrue by diminished staples, and the depreciated value of real estates.

If properly sustained, the agricultural press of the South will do much to avert the last named calamity. The study must be how to render land productive and profitable, with the least labor; for negroes are sure to lose by degrees the industrious habits acquired heretofore, when subject to stronger minds than their own, and will become steadily less reliable for all large agricultural purposes as time advances. This deterioration may be lessened by adopting the practice of Mr. Farras, of Georgia, who rises at three o'clock in the morning, and keeps his colored people under his eye all day, to prevent their learning the sweets of idleness, and returning to man's primitive state of pure laziness. The Ethiopean will sooner change his skin and build up a powerful nation of his race, than lose this constitutional infirmity. I am old enough to remember the abolition of slavery in the State of New York, and how generally the freedmen left their agricultural occupations in the valleys of the Hudson and Mohawk, for less laborious employment in cities and villages. Some colored children attended common schools with me; but education never made one of them love agriculture, or become a farmer. Schools for colored children in the South will disappoint their founders. The proper mental culture of white children will pay better. My ideas on this subject are derived from twenty years observation in the South as a writer for the press, a public teacher, and a student.

An intelligent, industrious population is what the Southern States need more than all else, to support schools, build roads, open mines, erect factories, and above all, cultivate and improve the soil in the most skilful and successful manner. If the world understood the natural advantages of the "sunny South" as I understand them, after long and patient study, the voting power of the Federal Government would soon be South of Mason's and Dixon's line. In time, it is sure to come here, and mainly by the attraction of agricultural forces which will not diminish while the earth lasts, and which are as reliable for all industrial purposes as the rising of the sun and the fall of rain and dew. The South is rich in agricultural facts which the world has never considered, because it has never known them. I trust that the old "American Farmer" will distinguish itself by searching out these alike interesting and instructive facts, and giving them due prominence before its readers. Its conductors know something of the character of Mr. Dixon, of Hancock county, Georgia, and will doubtless consider him good authority on an agricultural question. He told me that he commenced planting on the poor piny woods land of central Georgia with only two hands, and in twenty-five years had made a property, which, at my request, was named to me in detail on his home plantation, and I thought it worth $300,000, or more. For the public instruction I was searching for new facts—nothing more, nothing less. It was not the high price of cotton that gave existence to this property; for, twenty years ago, when I first resided in Augusta, cotton sold in that market at five cents a pound; and the average sales of Mr. Dixon, previous to the war, were probably at less than half the present price of cotton in gold. Having only two slaves to start with, slavery did not give him his estate; for thousands of other planters with equal attainments, more slaves, and far better land, have achieved no such results. How, then, did a nearly barren, sandy soil, bought at a dollar an acre, and too dear at that, produce by common tillage, and fair economy, such a property? Simply by *utilizing* plain facts, which too many superficial thinkers, readers, and writers on rural affairs, affect to discredit, and de-

spise. No matter how important an agricultural fact may be, intrinsically, its value is latent until developed by *use*. If you desire an exposition of the facts referred to, you have only to send me the Farmer regularly to obtain them.

Respectfully, DANIEL LEE,
Gap Creek, Knox Co., Tenn.

We hope to hear often from Dr. Lee.—ED.

MIDDLEBURG, LOUDOUN CO., VA.,
September 12, 1866.

GENTLEMEN:—Enclosed you will find $2 for subscription to "American Farmer." In nothing did you show your good sense more than in sending the "Farmer" to your old subscribers, trusting them to send the money when they could. We are not so completely ruined but we can raise two dollars for so good a friend as the "Farmer"—if we did not do it—our wives would.

For the matter of that—I do not agree with your correspondent—who writes from "Arcola," saying, "we are all ruined." He must be a rusty, crusty old bachelor. With such women and lands, in old Loudoun, aye! and such noble men as we have left—how can we be ruined?

In your July number, you had a mode of treatment for foot rot in sheep, worth much more than is paid for one year's subscription. The proportion of lard should have been stated. I used from two to three parts of lard, or butter, to one part of sulphate of copper, following all the other directions minutely, which are very important.

We must turn our attention, not only to sheep, but to grapes, with a view of making wine. I see the Scuppenong highly recommended by J. Van Buren in your last number. Will you please state what are considered the best grapes for our latitude with a view to make wine.

I am, most sincerely, your friend,
WM. B. COCHRAN.

Messrs. Worthington & Lewis.

While the Scuppernong is *the* wine grape of the South, it has been much overlooked and neglected in this, and more northern latitudes. We do not know why, and should be glad to learn from some one better informed. We do not hesitate, with all the information we can get, to recommend the Concord, not as best in quality, either for the table or wine, but for quality, hardiness, and productiveness combined, the most profitable grape for this latitude.—ED.

☞ The number of worker bees in hives is said to vary from 5,000 to 50,000.

Management of an English Dairy Farm.

The London Agricultural Gazette gives the following interesting account of the dairy farm carried on by Lord Granville, near London:

The following are the leading particulars regarding the farm: It is three hundred and forty acres in extent, of which about three hundred are pasture. All this grass land is mown twice. When the cow-stalls are full, holding from one hundred to one hundred and twenty cows, about three-fourths of an acre are needed daily as cut forage carted home, and the whole land is twice cut over in this way between the end of April and the beginning of October; all that is fit for hay being, both in June and again a second time as "rowen" in August, mown and made. The remainder is grazed with sheep during the autumn months, three hundred being purchased for this purpose in September, and sold at Christmas. There are thus about six hundred loads of hay made annually, and of this nearly half is consumed upon the premises and one half is sold. The produce of the land is thus (at an average yield of first and second cuts equal to twenty-six hundred weight of hay per acre) about three thousand tons of grass from the pasture land (of which one thousand tons are sold as hay, leaving two thousand tons to be consumed,) and probably six hundred tons of mangel wurzel and cabbages from the arable land, making two thousaud six hundred tons of green food, either succulent or dried as hay, consumed per annum by one hundred and twenty cows, which amounts to about one and a fourth hundred weight daily a piece, (taking both grass and hay into account.) In addition to the produce of the farm, some eighty loads of straw per annum, and one hundred and fifty quarters of grains per week, and probably twenty or thirty tons (two to three hundred weight a day upon an average) of peas, barley, and pollards are purchased and consumed per annum. The cows receive one and a fourth to one and a half bushels of grains in two meals daily—in winter they receive fifteen pounds of hay and thirty pounds of mangel and wurzel, and in summer, grass—about three-fourths of an acre of a crop, equal to thirty hundred weight of hay, sufficing for one hundred or one hundred and twenty cows. In addition to this they receive two to four pounds of meal a day when in full milk, and again when their milk is shrinking rapidly, and when it is desired to fat them for the market. As soon as a cow shrinks to five quarts of milk a day, she is dried off and fattened, and in this way continual purchases of stock are being made

to keep the houses full; one hundred and fifty to one hundred and sixty are annually purchased and sold to keep one hundred and twenty cows in constant milk. Where the state of the market recommends it, the cows are fattened up to nearly their original value when in full milk; at other times they are allowed to go sooner, and the original value is not realized. In two years of which Mr. Panter has been good enough to give us an account, the average price on purchase was £19 17s. and £19 18s. respectively: while the price obtained on sale was only £14 14s. and £13 14s. respectively. This, however, represents a much greater loss than usual, owing to the severity in these years of pleuro-pneumonia and the foot and mouth disease. On an adjoining dairy farm, in 1863–4, about ninety being continually in milk, the cows, kept a shorter time and continually *fed* as well as milked, reached on sale within £1 of their purchase price. But one hundred and fifty-three were purchased and sold per annum to keep a stock of ninety good, so that they could not have been kept longer on an average than seven months each.

In 1862—3, upon the Golder's Green farm, one hundred cows being daily milked upon an average throughout the year, the return for milk sold was £3,900, or £39 per stall. In 1864–5, one hundred and twenty cows being kept, the return was £4,900, or upwards of £40 per stall. In the latter year one hundred and sixty-four cows had been bought for £3,077, or £18 15s. a head, and one hundred and sixty-one were sold for £2,317, or £14 8s. a piece, being a loss of £760 in all, equal to nearly £5 per cow, more than £6 per stall; and it must be borne in mind that the return stated above, amounting to nearly £40 per stall per annum on an average, corresponds to only £30 or thereabouts per cow during the eight or nine months' feeding spent upon her. On the whole, the return in 1864—5 may be stated at £4,140 for about 2,600 tons of grass, 80 loads of straw, 8,000 quarters of grain, and 20 to 30 tons of meal and cake, a large expenditure on labor, and the use of a large amount of capital. The men employed upon the farm and in attendance on the cows correspond to one to every ten cows, and in addition to this there there is the cost of hay-making, let at 25s. an acre, or thereabouts, and the cost of horse labor, including thirteen or fourteen horses in five or six teems. To the receipts from the cows must be added the proceeds, about £300 per annum, from wheat and potatoes grown on the arable land, and some £100 or thereabouts realized from the sheep, together with the price of 200 or 300 loads of hay; and to the expenditure must be added a good deal of extra labor connected with harvest work upon the arable land. The reader will work out the calculation for himself. But keeping to the return in milk for the 2,600 tons or thereabouts of grass, both succulent and dried, consumed by the cows, we make the net profit, deducting rent at £3 per acre, and 5 per cent. upon the probable capital employed, to be about 6s. or 7s. per ton of the grass thus grown and consumed.

Fattening Sheep in Winter.

Winter-fattening of sheep may often be made very profitable, and deserves greater attention, especially where manure is an object; and the instances are few, indeed, where it is not. In England it is considered good policy to fatten sheep, if the increase of weight will pay for the oil cake or grain consumed; the manure being deemed a fair equivalent for the other food—that is, as much straw and turnips as they will eat. Lean sheep there usually command as high a price per pound in the fall, as fattened ones in the spring; while in this country the latter usually bear a much higher price, which gives the feeder a great advantage. The difference may be best illustrated by a simple calculation. Suppose a wether of good mutton breed, weighing eighty pounds in the fall, to cost six cents per pound, amounting to $4.80, and to require twenty pounds of hay per week, or its equivalent in other food, and to gain a pound and a half each week; the gain in weight in four months would be about twenty-five pounds, which, at six cents per pound, would be one dollar and fifty cents, or less than ten dollars per ton for hay consumed; but if the same sheep could be bought in the fall for three cents per pound, and sold in the spring for six cents, the gain would amount to three dollars and ninety cents, or upwards of twenty dollars per ton for the hay—the manure being the same in either case. For fattening, it is well to purchase animals as large and thrifty, and in as good condition as can be had at fair prices, and to feed liberally, so as to secure the most rapid increase that can be had without waste of food. The fattening of sheep by the aid of oil-cake, or grain purchased for the purpose, may often be made a cheaper mode of obtaining manure than the purchase of artificial fertilizers, as guano, super-phosphate of lime and the like, and it is altogether preferable. It is practiced extensively and advantageously abroad, and deserves at least a fair trial among us.—*Robt. Jennings, V. S.*

Mulching Meadows..

It is of the highest importance to the farmer to obtain the best possible yield from his meadows and pastures, in order to carry the stock "all the year round," especially his meadows, that through the foddering months cattle and other stock may be supplied with nutritious food. It is generally conceded, I believe, that good hay —meadow hay is that food—is the foundation-stone of successful feeding. Farmers understand that meadows must be manured in some way in order to maintain their fertility. To show *one* of many ways is my design.

An increased yield of grass may be obtained by spreading dry straw upon the surface of the meadow in early spring—if possible, before the frost leaves the ground. It should be spread very evenly and very thin. A novice must not be put at the work, but one personally and pecuniarily interested.

In the spring of '61, I purchased a farm, upon which was a pile of straw, from which seven or eight hundred bushels of oats had been threshed the previous autumn, and the straw remained as it fell from the machine. Wishing to remove it, I ascertained the poorest part of the meadow, and drew the straw in the first days of April and spread it, not without some misgivings, as I noticed that it gave amusement to my neighbors, who were jocose for the time over "book farming." They prophesied the mower would clog, the horse-rake scratch it up, and that I should have all back in the barn again. Why not make *manure* of it? they said, meaning thereby, let it rot and then scatter it.

The result was far beyond my most sanguine expectancy. The yield was greater than from any other portion of the meadow—and, considering its poverty, which may be understood by the answer given by a farm laborer as to the yield the previous season he said: "There was not enough to wipe the scythe." The reader can draw what inference he pleases.

The present year a similar application was made, with equally good results, upon land of altogether different quality, the former being a clay loam, the last a gravelly soil. These experiments have established a faith not to be shaken, in the benefit of mulching meadows with straw. The question will be asked, will it not be better to allow the straw to rot, and then apply it to the land? I think not; dry straw will spread over at least ten times more surface than when rotted, and the benefits or the reason will be seen in the following statement:

I took whole manure from a pit, both urine and solid matter, and applied on the same field side by side with the straw; the yield (as near as guessing could come) was equal; that mulched was the taller and finely headed, that manured was thickest at the bottom; the bulk upon the wagon equal. To feed to cows, I much prefer the hay from the mulched area; and think the cattle will second my supposition.

To apply straw in the autumn may be beneficial, but suspicions of mice have hitherto prevented, I shall apply this fall late, and again in the spring, and watch results.—*Country Gent.*

To keep Fowls free from Vermin.

There are several kinds of vermin that infest the hen. By attending to the following remedies, they will be entirely kept clear: First of all, if in confinement, in the dust corner of the poultry-house mix about a pound of sulphur among the dust, ashes, and fine air-slacked lime for them to dust in. This will give the feathers a fine, glossy appearance. If infested with insects, damp the skin with a little water; then sprinkle with a pepper-box a little sulphur on the skin. Let a bird be covered with these insects, and they will all disappear in twelve hours. Previous to setting a hen, more particularly in warm weather, if the nest be slightly sprinkled with sulphur, there is no fear of the hen being annoyed by them. Many a fine brood of chickens pine away and die through nothing else, when no one knows the cause. Having observed hens leaving their nests just before hatching time, we examined the nest and found the eggs covered and literally alive with very small and minute vermin—almost too small to be observed with the naked eye. A free application of air-slacked lime, dry wood ashes and sulphur sprinkled over the eggs, will exterminate them; or, when the house is infested with them, clear out the fowls, close the doors, windows, etc., and fumigate with brimstone, by burning it in an iron vessel, and the fowls will not be annoyed afterwards.

HOW TO CLEANSE A CISTERN.—A simple thing I have accidently learned, and if not generally known ought to be, relating to stagnant, odorous water in cisterns. Many persons know how annoying this sometimes becomes. After frequent cleaning, and other experiments, all to no permanent utility, I was advised to put, say, two pounds of caustic soda in the water, and it purified it in a few hours. Since then, when I tried what is called concentrated lye, I had quite as good a reseult. One or both these articles can be obtained at any druggists.—*Ohio Farmer.*

Sunday Reading.

That thou mayest be fully convinced, that no angelic nature, nor any created being, can penetrate into the essence of the Deity, let us listen to the angels. How are they employed? Do they discourse together on the nature of God? Do they raise questions about it among themselves? By no means. What then is their occupation? They worship, they glorify, they adore; they sing praises with holy reverence and fear. Some of their angelic host sing, "*Glory unto God in the highest!*" The seraphim respond, "*Holy, Holy, Holy,*" and turn away their eyes, as unable to endure the faintest glimpse of Deity; while the cherubim cry aloud, "Blessed be His glory from His throne." . . . These many songs of men, recorded in the scriptures; Deborah's and Moses', David's and others, in the old Testament; Zachary's and Mary's, and old Simeon's in the new. But of any song of angels, from the first Adam to the second, I remember no record. But now CHRIST's birth makes the angels also to sing *Hallelujah*, that is, glory unto God. Haply they sung before. St. Ambrose holds their hymns were earlier than the world. And, whereas, St. Paul calls them "ministering spirits," Theodoret saith their ministration was merely celebration of God's glory. They might have matter plenty, to praise the LORD before; but never had they argument, that so concerned them, as they have now. They sung before, (St. Ambrose saith,) Sanctus, Sanctus, Sanctus, Holy, Holy, Holy. But now for Sanctus, they sing Bonus; they turn Holy into Gracious; CHRIST's birth yields benefit even unto the angels. For the saints fill up that gap, which was made among the angels by Lucifer's fall. *Quod in angelis lapsumest, ex hominibus redditum est,* saith St Augustine. The ruins of the angels are repaired by man's redemption. They rejoice at the repentance of a sinner, because a repentant sinner on earth becomes a triumphant saint in heaven, and is so made "equal unto the angels."

Hunters and warriors make a great figure in the world; but he that feeds the sheep is more honorably employed than he who pursues the lion. The attendance of man upon those innocent creatures, which God hath ordained for his use, is an employment which succeeded to the life of paradise. The holy patriarchs and servants of God were taught to prefer the occupation of shepherds. Their riches consisted in flocks and herds; and it was their pleasure as well as their labor, to wait upon them in tents, amidst the various and beautiful scenery of the mountains, the groves, the fields, and streams of water. O, happy state of health, innocence, plenty and pleasure; plenty without luxury, and pleasure without corruption! How far preferable to that artificial state of life, into which we have been brought by over-strained refinement in civilization, and commerce too much extended! when corruption of manners, unnatural and consequently unhealthy modes of living, perplexity of law, consumption of property, and other kindred evils, conspire to render life so vain and unsatisfactory, that many throw it away in despair, as not worth having. A false glare of tinselled happiness is found amongst the rich and great, with such distressing want and misery amongst the poor, as nature knows nothing of; and which can arise only from the false principles, and selfish views and expedients of a weak and degenerate policy.

The worship of the Church Triumphant is wholly made up of hymns, without any mixture and alloy of supplications. For why? Their wants and wickedness, which are the subjects of them, are ceased; all the evils, which fill the litanies of the Church Militant, are passed away. And they, that are redeemed from them, have nothing to do in heaven but to sing praises to their Redeemer; which they do before the throne, as we read, "resting not day nor night." So that we may measure the excellency of praise above prayers and supplications with the same argument, as St. Paul doth the excellency of charity above faith and hope, not only from its properties, but from its duration, because "it never faileth." Praise ceaseth not with the state of mortality, like the other, but will accompany the saints into heaven, even as charity will; praise being, if we may so speak, the religion of the saints above, as charity their work and employment; who shall have, and who can be conceived to have, nothing to exercise either their devotion or communion, but the praises of God, and the love of one another.

Content of mind, springing from innocency of life, from the faithful discharge of our duty, from satisfaction of conscience, from a good hope in regard to God and our future state, is much to be preferred before all the delights which any temporal profession or position can afford.

Meditation is that exercise of the mind by which it recalls a known truth, as some kind of creatures do their food, to be ruminated upon till all the vicious parts be extracted.

☞ Stock will fatten better in the dark than in the light—better in the fall (on account of the longer nights) than in the summer. With less food, more weight can be secured in the dark than in the light. Experiments have sufficiently demonstrated this. The pig-pen should be dark—we have often seen it made so with the finest effect in favor of the fattening of stock. It is known that light toughens the tissue. For a work-horse the sun is excellent; for the working man the same; but not for the accumulation of fat. Yet how few people take advantage of these things.

Baltimore Markets, Oct. 20.

COFFEE.—Rio, 18½a19½c. gold, according to quality. Laguayra ——, and Java —— cts gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	33	—
Good do	35	—
Low Middling	38	—
Middling	39	—

FERTILIZERS.—Peruvian Guano, none in the market, nominal, $95. California, do. $65; Rodunda Island, $25; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $60; G. Ober's (Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkaline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56;—all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a$14 00 per ton. Shell Lime, slacked, 6c., unslacked, 10c per bushel.

FISH.—*Mackerel.*—No. 1, $21a23; No. 2, $18a21; large new, No. 3, $14.75a15.25. *Herrings*—Shore- none. Labrador, $8.00a9.00; Potomac and Susqueh'na, $8.50a9, Codfish, new, $7 50a$8.50

FLOUR.—Howard Street Super and Cut Extra, $11 50a $11.75; Family, $14.50a15.00; City Mills Super, $10.75a 11.50; Baltimore Family, $16.50.

Rye Flour and Corn Meal.—Rye Flour, new, $7.25a 7.50; Corn Meal, $5.25a5.50.

GRAIN.—*Wheat.*—Good to prime Red, $3 10a3.12; Choice White—scarce—$3.60; good to prime, $3.00a$3.50 per bushel.

Corn.—White, $1.25; Yellow, $1.18 per bushel.

Rye.—$1.25 per bushel.

Oats—Heavy to light—ranging as to character from 57 a65c. per bushel.

HAY AND STRAW.—Timothy $26a28, and Rye Straw $21 a22 per ton.

BEANS.—Common, $2 50a3 00 as to quality.

POTATOES.—$4 00a4 25 per bbl.

PROVISIONS.—*Bacon.*—Shoulders, 17 cts.; Sides, 18a 19c; Hams, plain bagged, 24c.; sugar cured, 26c. per lb.

SALT.—Liverpool Ground Alum, $2.20a2.25; Fine, $3.10 a3.25; Turk's Island, 62½c. per bushel.

SEEDS.—Clover, held at $8.52a8.56; Timothy, $3.62a3.85 Flaxseed, $3 15

TOBACCO.—We give the range of prices as follows:

Maryland.	
Frosted to common	$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10.00a15.00
Fancy	17.00a25.00
Upper country	3.00a30.00
Ground leaves, new	3.00a12.00

Ohio.	
Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.38a2.42 per gallon, in barrels.

WOOL—We quote: Unwashed, 28a32 cts. per lb.; Tub-washed, 48a51 cts.; Fleece, common, 42a45 cts.; Pulled, No. 1, 30a35 cts.

CATTLE MARKET.—Common, $5.75a$6; Good, $7.50a$8; Prime Beeves, $8.25a8.30 per 100 lbs.

Sheep—5½a7 cents per lb. gross.

Hogs—$14.00a14.50 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Oct. 20, 1866.

BUTTER.—Ohio, in brls. and kegs, solid packed, 25 to 30 cts.; Roll, 38; Virginia and Pennsylvania in kegs and tubs, 28 to 30; Glades, 35a45; Goshen, 45.

BEESWAX—42 cts.

CHEESE.—Eastern, 20; Western, 18 to 20.

DRIED FRUIT.—Apples, 10; Peaches, 17a20.

EGGS—In barrels, 32 cents per dozen.

FEATHERS—70 cents for good Southern.

LARD.—Brls. 18, kegs 19, jars and other country packages 20 cents.

TALLOW.—12 cents.

CONTENTS OF THE NOVEMBER NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, DECEMBER, 1866. Vol. I.—No. 6.

DECEMBER.

"Sweet are the harmonies of Spring,
Sweet is the Summer's evening gale,
Pleasant the Autumnal winds that shake
The many colored grove.

"And pleasant to the sober soul,
The silence of the wintry scene,
When nature shrouds her in her trance
In deep tranquility."

Farm Work for the Month.

The work to be done now, is chiefly that of closing up the fall labours, and only a few points of interest need be noted.

CORN.

Let the corn be got in with all despatch, as there is now continued loss and waste. Be sure that a correct account is kept of the quantity put away, and of every several parcel, if put in different places. Note also the quantities fed to different kinds of fattening stock. See that the fodder is well secured, and fed without waste.

TOBACCO.

It is sometimes, we find, advised that no tobacco be stripped before January, but every suitable "season" should, we think, be availed of, so as not to have the work run into the spring. Much of the value of the crop depends upon the manner in which it is handled in stripping. The sorting of the qualities, pressing the bundles into the shape they should have in all the after handling, neatness and order in laying the bulks, and watchfulness to prevent heating and discoloring in the bulk, are all points which well demand attention. The stalks make valuable manure when well preserved, and should not be exposed to rains which wash off the gum on the outside.

PLOUGHING.

The ploughing of stiff lands may be properly continued in any good weather when the ground is in order.

STOCK.

Stock of all sorts, now in the yards, need much more careful looking after by the master than when they take care of themselves in the field. If they come into the yards in good condition, they should be kept so, and not allowed to fall off by degrees in flesh, till spring finds them poor. Good shelter, sound, nutritious food, and a sufficient supply of water above the freezing point, should all be duly provided. Above all keep them from tramping through mud and mire.

HORSES, MULES, AND OXEN.

Those having work to do should have especial care. It is not enough that they are well supplied with food. Ample stable room, clean bedding, and a free use of curry comb and brush, and rubbing dry, and cleaning their feet and legs, always after the day's work. Working oxen must have a feeding apartment to themselves. They would be more valuable workers if more care were bestowed upon them. It is true that they may consume always coarser food than horses, but something of the same care that horses get, especially in the busy, working season, would make them little less valuable for the plough than they now are for slow, heavy draft.

CALVES.

Keep calves in roomy pens with shelter, and let no older cattle have the opportunity of mastering them. Feed them with best hay or corn

fodder and bran. They do very well if kept in the sheep pens.

COWS.

Cows giving milk require, of course, something more than dry provender. Bran and meal mixed, and a half bushel a day of sugar beet, or ruta baga, is the best extra food for them.

SHEEP.

Sheep do better in all ordinary winter weather if allowed to range at will in a dry pasture, but shelter should be provided for bad weather, and troughs for feeding oats and bran.

HOGS.

Pen hogs should be now fat enough to kill. Keep breeding sows, and other store hogs in good condition through the winter. Good shelter and dry beds will economize food.

MANURE.

The great mass of manure which may be made from the waste of the farm would be now a matter of special interest. Whatever material you can command should be now gathered and put through the process of preparation for use. Let it be used as an absorbent for the yards as far as may be required, or made into compost, or hauled direct to the land as a top-dressing. Beyond the needs of the stock for bedding, and as absorbents of the moisture of the yards, there is no need to accumulate straw and coarse material in the yards. Much labor may be saved by hauling directly to the field, all that may not be so needed, and time gained by spreading at once on the ground.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER Maryland Agricultural College.

DECEMBER.

All the associations of this month are with something bare, chill, and dreary; and so it will be found that the garden does not tend to dispel any of those gloomy associations; should the weather remain sufficiently open, spading, hauling on manure upon any vacant ground intended for early crops next spring, will form the chief out-door occupations when weather permits. And we must not forget that great attention should be paid in protecting all tender crops that are likely to suffer, either from frost or cold cutting winds.

CABBAGES AND CAULIFLOWER PLANTS in frames or under glasses will require all the air possible, whenever the weather permits, being careful to keep them free from weeds and decaying leaves.

CELERY.—Where the frost has not been severe enough to injure, it should have another earthing up, exercising great care in the operation that the earth do not get into the heart of the plants, which will cause it to rot. When grown for family use only, we would let it remain where it has been grown, and previous to hard frosts cover the soil with leaves sufficient to keep out the frost, so that it may be taken up without difficulty when wanted.

POTATOES stored in cellars should be looked over occasionally, and all mouldy and diseased tubers picked out.

ONIONS.—Pay good attention to those that are stored, by turning them over and seeing that they are all sound; remove those beginning to decay; those that are beginning to sprout should be selected for present use.

RHUBARB may now be planted in boxes and placed in any warm cellar, where there are not other conveniences for forcing it.

SPINACH.—In gathering the leaves of winter spinach, great care should be taken not to bruise or otherwise injure those that remain, as, at this season, a bruise will invariably lead to decay. Every leaf should be picked singly. Soon as the ground becomes frozen and not much work offers, do not forget to make preparation for prospective work when it arrives.

The Fruit Garden.

CURRANTS AND GOOSEBERRIES to be propagated by cuttings of ripe, good, stout shoots of last summer. All the buds should be removed from the bottom of the cutting to within four inches of the top, so as to form a clear stem, and which will prevent the plant throwing up any suckers. Lay on a good layer of rotten dung between currant and gooseberry bushes to be forked in next spring. Raspberries should have a good, heavy mulching, which should not be forked in; as any disturbance of their roots is a great injury.

PRUNING OF STANDARD FRUIT TREES.—See directions for, in the October and November number of *Farmer*, to which may be added, that it consists chiefly of opening out the heads and regulating the growth without severe measures of any kind. If there are any large branches requiring removal, it is a proof of neglect of some kind in times gone by; and if the branches are found dead and in an unhealthy state, you may depend upon it the tree is in a bad state at the

roots. In many gardens old fruit trees are not unfrequently killed by raising the soil about them, thereby year by year removing their roots farther and farther from the atmosphere. Much has been said by those who should know as to the *best* season for the winter pruning of the grape vine. We think that north of Philadelphia it should not be performed in the fall, unless the vines are protected, for we have found from experience that the hard frosts are apt to destroy the buds, and sometimes the whole branch. Neither do we think it should be done too late in the spring; the latter end of February or March seems to be *about* the best time; but as the seasons differ so much in different years, much must be left to the obeservation and judgment of the cultivator.

The Flower Garden.

"When the flower of thy life is unfolded, oh! cherish
The fragrance that virtue around it will shed,
That will give it a sweetness which never can perish,
Adorn it when living, embalm it when dead!"

Carnations, Pinks and Picotees.—Such as are potted or planted in frames, should have abundant ventilation and very careful watering. Should there be any appearance of green fly, fumigate with tobacco. Get into a shed or some outbuilding, good, turfy loam for putting in next season; lay it upon a heap till the grass is all dead, then chop it and turn it over frequently.

Hyacinths, Tulips, and other Bulbs remaining out of the ground may, when the weather permits, still be planted, and they will bloom very soon after those planted a month ago. Plant the large bulbs six inches deep, and the small ones three to four inches deep; if the position is damp, sharp sand under and all around each bulb.

Roses should be protected where they are exposed; this is especially necessary in the care of tea roses, which, in hard weather, are often killed back to the roots. If it is not thought advisable to take them up, place some branches of hemlock, or red cedar, in and among the shoots, so as to protect all the branches, leaving the tops unpruned. The ends of the shoots may be killed back some inches, but the ripe and stout wood will escape through being protected, and at the spring pruning all the dead parts can be cut away.

Plants in Frames.—Whenever mildew appears cut away the part affected at once; dust the cut part with sulphur, and admit a current of air, if possible, to hasten the drying of the wound. Remove all dead leaves and decaying litter from amongst the plants. Should wood-lice be troublesome, lay a small plank of half rotten wood at the bottom of the frame, which will attract all the wood-lice that are harboring in it, and by removing it in the day time they may be discovered and destroyed.

For the "American Farmer."

Managing Old Peach Trees.

There are many farmers and others who have old "peach trees" which we think should not be cut down as "cumberers of the ground." Rather let them remain for a time and "dig about them and dung them, and if they bear fruit well, if not, then after that cut them down." Age in trees, as in man, is characterized by decrease of vigor: each *must* fill "their allotted time." In many old trees there is vitality sufficient to produce fruit, to an extent that threatens their very existence. With a little attention, these good old trees would continue for years to produce good crops of fruit. The difficulty with many old trees which we have witnessed seems to be to induce them to grow rather than to produce fruit, and with the exception of the dying of an old branch, and very small annual growths, they present no sign of their approaching end.

In our experience with old peach trees we have found no manures so beneficial as those of a cooling nature, such as cow-dung composted with muck, or other rich compost. Hog, stable, and hen manure, we have found to be too stimulating for *old trees*; and *strong* liquid manure will destroy, rather than renovate them. Strong kinds of food, as we all know, are only suited for strong constitutions, consequently it deranges old trees, and any not naturally strong, as the roots cannot absorb or the foliage digest it, the trees as a consequence have to perish. The business of the root, as we understand it, is to collect the food in a diluted state and to transmit it to the leaves, where a great proportion is given off again; all therefore that is necessary for the constitution of new parts is retained and becomes part and parcel of the trees;—young trees require food of a much more stimulating nature, but of them more anon.

To improve old peach trees, our method is, first for the crown of the roots to undergo a most searching scrutiny for the borers, which are so destructive to the peach trees—when satisfied that all the worms are extracted, we apply common tar from the crown of the roots to about 10 inches up the bole of the tree, which, by being looked over occasionally, and a little applied when it becomes too hardened upon the tree, we have found to be a good preventive, which is better than a cure. In pruning old trees, we endeavor

to keep in view the supplying the tree with young wood, and the removal of all old and useless parts, more than looking to the forming of a handsome head, which is nearly impossible to do in many old trees. The small weak shoots from the smaller main stems we remove entirely, bringing a young strong shoot, if such can be selected, up in their places; the main branches, if too crowded, we thin out so that there may be a clear distance of from 16 to 20 inches apart; a proper number of last year's shoots we are very careful to retain about 10 or 12 inches apart, along the main branches, to produce fruit. We never leave any of these fruit producing shoots, but on the *upper side* of the branch, as when they are left upon the lower side, the tree becomes crowded with wood to the exclusion of light and air to the tree. If the shoots are not more than 6 inches in length we do not shorten them, or if there be nothing but fruit buds on them, but where the shoots have some two or more fruit buds, and a wood bud between them, they should if more than 10 inches, be pruned to a wood bud, being careful to leave sufficient fruit buds below the pruning to produce a crop. In the pruning of the young shoots it is necessary to leave a wood bud at the extremity, in order to draw the sap into the fruits which are situated below it. This pruning is done early in the spring after the tree commences to swell its buds, as the uninitiated will then be better able to distinguish wood from fruit buds. All pruning of the young shoots should be to a wood bud. As a top dressing for old peach trees, we give the preference to composted cow-dung, which after having cleaned the surface of all weeds, &c., around the tree, we apply from one to two inches thick over the surface for a distance of from six to eight feet, in a circle from the stem of the tree, and then point it in with a fork, being careful not to go so deep as to injure the roots—as a neat finish we cover the whole surface an inch or more in thickness with fresh, clean loam—this surface dressing we consider best given in the fall. We have found that if applied about the time the blossoms are expanding that too much nourishment is thrown into the flowers, and they fall without setting. Manure applied in the fall will by spring have passed into the soil above and below, and when the early rains have fallen upon it in spring it will be in a form calculated to afford direct food to the trees, and consequently to invigorate them. Old trees thus treated are not long ere they show great improvement in their foliage and annular growth, and in the production and quality of the fruit.

DANIEL BARKER, *Md. Ag. College.*

Fruit Growing in North Carolina.

MESSRS. EDITORS: The labor system of our State has, by the "arbitrament of the sword," undergone a very material change, and the farmers of this section are casting about as to the best means to recuperate, as far as possible, what has been so suddenly snatched from them. Bank stock, negroes, and "late-issued State stock," have gone by the board. The work of years has been almost completely rendered of no effect. Our land is again struggling in its infancy. Self-interest, as it always has done, rules the hour; but now, on account of the great change come over us, almost without the experience of by-gone years. Men who heretofore supported themselves by their farms, are now, after the trial crop of this season, debating this and that means of a future livelihood, and but few, I believe, are going to trust entirely to the old channel to bear them and their families in the future. Some are setting up stores, here and there, through the country, others are leaving their homes, renting out their farms, and engaging in entirely new pursuits. But the majority with whom I have conversed, are debating the question of fruit culture and wine making, and most of that majority have already concluded to give it a trial. For many years I have been engaged in fruit culture, and I think a few hints, or facts, would be of material assistance to them. Wishing my country all success in its efforts to regain its former prosperity, and having the welfare of my brother farmers nearest to my heart, I propose to give them a little of my experience in fruit raising, to show how lucrative it *can* be made by judicious management. One instance to show this is alone necessary.

In the spring of 1863, I planted out two orchards of apple trees, bought from the nurseries of Thomas Carter, near this place, and those of Westbrook & Co., of Greensboro'. The trees were of the usual size sold by nurserymen. I laid off my ground twenty-five feet each way, and planted a tree at each crossing. Before planting, I dug out the holes where I intended to set the trees, four feet across and sixteen or eighteen inches deep. Into this I put rich scrapings—such as is generally found in the jams of fences of any standing—putting one horse-cart load to every two holes. I planted out every tree with my own hands—for I was vain enough to think that I could do it better than any one else—spreading out the roots carefully and stuffing every crevice with the rich, loose dirt. I then filled each hole with the soil from the adjacent ground, drove a nice stake from the woods down by the side of each tree, tieing the tree to

it carefully, and told each one to do his best. When the spring was fully opened I hauled a cart load of the pine straw, with which our woods abound, and spread it out carefully for three feet around each little tree—say eight inches deep.

Now for the result. The first year—the year of planting—my trees averaged from twenty to forty inches of growth; the second the majority bore a few fruit; the fourth year, 1866, it would have done any genuine lover of the orchard good to have seen them bending under their load of large, smooth, plump apples. The trees are now three-and-a-half inches in diameter; bark, smooth and sleek, and free from all roughness; the limbs spreading, or reaching upwards, as if grasping the bright air of heaven with delight, or waving their laden boughs as a reward for the labor given them. Those trees next year, if a good fruit year, will bear me three pecks, or a bushel of good apples each. In our market they will readily command—good winter apples—two dollars per bushel. They haven't cost me twenty-five cents a piece. One dollar and seventy-five cents on the credit side! Isn't that easy money? Eight hundred per cent. in five years! This year has more than paid me for my trouble.

It will be naturally asked by every one first entering the business, what sorts are preferable for planting? For this section I would prefer the standard winter kinds, as I think they are, by far, the most profitable. Every one, of course, will plant a few summer and fall for home consumption. Beyond this, let all your trees be of good keepers, say, Romanite, Wine sap, Winter Horse, Hall's Seedling, Pryor's red, Limbertwig, Green Cheese, Matannis Best, Smith's Cider, (but little known with us, but a most excellent kind,) English Crab, Clarke's Pearmain, Foust, Vanderveer, Golden Russett, Roxbury Russett, and others of like nature. I would strongly recommend a good sprinkling of the "Red Olive," a native of this county, and known but to few—a most excellent variety, full bearer, fine flavor, and perfectly healthy. I know of no one from whom this desirable fruit can be obtained except "Westbrook & Co.," of Greensboro', to whom I lately recommended it, and who informed me that they had already a number just propagated. Whoever loves a good winter apple should, by all means, have this in their collection, and it is so peculiar in its growth and appearance that no one can be deceived in it. The whole tree is a mass of forked limbs, the distinct line of division often extending for two or three inches below the bifurcation; leaves, very light in color, so much so that they can be distinguished all over the orchard; oblong, fruit deep red, calyx deeply indented, stem short, shoots red, and an upright grower. Smell one of the apples once and you will never forget it—no more than you can how the nice red apple of your fellow in school-boy days looked, when he handed it to you with the injunction, "don't bite it."

Those liking early fruit, I would recommend our widely known "Red June;" to this add "Foster's White Wakefield," which can only be procured from the well-known amateur, A. J. Foster, Wakefield, N C. It deserves extensive cultivation, and is the praise of every one who sees it, for its smooth, white skin, fine flavor, great productiveness, and the quality, which the "Red June" has not, of being uninjured by transportation on account of its firmness. To grape growers I would say plant your first vineyard with the "Concord" entirely, your second with the same, your third likewise, and if you ever plant any other variety after that, I will be greatly mistaken. It is certainly *the* grape for Southern vineyards. Healthy, free from mildew or disease of any kind, good bearer, fine flavor, and requiring but little manure in its cultivation, it stands without an equal in our catalogue of grapes. To those liking a variety, the "Catawba" and "Weller's Halifax," recommend themselves—the latter the most productive vine I have ever seen, bearing even to the very tips of its branches. It originated with the celebrated Mr. Weller, of Halifax, and was, I believe, one of his pets of the vineyard.

Let me add, in conclusion, a few words for our much loved fruit—the pear. But few in our section know its value and all fear to plant it "because it is so long coming into bearing and so often dies with the blight." My friend you are very much mistaken. I have fifty-one varieties, and many of them have already fruited—four years old—and I have only lost three out of my whole lot, and those three I fear through neglect. You can't raise your baby without care and attention, and you can't raise corn without labor, your pear trees, as well as your other trees, asking nothing more at your hands; and if you will give it to them, they will change the one into many a pleasing dish on your table, and delight you by the pleasure and gratification they give the other by your winter fireside.

PHIL. WOODLEY.

Raleigh, N. C., Nov. 2, 1866.

☞ Rats are swarming in the Northwest of Ohio, destroying corn, potatoes, tomatoes, and even climbing fruit trees and destroying the fruit.

An Essay on Blackberries.

LAWTON, WILSON'S EARLY AND KITTATINNY.

Nearly every day of this fast generation offers a contradiction to the assertion of Solomon, "There is nothing new under the sun." Above the sun we grant there may be a certain monotony of events, but assuredly the earth beneath us is teeming with novelties.

Think of the first apple, undoubtedly the most bitter of bitter "crabs," and then turn to the Newtown Pippin, Greening and Northern Spy of to-day; of the pears that puckered the throats of our great grandfathers, and then count if you can the endless sorts of luscious varieties now growing within arm's reach of baby America.

We see constant change and progress in vegetable life, where its susceptibility to improvement is met by man's necessities, and his God-given gifts of intelligence and spirit of enterprise, and nowhere do we see it more than in the small fruits once deemed quite outside the pale of gardening.

For the past twelve years the culture of the blackberry has attracted a great deal of attention. Previous to that time the consumers drew their supply from the wild bushes in neighboring woods. There were few persons who considered the fruit of sufficient importance to devote any portion of their tillable lands to its culture. A change soon came—a Mr. William Lawton, of New Rochelle, found growing on his farm a blackberry of very large size, productive, and of excellent quality. The facts were made known to the public, in due time, and with the high prices the berries brought in market, created such a demand for the plants, that Mr. L. soon retired with a handsome fortune.

There are now hundreds of acres planted with this fruit, for market purposes, in New Jersey alone. One grower at New Brunswick sends to New York daily sixty bushels. Mr. Wm. Parry, at Cinnaminson, has twenty-five acres in blackberries, and many of his neighbors have an equal number. At Hammonton, 150 acres are planted, producing on an average eighty bushels to the acre. The culture of the "Lawton" is extensively pursued at Vineland and other places in the State, and instead of the market being overstocked, the prices average higher than in former years. The demand still exceeds the supply. All this, however, has been regulated very much by the well-worn adage—"Where ignorance is bliss, 'tis folly to be wise." If all the men, women and children, who, being ignorant of blackberry possibilities, forced themselves to consider the "Lawton" "perfectly delicious" in spite of its one serious drawback, had waited for something better, all this thriving trade, to say nothing of the consequent gastric enjoyment, would have been as nought. The one "drawback" is no mystery, all America knows, for has not all America suffered? The "Lawton," beautiful, treacherous berry that it is, and occasionally offering a flavor which would have made new wine for the gods, has, nevertheless, a phase of sourness, to which nothing but the word demoniac can be applied. Everybody knows that when an ordinary blackberry is green it is *red*, and in this they find their safeguard; but the "Lawton" sets every rule of color and propriety at defiance by being very green, to all intents and purposes, even after it is unequivocally black.

It is now no longer a folly to be wise on this subject. The great question—"Have we a blackberry among us?" can at last be answered in the affirmative, without mental reservation.

New Jersey can now claim the honor of producing on her soil, two varieties of high bush blackberries, that are all that can be desired, being most valuable acquisitions to the list of choice fruits. The first is "Wilson's Early," found growing in the sand, near Morristown, a few years ago, and is at present being propagated by several fruit growers in this State. It is an excellent berry, and even more productive than the Lawton. The second is the Kittatinny, named after the mountain at the base of which it was found growing, about fourteen years ago. The Rev. Clarkson Dunn procured some plants, and set them in his garden at the Rectory at Newton. Here attention was first called to them; the size of the berry, quality and productiveness, soon attracted public notice. Four years ago the whole stock of plants were placed in charge of Mr. E. Williams, for propagation, and introduction to the public. From here plants were put on the grounds of Mr. Corson, to test them in field culture for market purposes.

On August 1st a party of gentlemen visited Newton, and examined the original plants in full bearing. The party numbered thirty persons, among whom were some of our most distinguished horticulturists. Having had the good fortune to join them in their excursion, I am tempted to report somewhat of our experience, believing that the tidings of the arrival of a new blackberry, answering all the established requirements of size, productiveness and beauty, and in flavor going beyond the fondest hopes of those who have suffered in the sourness of

King Lawton, will be hailed with general delight.

On Thursday morning our party started from the hotel to examine the blackberries on Mr. Corson's grounds. Our walk of a mile and a half, under an August sun, was fully compensated for by the sight of the Kittatinnies. The crop of berries was more abundant than I had any idea of seeing. The variety is a very strong grower—the berry is quite as large as the Lawton; more fruit could hardly be put on the bushes, and the fruit is perfectly sweet when ripe, melting in the mouth, and *leaving no core*. We were more than satisfied—there was not a dissenting voice in the party. One and all pronounced the Kittatinny to have all the good qualities of a first-class berry. It was very evident the plants had received no extra care, for in parts of the beds the weeds were permitted to grow as high as the blackberries.

Our party returned to New York on the afternoon train, Thursday, pleased with their visit among the hills of Sussex, which, by-the-way, are not looking as well as usual this year, in consequence of the drouth.—*Working Farmer.*

Rogers' Hybrid—No. 4 Grape.

BY F. R. ELLIOTT.

For six years past, I have been examining the various hybrid grapes sent out by Mr. E. S. Rogers, of Salem, Mass. I have examined many of the numbers yearly, and made my own note-book comments, with little regard to the clouds and shadows of public opinion that, from some unaccountable cause have long overshadowed them. I find, on referring to my notes in 1862, when I saw the fruit on vines in four different States, and twenty-seven different localities, on sand, gravel, loam, and clay soils, that I have written—"As a table grape, ripens with Concord, is larger in size of berry, equally handsome in bunch, and of a superior quality."

From that year to this present season, I have had opportunity of seeing the vine in fruit in various localities and soils, and my note-book yearly confirms above remarks.

In vigor of growth and hardihood of vine, I see but little, if any, difference between No. 4 and Concord; and as neither, in my opinion, can rank as first-class wine grapes, and as the size and quality are points to meet the public market demand for table grapes, I cannot but think that cultivators err when they plant out Concords to exclusion of Rogers' No. 4.

Bunch large, pretty compact, generally slightly shouldered. Berries large, oblong, round. Color, dark purplish; almost black when fully ripe; covered with a light blue thick bloom. Flesh dark, with a fine white outer concentric line next the second cuticle, and red on the stem formation next the seeds. Pulp small, rich, vinous; slightly harsh, or of native aroma. Seeds whitish-yellow. Skin like Isabella in thickness. Ripens with or before the Concord; or say, in Northern Ohio, from 1st to 15th of September.—*Horticulturalist.*

Grapes in City Yards.

BY CHAS. W. RIDGELY, BALTIMORE, M. D.

After three years of patient waiting, at last I have eaten my own grapes, grown in my city yard, and proceed to tell the reader how they taste here in the "Border States," and how I made room for so many kinds in my diminutive domain.

The Iona is prince of the hardy grapes. Compress two or three berries gently with your tongue, and your mouth is filled with juice, rich, sweet, pure and vinous. You miss no desired ingredient, you detect nothing unpleasant in the taste; you spontaneously say, "that suffices; I seek nothing better." Besides its excellence, it is early, prolific and the most beautiful of grapes. The Delaware comes next; were it of equal size, and not so wonderfully sweet, it would rival the Iona. The saccharine element is in such excess, that it seems almost to have candied, and the grape tastes as if you were eating sugar. Sometimes a bunch may be found juicier than the rest, and not so sugary; quite as pure and vinous, but sweeter and more delicious than the Herbemont. The Israella is large, early and very sweet, with a thick skin. Every one should have it; but I have not yet fully decided where to place it in my list. If it has not attained to the "*first three*," it is certainly "honorable among the thirty." Diana is very rich, vinous and sweet, with an agreeable peculiarity of flavor. Allen's Hybrid is sweet and pure; but it seems deficient in "vinous refreshment." It improved, however, greatly, the last few weeks; and in a warmer season, no doubt, would reach a much higher excellence. Rebecca is excellent; ripening thoroughly, even to the skin; and by some is preferred to the Allen. Elsinburgh is the smallest of grapes; rich, sweet and pure; too raisinish for my taste, but worthy a place in every choice collection. The Herbemonts are maturing; and about the 25th inst., if patiently waited for, will be on hand with a flavor as pure as can be found on the face of the earth, and a

vinous energy which no one can forget who has been refreshed and exhilarated by them as often as the writer. My Catawba ripened as well this season as they ever did; but retained the tough, acid centre; and the Isabellas, insipid as ever, making me marvel at the avidity with which I used to devour them.

About twenty-five of these vines are growing in my yard, of thirty feet by twenty, clear space, in which, after due concessions to domestic claims, I laid off a grap border about forty-five feet long and three wide, beside the west and north fences; and another border, twelve feet by five, a little in advance of the latter fence. Having selected the ground, my first business was to take up the stiff clay soil to the depth of two feet, and thoroughly incorporate it with a liberal proportion of old field sods, street-scrapings, plaster, coal-ashes, cellar-dirt, and sand. Then I procured from Dr. Grant, of Iona, New York, a selection of his choicest vines, and planted them agreeably to his instructions. They all lived and made satisfactory growth in 1864; some reaching a height of ten feet. Cutting them back to two or three eyes, the second season I permitted one shoot to grow on each; and when these had reached the proper elevation, pinched off the terminal buds, to develop the two highest laterals, and from them grow the permanent arms of my vines. After testing various other plans, I submit this as the surest and readiest mode of obtaining the arms.

Last spring, having in most cases obtained the two arms for each vine, I cut these back, permitting each arm to produce only two or three fruit-bearing canes; two are preferable, unless the vine has remarkable vigor; and now, at the end of the third season, most of my pets are occupying the portion of the trellis designed for them, having produced as much fruit as they could safely mature, and with ample reserve space in which to grow and expand for the next five years.

Possibly, some one may wish to know how I could find room for these vines in so small a space. My method was to plant the vines about two-and-a-half feet apart, and to train them in four courses on the trellis, one above another; setting up stout posts to support the four horizontal bars, the first placed one foot from the ground, and the others above it at intervals of two feet. Each vine was grown, as to height of arms, &c., with special reference to the position it was to occupy on the trellis. And they were so arranged that those of the third course should be just over those of the first, and those of the fourth just over those of the second; each vine for the higher courses being carried up to its place *behind* the horizontal bars, so as not to interfere with the lower vines.

Each thus has a space on the trellis nearly ten feet long and two feet in height. By careful winter trimming and summer pinching-in, almost any vine, when old enough to fruit, can easily and profitably be confined within this space. And should a long-jointed Isabella or Herbemont aspire to reach its neighbor in the next higher course, it may safely be passed *behind* the bar assigned to the other, and permitted to expatiate at pleasure. The arms may be lengthened by two or three buds each season; but this must be done intelligently and cautiously. If too great an addition be made, the older spurs on the arm will suffer, as the sap seeks the extremities. In everything that pertains to the vine, *festinans lente*, is one of the best maxims we can follow.—*Horticulturist.*

New Jersey Lands—Its Fruits.

CRANBERRIES.

Wm. Perry, in a paper read before the Penna. Horticultural Society, Eighth-month 6th, 1866, representing New Jersey fruits, thus speaks of cranberry culture in that State:

"The cultivation of cranberries is now claiming much attention, and to one not acquainted with the magnitude of operations in this branch, it must appear perfectly marvellous to witness the stupendous efforts in this branch of Agriculture. At Manchester, Bricksburg, Tom's River, and other places, wherever there is a piece of land worthless for other purposes, it is cleared, and cranberry plants set out. From the best data at our disposal, the *Ocean Emblem* states: 'We will venture the assertion that there is at least one million dollars invested in the culture of cranberries in the county of Ocean.' In Monmouth and Burlington counties, the cultivation of them is still more extended, and rapidly increasing. E. Humphreys, of Shamony, states that cranberry culture seems to have been made a specialty with the owners here, they apparently having paid more attention to that than to any other kind of fruit culture. Portions of the bog have yielded at the rate of 220 bushels per acre.

"This, at the price of cranberries last fall, would give the modest little sum of $1250 per acre. Cranberries, both cultivated and wild, grow in large quantities on every side of us. The amount of land in this county, suitable for cranberries, is unknown, but it must be immense.

"Wm. R. Braddock, of Medford, has about one

hundred acres planted in cranberries, twenty of which were in fruit last year, and yielded an average of one hundred bushels per acre; in all, two thousand bushels, which brought him, clear of all expenses, $3 per bushel, amounting to $6000 from the twenty acres in bearing.

"Theodore and Alfred Budd purchased five years since, a tract of cedar swamp soil at $10 per acre; they set out cranberries, and since have been offered $600 per acre. Last year, twenty-eight acres of it produced 1800 bushels of fruit, worth $4 per bushel, amounting to $7200.

"Jos. C Hinchman, of Medford, has fifty acres nicely graded, turfed, and banked for flooding the plants, most set with cranberries; those in bearing last year produced about 1500 bushels; they appear to increase in productiveness for seven or eight years before attaining their greatest yield, as the first lot of ten acres planted seven years since produced last year 800 bushels, and from present appearance, will yield 1000 bushels this year.

The harvesting is usually done by hand, each one picking from three to four bushels per day, for which they receive about forty-five cents per bushel."

OTHER BERRIES, FRUITS, ETC.

In the paper alluded to above he further says:

"New Jersey is justly noted for producing choice fruits, and it is that which gives the high value to her farm lands. The census report of 1850, shows that the farming land in the State of New Jersey, was worth eleven dollars per acre more than the farming land of any other State in the Union; and the census report of 1860 shows that the same lands had advanced so rapidly as to be worth twenty-one dollars per acre more than in any other State. Hence, we find that people who desire to follow the interesting, healthy and profitable business of raising fruit for the market, come from other States, from the east and the west, to settle here, and take hold of our uncultivated lands, subdue the forest, and make it to blossom like the rose, yielding abundance of fruit and flowers. As an illustration, I may name the thriving towns of Hammonton, Elwood, and Egg-Harbor City, on the Atlantic Railroad; Vineland and Franklinville, on the West Jersey Railroad, and Manchester, Bricksburg, and others on the Raritan and Delaware Bay Railroad. Places that have sprung up within a few years, and since the construction of the new railroads on which they are located, laid out in small farms, of from five to ten acres each, especially for the purpose of growing fruits, which they are doing successfully.

"At Hammonton, they commenced cultivating strawberries in 1863, and in 1865 the crop sold for $32,500; this year, as in other places, the strawberry plants were badly injured by the extreme cold and late frosts, and did not yield so well. They have 160 acres cultivated in Dorchester and New Rochelle blackberries; some of which yielded ninety bushels per acre last year, and are doing well again this year.

"Four years since, (in 1862,) I rode over the ground now occupied by Vineland, then a forest, with but one dwelling-house within many miles, in company with the enterprising proprietor, C. K. Landis, who informed me that he proposed to lay out and build a town there. This year I again visited the same place, and saw some of the wonderful growth and advancement of that new settlement, where but four years since, it was all a wilderness, and now a large, thriving town with broad avenues, lined with shade and fruit trees, intersecting each other at right angles, and extending from six to ten miles in either direction, so that it would require a drive of over two hundred miles to see the improvements already made. Stately mansions, beautifully ornamented with gravel walks and flowery lawns, adorn the place, with no rude fencing for divisions or inclosures as seen elsewhere, as cattle, swine and inebriates are not allowed to run at large and destroy the property of others.

"Their municipal regulations are so correctly formed and strictly enforced as to invite moral, intelligent and enterprising people to settle among them, but offers no inducements to those of a different character. Large foundries and factories with heavy steam-power are being erected. Churches and school-houses, with the most ample provisions for the thorough education of all their youth, are well attended.

"A Horticultural and Agricultural Society and a Fruit-Growers' Association, have their weekly meetings attended by over five hundred members, and discuss in an interesting manner all matters pertaining to fruit-growing, gardening and farming, the proceedings of which are regularly published in the *Vineland Weekly*, a document of eight pages, and thus placed before all the inhabitants of the town, numbering now over seven thousand five hundred persons. Where shall we look for a parallel to this?

"The amount of fruit now grown there and at other places in New Jersey is immense, and indicates what may be expected when the resources of our State shall become fully developed. Located between the two great cities of New York and Philadelphia, with the most favorable soil and climate that can be obtained, the value of New Jersey lands for fruit-growing must still

advance, and it become the garden spot of our Union."

The Feeding of Stock as a Branch of Farm Management.

BY PROFESSOR ANDERSON, OF EDINBURG.

Properties of Feed.—Practically, the problem which the feeder has to solve is, how to supply his cattle with such feed, and in such quantities, as to insure the largest amount of increase with the smallest possible loss. And for this purpose it is necessary, not merely to select the largest quantity of nutritive matters, but to attend to the proportions in which they are mixed, and to restrain, as far as possible, all those functions which are productive of waste.

All the different kinds of feed consumed by herbivorous animals, are found to present a general similarity in composition. They are composed of a nutritive and an indigestible part; the latter consisting chiefly of woody fibre, which appears to be quite incapable of assimilation. It is most abundant in the herbaceous parts of plants—as in the straw of the cereals and the stems of the grasses, and is almost entirely absent in the grains when deprived of their outer husk, as for instance in wheat flour. The nutritive part always consists of a mixture, in very variable proportions, of several substances, which may be separated by different chemical processes. However much the relative qualities may vary, every feed is found to contain at least three different substances which are members of the three great classes into which the nutritive constituents of food may be divided, and which have received the names of the nitrogenous or albuminous, the saccharine or starchy, and the oily substances.

The classes of feed constituents perform two different functions. The nitrogenous matters are employed to counteract the waste of the tissues, and to increase the quantity of lean flesh or muscle; and hence have been called the flesh-forming substances. The fatty and saccharine compounds, on the other hand, serve to maintain the process of respiration and the animal heat, and for this reason have received the name of the respiratory or heat-producing elements. They supply also the fatty matter stored up in the body, which, as we shall afterwards see, form a very large proportion of the weight of the animal.

It is sufficiently obvious that, as the two great functions of nutrition and respiration must proceed simultaneously, the best and most economical feed will be first, that which contains its constituents in the most readily assimilable form; and, secondly, that which contains them mixed together in the most suitable proportions. The importance of a proper balance between the relative quantities of the two great classes of nutritive constituents must also be sufficiently obvious. If, for instance, an animal be supplied with feed containing a large quantity of nitrogenous and a deficiency of heat-producing compounds, the result must be, either that it languishes for want of the latter, or it is forced to supply the defect by an increased consumption of food; in doing which it must take into its system a much larger amount of nitrogenous matters than are requisite for supplying the waste of the tissues; and thus there is an unnecessary and wasteful expenditure of these substances.

The proper adjustment of the relative proportions of nitrogenous and non-nitrogenous feed is the foundation of successful feeding, and its importance has of late years been fully recognized by chemists.

Importance of Warmth, Cleanliness and Ventilation.—The other great source of loss of feed is the maintenance of the animal heat. It has been already observed that an animal may, in certain respects, be compared to a furnace, in which a quantity of fuel is burned to produce the animal heat. It may, in fact, be stated as a general rule, that the warmer cattle can be kept the more rapidly will they fatten, all other circumstances being alike. The cleanliness and proper ventilation of the houses should be most carefully attended to, and the state of the dung observed, care being taken that the excretions are regular, and every tendency to scouring, or the reverse, immediately corrected.

Importance of Bulk in Feed.—Although the presence of a sufficient quantity of nutritive matters in the feed is naturally the most fundamental matter for consideration, its bulk is scarcely less important. The function of digestion requires that the feed shall properly fill the stomach; and however large the supply of nutritive matters may be, their effect is imperfectly brought out if the feed be too small in bulk; and it actually becomes more valuable if diluted with woody fibre, or some other inert substance. On the other hand, if feed be too bulky, the sense of repletion causes the animal to cease eating long before it has obtained a sufficient supply of nutritive matter. It is most necessary, therefore, to study the bulk of the feed, and to consider how to mix the different substances in such a manner as to adjust the proportions of nutritive matter to their bulk. If we examine the nature of the mixed feeds most in vogue among feeders. it will most generally be found that a very bulky feed

is combined with another of opposite properties. Hence, turnips, the most bulky of all kinds of feed, are used along with oilcake or beanmeal; and if, from any circumstance, it becomes necessary to replace a large amount of turnips by the latter substance, the deficient bulk must be replaced by hay or straw.

Farm Crops: how best and most economically used as Feed.—The question is then, however, so far limited, and reduces itself to determining how the crops commonly cultivated on the farm can be most advantageously used for feeding cattle, and whether they are best used alone or supplemented by foreign feed, by which we mean substances not forming part of the usual farm produce. These crops are hay, straw, turnips, mangels, potatoes, beans and peas, and the inferior qualities of the cereals; and they include those most remarkable for their bulky nature—the turnip, for instance, containing less than eight per cent. of nutritive matters. All of them are also remarkably deficient in fatty matters—the bean, which is much richer than any of the others, rarely containing so much as five per cent. The result of all feeding experiments leads to the conclusion, that animals cannot be brought to the highest degree of fatness on turnips, or even on hay, alone.

A peculiarly interesting series of experiments by Wolff have shown that sheep, which, when fed on hay of average quality, attain a weight of about ninety pounds, will gain an additional ten pounds if rape-cake, or some other feed containing a large quantity of nutriment be given them. As a general rule, such substances as oilcake, rape-cake, and bean meal, &c., greatly promote the fattening process, and they operate partly by supplying a larger quantity of nutritive matters within the bulk which the stomach requires, and partly by increasing the supply of nitrogenous matters, in which they are particularly rich.

Proportions of "Flesh" and "Heat" Producing Elements in Feed.—All, however, depends upon the ratio of flesh and heat-producing elements being the right one; and it would appear that this proportion differs according to the object of the feeding. Wolff, who has directed much attention to this subject, states, as the results of his experiments, that for maintaining animals at a moderate weight they should be as 1 to 8, for young cattle as 1 to 7, and for fattening as 1 to 5 or 6. He found by actual experiment that the production of milk was largest when the two classes were in the ratio of 1 to 7; but his conclusions with regard to fat cattle must be taken with some reservation.

Value of Rape-Cake as a Feeding Substance.—The most important point which he has brought out, is the very high value of rape-cake; and it is interesting to know that in this respect his results bear out the repeated recommendations which chemists have given of that substance. He has shown that one pound of rape seed will produce one pound of milk, and, under favorable circumstances still more; and its effect was better than that of an equal weight of grain. It appears, also, that in feeding it is equivalent to more than twice its own weight of hay. The great difficulty which is encountered in the use of rape-cake is that the cattle dislike its taste; and if they are supplied with a full quantity of turnips or straw, they will consume just a sufficient quantity of these feeds to maintain an average weight, and reject the rape-cake offered them. The way in which this is to be avoided is a very simple one. Of course it will not do to diminish the quantity of other nutriment given to the cattle, for that would defeat the object of the feeder. But a part of the more bulky feed, such as turnips, must be replaced by some substance such as grain, containing the same amount of nutriment in a smaller bulk; and then the craving for a sufficient quantity to fill the stomach will induce the animal to consume the rape, and after a few days they become completely accustomed to it.

Elements of Cattle Food.

The following summary showing how the proximate elements of food are severally applied in the animal economy, is taken from Professor Vælcker's "Chemistry of Food." It should become familiar to every one who has any interest in the matter of feeding cattle, for no one who would manage his business with due intelligence and judgment, should fail to make himself acquainted with it, in its principles. The leading elements of our food-producing plants, and the part they play in the animal economy should become subjects of study and interest to all growers of stock, who hope for profit as the result of the economical use of the large amount of material dealt out by them in the course of the year:

1. The earthy substances contained in food, consisting chiefly of phosphate of lime and magnesia, present the animal with the materials of which the bony skeleton of its body principally consists. They may be called, therefore, *bone materials*.

2. The saline substances—chloride of sodium and potassium, sulphate, and phosphate of potash, and soda, and some other mineral matters occurring in food—supply the blood, juice of

flesh, and various other animal juices, with the necessary mineral constituents.

3. Albumen, gluten, legumin, and other nitrogen containing principles of food, furnish the animal with the materials required for the formation of blood and flesh: they are, therefore, called *flesh-forming substances.*

4. Fats and oily matters of the food are employed to lay on fat, or to support respiration and animal heat.

5. Starch, sugar, gum, and a few other non-nitrogenized substances, consisting of carbon, hydrogen and oxygen, are used to support respiration, (hence they are called elements of respiration,) or they produce fat when given in excess.

6. Starch, sugar, and the other elements of respiration alone cannot sustain the animal body.

7. Albumen, gluten, or any other albuminous matter alone, does not support the life of herbiverous animals.

8. Animals fed upon food deficient in earthy phosphates, or bone producing principles, grow sickly and remain weak in the bone.

9. The healthy state of animals can only be preserved by a mixed food which contains flesh-forming constituents, as well as heat-giving principles, and earthy and saline mineral substances in proportion, determined by experience and adapted to the different kinds of animals or for the purposes for which they are kept.

This last suggestion is an important one, and from it arises the occasion for change of food frequently insisted on by experienced feeders, or for some variety in the kinds of food used. All the elements needed for the several purposes of making flesh and fat, and for respiration, must be supplied in abundance, and though found to some extent in combination in some of our leading articles of food, it is usually the case that one or the other so preponderates that a proper balance is to be found only in occasional change. All experienced feeders, therefore, give their stock such variety, or such occasional change as they well may, their observation teaching them that the appetite is sharpened by this means, and the animal more profited than by long continuance of the same food.

"Neither the health, nor indeed the life," says the same eminent authority above mentioned, "of all our domesticated animals, can be maintained by food destitute of nitrogenized or flesh-producing matters. Though absolutely necessary to the very existence of animal life, long experience and direct experiments have proved alike that food consisting entirely of muscle-producing matter cannot support the life of herbiverous animals for any length of time. Thus a goose, it has been found by experiment, when fed with albumen or white of egg, died after forty-six days, her original weight of eight pounds and one ounce having sunk to four and a half pounds. Similar experiments have shown that herbivorous animals, when fed upon nitrogenized food, containing no starch, sugar or other non-nitrogenized substances, notwithstanding the liberal supply of the highly nutritive albuminous matters, became emaciated, and died almost as soon as others fed upon food containing no nitrogen at all." Instances of this latter sort have been long familiar, where it has been attempted to preserve animal life for a length of time on food capable of making fat and supporting respiration. It is found, therefore, that there must be full supplies of these very different sorts of food, though they may not be needed in the same degree. The nitrogenized substances have been considered of most importance, and have been thought the measure of the feeding, and even of the fattening, qualities of feed. But this opinion does not seem to have been sustained by any practical experiments. Food rich in nitrogenous matter, though more costly, does not appear to produce so much butcher's meat; and more money is probably made by the purchaser of food, rich in oil, starch, or sugar, than in the purchase of food which contains an excess of nitrogenous matter.

But, again, nitrogenous matter is not to be looked at merely as flesh producing. A very large proportion, unassimilated, is returned in the shape of manure. This return is variously estimated by chemists from one-half to three-fourths the amount used; hence the great value of the manures obtained from the oil cake, rape cake and such other articles of food, resorted to by the cattle feeders of Great Britain. The nitrogenized manure is of the highest value, and the compound contained in the fertilizing material thus produced contains perhaps every element of plant food which we get in our best yard manures, with the super-added value of a good sprinkling of Peruvian guano.

Preservation of Meat by Sulphureous Fumigation.

We had an opportunity on Thursday last, of seeing a fowl which had been preserved for more than a week, in excellent condition for the table, by being subjected to fumigation with sulphur, according to a process recommended by Dr. Dewar, of Kirkealdy. The process is similar to that which Dr. Dewar has recently practiced, with great success, for the prevention of cattle-plague, and consists in simply placing the meat

to be preserved in a room in which sulphur is burned, and which is closed as far as possible against the admission of fresh air. The process has been repeatedly tested within the last few weeks, and always, we are informed with the most satisfactory results. A sheep's head was kept fresh for thirteen days; a crab, which is well known to be a peculiarly perishable edible, was kept perfectly sweet for eight days; and a lamb's head and pluck, after having been kept four days and a half, was prepared for the table, and pronounced to be in excellent condition. The plan succeeds quite as well with fish—haddocks which had been fumigated two or three times, having been found quite fresh after seven days. It is evident that a process so simple and so easily practiced will confer a great benefit even upon private households, while, if found equally efficacious on a more extended scale, it is calculated to produce an entire revolution in the preparation and preservation of what are now known as salted provisions.—*Scottish Farmer.*

The Science of Agriculture.

Among the many branches into which the advance of civilization has divided the pursuits of mankind, there is none more important in its relations to the welfare and existence of the human race than that of agriculture; yet there is scarcely one to which the term "science" is less generally applied. The practitioners of medicine, chemistry, and even of law, and students and devotees of the countless systems which are evolved by the constant attrition of modern ideas, claim the term as belonging to their distinctive professions, while that of the farmer is often spoken of, and, in fact, regarded merely as an occupation requiring little more than manual labor and a steady adherence to methods already established by usage and experience; but no belief could be more fallacious or more injurious to the true interests of the art of husbandry.

To gain, directly or indirectly, the greatest return from the soil, for the least outlay of labor, is the primary object of farming; and this object can be perfectly obtained only by a judicious use of natural and organic forces, the knowledge of which constitutes "science" in its broadest sense. From the first bursting of the seed to the yellowing of the harvest, the plant is subjected to the active agencies of heat and moisture, as well as to that exerted by the character of the soil; and the influence of these agencies can be fully understood and made available only by an acquaintance with some of the greatest of modern discoveries. So, in like manner, the care of stock involves some of the most important axioms of physiology; to effectually remedy the ravages of insects there is required a knowledge of entomology; while the almost universal introduction of machinery into farming operations necessitates a by no means inconsiderable familiarity with the principles of mechanics. Not only these, but many other branches might be enumerated, a knowledge of which is requisite to the most successful farming; and which, molded into a whole and directed to a common object, constitutes the science of agriculture—a science which, like every other, has grown up by slow gradations from comparative rudeness, and is still capable of indefinite progress. That this progress must result directly from the efforts of the farming community itself is undeniable, and that it must arise from the careful and extended application of scientific truths to the every day affairs of farm life is equally beyond a doubt, for there is no more potent or unerring agent than hard, practical common-sense, guided by a competent understanding of the laws of nature; and the most obvious field of improvement is not more in the adaptation and employment of the best known methods of performing the varied duties of the farm and the use of the most favorably known machinery, that in the improvement of such methods and machines in their details and minor points, so as to adapt them more perfectly to particular purposes and to the special wants of different localities; and such improvements are far more likely to arise from the active brains of the scientific farmer than from that of one who regards his profession as a simple and unpretending occupation. None are so likely to adapt their crops to the quality of the soil as he who has made the nature of that soil a study; and none so apt to apply the proper manure at the proper time and in the proper manner as he who has made himself familiar with the composition of fertilizers and their effects upon different plants. No man is so likely to make a really valuable improvement in an agricultural machine as the farmer who, while using it, sees its defect, and possesses the mechanical skill and training to originate and construct. It is, in fact, from the efforts of men like this that the real advancement of agriculture must be derived; and by further improvements in the management of crops and of stock, in machinery and in manure, farming will be brought to claim its true dignity, and become in name as it is already is in fact—a noble science.—*American Artisan.*

☞ A horse has been imported into New Jersey from Belgium, which is said to weigh 2368 lbs., and to be twenty hands high.

Cost of Lamb and Mutton, Veal and Beef.

Our prospects of meat supply for the winter have been damaged, so far as they depend on home sources, by the protracted rains of August, and especially of September, which have seriously reduced the root crops for winter provender. We have learned, however, from experience to look abroad, and to fill our larders from the shiploads which the Dutch, Belgian, Baltic, and French ports are ready to discharge upon our coasts. It will be remembered how, in 1866, when the rinderpest was at its height, and, owing to the then absence of efficient regulations, the panic which it inspired was greatest, the price of meat was by importation reduced as low or lower than it had been in 1865, save for the finer qualities of mutton. There seem to be some reasons for now reopening the question, which, owing to the extortionate prices of butchers in London, reached a paramount interest last year.

In taking stock, however, of home resources, or, indeed, of the resources of any grazing country, there is a point of economy to which we wish to direct attention. The common practice of butchers, and probably graziers, is to charge high for lamb, and proportionally low for mutton. Lamb, being esteemed a luxury, is charged according to the price which people are willing to pay, rather than in proportion to the cost of keep and outlay on the animal. A lamb which has been let grow six months has perhaps cost 6d. per week, or 13s. has gone into his carcase during the half year. He will then weigh, say, six stone (butchers'), and sell for 6s. the stone; that is to say, the outlay of 13s. has produced a return of 36s., or a profit of 23s., being 177 per cent. Let him go, on the other hand, for three months more, and his keep will have risen from 6d. to 9d., or 10d. per week. He will have cost in all about 24s., will weigh nine stone, and sell for 54s., or 125 per cent. profit. Under these conditions it will be seen that the profit has fallen 50 per cent. by grazing the animal three months longer. In the same way, calculating his keep after nine months at 1s. per week, if that expense let run on for nine months more, the animal slaughtered at 18 months will have cost a little over 62s., and may be estimated to weigh 112 lbs., and to fetch 84s., yielding a profit of 21s., or hardly more than 30 per cent. These figures seem to show that, viewed as a matter of avoirdupois and hard cash, the creature has been simply "eating his head off" ever since he was six months old. The same reasoning will hold good as regards veal as compared with beef, the rather as beef is not considered mature till three years old. Veal, however, seldom differs from beef in price so much as lamb differs from mutton. The prices at which we have set the stone of lamb or mutton are indeed "topping" prices, but they are equally so all along, and therefore that consideration does not affect the result arrived at on the whole. The proportion of profit will be manifestly the same.

As a set-off against the apparent advantage of consuming lamb instead of mutton, there should be taken into account the value of the fleece in shearing. Putting this, however, as high as it can reasonably be put, it can go but a little way to balance the exceedingly rapid rate at which the expenses of grazing tend to diminish the grazier's profits on the adult animal. Some would perhaps contend that there is a greater incidental value in the manure of the adult animal than in the case of the lambs which under the system of slaughtering would represent him. The experiment has not probably received sufficient attention, or been tried on a scale sufficiently extensive, for any opinion to be confidently pronounced upon the question. Assuming, however, that from the value of the fleece, and from any supposed advantage in manuring, the profits on the sheep of 18 months were doubled, or that 60 per cent. profit were realized upon the whole results, yet even this, which, we think, must be allowed to be a tolerably liberal margin, falls far below the 177 per cent. at 6 months, or the 125 per cent. at 9 months, which we have shown may be expected on an exclusive system of lamb-grazing.

The conclusion at which we arrive, then, is that a pound of lamb can be produced for very much less cost than a pound of mutton, and that the continued grazing by which a lamb of 48 pounds is transformed into a sheep of more than double that weight, would be far more economically applied in producing another lamb, or rather a lamb and a half, in the same time. The grazier's problem is simply to produce the maximum of meat from the minimum of food, and he finds his account in bringing to market the greatest weight of edible flesh for the expenditure which he is obliged to make in grazing. If there is any truth in the figures which we have adduced, our sheepmasters go out of the way to diminish their own profits. Instead of "following nature the best guide," as a wise ancient habit, they adopt an artificial standard and neglect a truly economic system; and the result is the same as if so much herbage, root crops, &c., as represents the difference between the profits on a sheeep and the profits on two-and-a-

half lambs were burnt, or thrown into the sea. It further follows that we habitually pay the butcher for lamb and mutton in somethiug like the inverse ratio of the cost of their production. It is old meat which should be dear and young meat which should be cheap, if the value expended upon the animal ruled the market price demanded. It may, of course, be answered that, by taking one with another, the total result of the transactions upon a whole flock balances any such seeming disproportion in detail. And if the question were merely as to the relative adjustment of prices, the existing system remaining as it is, this might be a sufficient answer. But it is further obvious that the consideration of the comparative scarcity of lamb in the market enters into the question of the fancy price which is put upon, and paid for it. That which might be plentiful and cheap is made artificially scarce, and consequently dear: and the artificial price thus kept up for lamb is therefore worth dwelling upon as a specimen result of the whole artificial system. As regards the figures themselves we feel some confidence in their accuracy, as they are based on the experience of some of the largest Wiltshire sheep-masters. And although they might probably require some correction for other districts, yet we cannot think that any such allowance on this score would be required as seriously to invalidate the conclusion to which they point.—*London paper.*

Oxen and Horses.

The comparative value of oxen and horses for farm labor is not so well understood as it should be by our Western farmers. We were brought up among the granite hills of New Hampshire, where little or no agricultural labor is, or ever has been imposed upon the horse. The ox is the universal beast of burden for farm labor, while the horse is, in the main, only used as a roadster. We have seen enough, both East and West, to establish the economy of a more general use of oxen on the farm, here at the West.

A farmer friend gives us some statistics in regard to the labor performed by a single yoke of oxen, which should interest every farmer. His experience is conclusive, that the ox, well taken care of, is equal to the horse for the purpose named. He says:

"I am satisfied that such is the fact, from the amount of labor performed by a yoke of oxen I have had during the past summer. They plowed 53 acres of land, only six of which were old, or land in crop the previous year, the balanee being heavy sward land, broken deep, nine to twelve inches, and well laid over. The dragging was, most of it, performed by them, with a 32 tooth harrow, being assisted, a part of the time, by a pair of three year-old steers. The breaking was done with two and three-year-old steers to assist the oxen (one pair of each) and sometimes with a pair of horses instead of the steers. The oxen, however, travelled every furrow with the plough, and did more than three-fourths of the whole dragging, much of it being done in hot weather. They now weigh 3096 pounds. In addition to all this work they drew all the hay and grain, and performed much other work.

The keeping, during the spring months, was hay and three pecks of rutabagas each per day; after the roots were gone, twelve quarts of oats with hay fed regularly, and watered three times per day. They were tied up in the stable with as much regularity as the horses, and the yoke taken off at noon to rest them. When grass became of good size, so they could fill themselves in an hour or so, no grain was given, and they continued in good health and spirits. Whereve and whenever oxen are used, they generally do most of the hard work, while the horses get the lion's share of the grain. I am well satisfied that the ox, for agricultural labor, is underrated, because he is unfairly dealt with."—*Iowa Homestead.*

Dutch Cows.

The editor of the *New England Farmer* recently visited the farm of Mr. Chenery, near Boston, where he saw some of the Dutch cattle imported by Mr. C. He gives the following account of what he saw in the stables:

Entering the stalls we found a man milking one of the Dutch cows. She had been milked *twice* before during the day, and while we stood by he filled a common water pail and commenced upon another, the milk still flowing as freely as it did into the first pail! A cow stood near that had dropped a calf a few days before, which weighed at birth 113 pounds! And another brought twins which weighed at birth 153 pounds! A three or four-year-old heifer stood by for which Mr. C. had been offered $1200 and declined it! All were as splendid specimens of cows as we ever saw. Two noble bulls of the same breed, large and of most exact symmetry, were also present. Their weight must be some 1700 pounds each.

What is the difference between a summer dress in winter and an extracted tooth? One is too thin and the other tooth out!

Stying and Feeding Pigs.

At a Farmers' Club meeting in Ireland, a speaker said, "Pigs require dry floors, fresh air and cleanliness. Foul air encourages diseases; cold air consumes food in making heat, that ought to make fat. It would not be practicable to put in a growing store to take fat, nor would it be judicious to put in a coarse dwarf to make a good bacon hog. You must have a full-grown, fair-conditioned animal, possessing at least some of the principal points to which we have already alluded, and with this and proper attention, it is not easy to conceive the rapidity with which a pig will fatten. There should not be more than six kept in one sty. The farmer has five principal ingredients for this purpose, viz., grain, potatoes, Swedes, mangels and cabbage. The roots well boiled and well bruised, the grain also well boiled—take equal parts of Indian and oatmeal, and any of the grains mentioned you may have. as crushed beans, peas, vetches, rye or barley, with a little pollard and salt, made in thick gruel, added to the roots, and left to ferment and sour, and always given in a lukewarm state at regular hours three times a day. The less excitement or annoyance the better, and a desire for sloth and sleep encouraged by watching his comforts, and the words made applicable that are sometimes used with some easy-going and quiet dispositions:

"To eat and drink and sleep: what then?
To eat and drink and sleep again."

The Weight of Cattle.

The Canada *Farmer* in reply to a correspondent says: Many experiments have been made by graziers and salesmen to ascertain the net weight of cattle by measurement, and a number of rules and tables have been formed of the results obtained. None, however, can be regarded as absolutely correct. With the most accurate measuring is required a practical acquaintance with the points and forms of the animals, and allowance must be made according to the age, size, breed, mode and length of the time of fattening, etc., conditions which requires a practical eye and long experience to appreciate. We have found the following method to lead generally to trustworthy results: Measure carefully with a tape line from the top of the shoulder to where the tail is attached to the back; this will give the length. For the girth, measure immediately behind the shoulder and fore legs. Multiply half the girth by itself in feet, and the sum by the length in feet, and the product will give the ne weight in stones of eight pounds each. For example, with an ox or cow five feet in length and seven feet in girth the calculation will be as follows:

Multiply half the girth by itself in feet.....	3 5 3.5
	12.25
Multiply by length in feet.....	5
Weight in stones.....	61 25
Multiply by 8, (No. of pounds in a stone,)....	8
Weight in pounds.....	490.00

Tobacco Prospects in Virginia.

In regard to the efforts made in Virginia by farmers to retrieve their fortunes by cultivating tobacco, the Danville (Va.) *Register*, says:

The farmers have labored constantly and faithfully by it, from the plant beds to the barns, and thousands of them are now keeping nightly vigils over their fires and psrt of their treasure, guarding and seasoning it with the most tender care. But the larger portion of the crop is yet upon the hill, sweetening and mellowing in these warm September suns. Under a favorable Providence our industrious farmers will soon have their hopes crowned with fruition; their pains and labor rewarded with the well-earned price.

The *Register* is jubilant over the prospect of a revival of prosperity in that section of Virginia, and says:

Danville ought to, and no doubt will, manufacture the most of it for distant markets, and if so, the business of tobacco manufacturing in this place will employ a vast deal of labor and capital next year. A gentleman well acquainted with these things, says it will take two hundred thousand dollars to pay for the labor in the tobacco actories of Danville the coming year.

THE FORESHADOWING OF RAIN.—Just before rain flowers smell stronger and sweeter, because the vapors of the air prevent the scented particles of their perfume from ascending, as they would in a drier atmosphere. Instead of rising above the earth, the odor is disseminated by the moisture. Because the plants are stronger in fragrance just before a fall of rain, we see horses stretch out their necks and sniff the air in a peculiar manner. Animals are more observing than men, and nature speaks to them in a silent manner. They thus are able to prognosticate the coming storm with unerring signs, while man stands bewildered and lost in doubt.—*Turf, Field and Farm.*

Butter Making.

In the New York butter market the Orange county product holds the highest rank and commands extreme prices always. Its excellence is, in some measure, to be attributed to the superiority of the pasture lands of that region over most, if not all, other sections of the State, but more particularly, perhaps, to the greater care and attention bestowed upon the manufacture of the butter and its preparation for market. The numerous springs of soft and cool water gushing from the hills in Orange and contiguous counties, afford admirable sites for spring-houses—a great and important aid in the manufacture of butter—an advantage that the western section of the State is but partially possessed of. In the process of manufacturing it is presumed there is but little if any difference between that pursued in Orange county and other sections. In hot weather, after the butter is salted and worked over it is taken to the spring and immersed in the water, where it remains during the day, when it is worked and packed. For winter butter a small teaspoonful of pulverized saltpetre and a large tablespoonful of white sugar are added for twenty odd pounds of butter at the last working. As a general thing no coloring matter is used in factory butter. The working is done on an inclined slab with bevelled sides running down to the lower end, and within four inches of each other, at which point a wooden lever, fitted into a socket, is attached as a working instrument—performing the office of the butter ladle. The firkins for packing are of white oak, carefully and neatly made, and well soaked in cold water before being used. When filled they are headed up, and strong brine poured into the top—a hole being made for the purpose—filling up any empty places that remain after packing. Thus prepared it is ready for market.—*Rural New Yorker.*

Poultry.

The value of the poultry and eggs raised in France annually, is $20,000,000, and in England only $4,000,000. In this respect we are doubtless far behind our French cousins. The English climate is against them, but ours is doubtless as favorable as that of France or any other country.

Many good farmers seem to suppose that poultry and a garden are inconsistent, and yet a little expense in fortifying the garden fence with pickets, or a few laths, will remedy that at once. In cities, hens may be kept confined, but this is not the profitable method. Give them a wide range for grass and insects, and you will find no investment pay half so well, and for this very reason, if for no other, that by their means so much valueless matter, combined with a little grain, is converted into the choicest human food. They need warm quarters and low roosts, and a place for roosting devoted to themselves where they will be undisturbed. In raising chickens we should notice that it is wet that destroys more than all other causes, especially is this the case with turkeys. The best plan we have tried is to confine the mother bird inside a house or shed with a lattice which allows the chicks to go out. But this they are not allowed to do until the dew is thoroughly dried off in the morning; not at all when it rains, until they arrive at the age when they become sufficiently strong.

Young turkies should be fed the curd of lobbered milk cooked rather hard, and young chickens, scalded Indian meal. In all this there is a good deal of trouble, and a great deal of profit. It should be remembered that after all, a great item of the profit of farming is summed up in the item, "support of family," and that all these little matters of which poultry and eggs form so important a part go a great way towards that end.—*Utica Herald.*

Fattening Fowls.

All summer long the farmer and his family have fussed with the poultry; the young chickens and turkeys need care in the long rain storms and protection against nocturnal depredators. Just as they are fully grown out of danger, the shrewd huckster makes his appearance, buys, fattens, and prepares them for market, and pockets the profits for his smartness.

Obviously the farmer had better fatten his fowls and send them to market himself. He can do it with less trouble, perhaps, than he imagines. Feed liberally at all times, so as to keep them growing thriftily, but about twenty days before being slaughtered feed them in this way: Make a coop for one dozen fowls; more should not be put together. The coop should be three feet long, two feet wide, and two and a half high. Make the sides and ends of bars about three inches apart, the bottom of round poles two inches apart, the top of a board. Place this in a comfortable room, elevated two feet from the floor in the barn or poultry house, where the cold winds will be kept away, and where the light will be dim. Attach feeding troughs all around the outside. Commence feeding very light, giving little but water the first day. Then feed regular three or four times per day with the richest food, as oat meal mixed with milk, boiled barley or corn. Observe the utmost cleanliness, and give a supply of fresh water. In twenty days the poultry should be killed, and for such the farmer would find plenty of greedy buyers, willing to pay the highest price.—*Rural New Yorker.*

The American Farmer.

Baltimore, December 1, 1866.

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BALTIMORE.

Maryland State Agricultural Society,

For the Promotion of Agriculture, Horticulture, and the Mechanic and Household Arts.

A number of gentlemen met together on the 14th of November, on the call of John Merryman, Esq., President of the old State Agricultural Society, to take into consideration the organization of a new Society. We were pleasantly impressed with the reunion there exhibited, and reminded of "the good old days" of the past, when white men walked about free in Baltimore, and were generally allowed to be masters of the situation. This gathering of the true men of Maryland for the peaceful purposes of getting up a State Agricultural Society gave us the most realizing sense we have yet had, that Provost Marshal Fish is safe, with other thieves, in the New York Penitentiary, and that Gen. Grant, at least so far as Maryland is concerned, has really "bottled up" Gen. Butler. Indeed the General-in-Chief is on such pleasant terms with us, that he comes over to give us his friendly advice in our little family jars, and they being happily settled, comes again to our Horse Fair to see the races. We are sure the *American Farmer* has interest enough with James Young, Esq., President of the Board of Police Commissioners, to have an order issued that he shall not be arrested for "fast driving" through the streets; we would give him this evidence of our appreciation of his kind offices.

But to return, not exactly *a nos moutons*, as the French say, but to our own keepers of flocks and herds, our Maryland farmers, who have come together in the spirit of the old times to consult for the good of the great foundation interest of the State. The Convention was presided over by Allen Bowie Davis, Esq., of Montgomery county. In a remarkably appropriate and happy address, which we hope to be able give our readers, he stated the object of the gathering, and urged an energetic effort to establish the Society on a permanent basis. He alluded to the convention in Baltimore many years ago for organizing the old Society, in which so many of the best men of Maryland took part, made special remark of the laborious and successful services of the first President of the Society, the late Charles B. Calvert, Esq., and of the late Judge Glenn, of Baltimore, who presided over the convention. When Mr. Calvert was in doubt about issuing the premium list for the first Cattle Show, Judge Glenn settled the matter by that high-handed liberality for which he was noted, and guaranteed funds to meet any amount of loss.

Gen. Tench Tilghman, formerly President of the United States Agricultural Society, and T. C. Peters, Esq., an ex-President of the New York State Agricultural Society, now settled in Maryland, in the course of the evening, made valuable suggestions as to the government of the Society, and especially as to the importance of having an Agricultural Hall in Baltimore, and a permanent Secretary with a liberal salary, who, like the able and now venerable Secretary of the New York Society, should give his whole attention to the duties of the office.

Ross Winans, Esq., whose eminence as a machinist has for many years been recognized throughout the country, and who is, as well, an enthusiastic farmer, stock grower, and fruit grower, was unanimously elected President of the Society. The other officers were as follows: Vice Presidents—Col. Billingsley, of St. Mary's; Dr. R. S. Stewart, Anne Arundel; Colonel A. Bowie Davis, Montgomery; J. Howard McHenry, Baltimore county; Dr. W. H. DeCourcey, Queen Anne's; C. B. Calvert, Prince Georges' county; Ramsey McHenry, Harford; W. M. Knight, Cecil; J. W. Jenkins, Charles; D. C. Blakiston, Kent, W. J. Aydelotte, Worcester; John Lee Carroll, Howard; Wm. Devries, Baltimore city; Col. E. Lloyd, Talbot; Wm. Dodge, Washington; Dr. S. P. Smith, Allegany; Dr. G. R. Dennis, Somerset; Col. George R. Dennis, Frederick; S. T. Brown, Carroll; Col. Jas. Wallace, Dorchester; T. B. H. Turner, Calvert; Daniel Field, Caroline. General Sec'ry—B. H. Waring, Corresponding Secretary—E. Law Rogers, Executive Committee—James T. Earle, Col. E. Wilkins, Gen. Edward Shriver, Col. Oden Bowie,

E. G. Ulery, Chas. M. Dougherty, N. B. Worthington, Ezra Whitman, John Merryman.

A committee consisting of A. Bowie Davis, James Pentland, and Charles M. Dougherty was appointed to inform the President of his election.

Messrs. John Merryman, Wm. H. Purnell and George R. Dennis were appointed a committee to obtain a charter from the Legislature. The thanks of the society were returned to the chairman, and on motion the meeting adjourned.

Garlic, Sorrel, and Ox-Eye Daisy.

A correspondent in Clarke county, Va., asks: "What is the best mode of getting rid of the garlic or wild onion? Will grazing close destroy it? I have a quantity of it to contend with, and pulling it up seems to be an endless job."

Garlic, with many other pests of the farm, gives way, usually, before good cultivation, and the attendant occupancy of the ground with clover and cultivated grasses. *Sorrel*, which is so great a bugbear, and upon the destruction of which volumes have been written, is not the enemy so many take it to be. It occupies ground which is on some account unsuitable or unfriendly to the growth of a better class of plants, and is a plain indication of that unsuitableness. It may be excess of water, or want of thorough ploughing and exposure to the action of the air, or want of lime, or some other fertilizing element. Whatever it may be, and whenever the remedy is applied, the sorrel gives way to cultivated plants. It does not of itself drive or keep them out; it occupies till the circumstances become favorable to their holding possession.

The famous pest, the *Ox-Eye Daisy*, or *Carolina Pink*, is thought by most persons to be ineradicable. An enthusiastic friend once undertook to get it out of a favorite lot of a few acres, by hiring a large number of children from the neighboring village to pull it out by the root, and declared as the result that for every plant pulled out, a thousand new ones followed. In the month of June how many thousand of acres of our arable land are snow-white with the weed. Yet this evil which is tamely submitted to from ignorance, or indifference, may be surely subdued by a few years of steady, thorough cultivation. Put the land gradually into condition to produce heavy crops of clover and orchard grass, and take off these crops in proper time before the weed seeds, and it will soon succumb. Or even with the timothy crop, whenever the land is brought to a degree of fertility that will yield two tons of hay, it will not be long in the way. In the meantime, it is a satisfaction to know that the stems cured into hay make an acceptable fodder to some sorts of stock.

With regard to *Garlic*, a correspondent of *The American Farmer* wrote some years ago, that the lands of Chester county, Pa., were many years ago, very much infested with it, and now entirely rid of it, wherever it had been improved by lime or other means, and made to produce luxuriant crops of clover.

The late G. M. Eldridge, Esq., of Cecil county, one of the most intelligent farmers of the State, said to us: "I well remember when it was difficult to find butter in the Philadelphia market, made from upland pasture, that was free from the taste of garlic; now, I understand it is rarely to be met with." Mr. E. then goes on to say that thirty years ago, the lands around Philadelphia were as poor as any of the lands in Maryland. About that time the system of improvement commenced, and with it the destruction of the garlic. "This may have been in several ways: garlic like the garden onion is a biennial, when permitted to go to seed, as the root or bulb then dies; hence when land is improved to grow good grass, and that not pastured too young: the cattle when biting off the grass must also take with it the seed stalk of garlic. The same takes place also in mowing. Once cropping, or mowing, however, will not destroy it; for if you examine the root, you will find a number of cloves around, and attached to the principal bulb, each I believe next year capable of putting up fresh stalks. But by cutting or grazing them off, several years, after the seed stalks are formed, I believe they may be destroyed. But pasturing before the stalk is formed, I do not think will ever destroy them. It must perform the work of reproduction before the bulb dies, or it will remain perennial."

We can only, therefore, suggest the general method of getting rid of all these weeds, by such improvement as will occupy the ground with valuable plants, and cause it to be submitted to a course of thorough culture. We have no special modes to offer our correspondent to get rid of his garlic, but assure him that "pulling it up," will not pay.

Replies to Correspondents.—Inquiries from correspondents on agricultural topics do not, sometimes, receive direct replies, because the points inquired about, sooner or later, are treated of in the general matter of the paper. Several of these, however, with reference to use of lime, gas house lime, and difference in value between stone and shell lime are this month crowded out.

Landlord and Tenant.

The following letter from Allen Bowie Davis, Esq., opens a subject which must become, necessarily, of abiding interest in the old slaveholding States. Nothing is better settled than that landholders will not sell except upon compulsion. A great many must sell, but all who can, will hold on to their possessions of lands. But they cannot work them as heretofore. They cannot, if they would, have large gangs of laborers, who, under their own direction, with the help of overseers, will till broad fields. All this is past. The land owner will satisfy his own love of his pursuit by confining himself to fifty or a hundred acres, more or less, according to circumstances, and the remainder will be put into the hands of tenants. This will be the general result.

The matter opened then by Mr. Davis is one of great importance in its bearing upon the future prosperity of the slave States, and the suggestions he here makes are timely and wise. Everything in such a system depends upon the character of the tenantry, and this will be ultimately very greatly affected by the treatment received at the hands of landlords. The tenantry of this country, generally, has been of the poorest description, chiefly because land has been so cheap, that only the poorest class of the population were not themselves landholders. But those who hold the land should deal liberally with their tenants, and, as Mr. Davis suggests, give them comfortable and even tasteful places of abode, and in all respects, as far as practicable, such conveniences and accommodations as they may require. The tenant should also be made to understand that his lease is to be a permanent one; that the property is to be, in fact, his home for life, if he fairly and faithfully fulfill his part of the contract. The long leases of English landholders are impracticable as yet, until we can be better assured of the character of tenants, and this is to be the work of time. In the meantime, everything should be done to make their occupancy permanent, and to increase their personal interest in the improvement of the property.

On the other hand, the tenant should begin, at once, to understand, that the wretched, skinning system, which has brought renters into disgrace, is to be stopped at once. He must learn to feel, and to make it appear to his landlord, that it is not his first object to get everything possible out of the land, and to put as little as possible back. He must show that he considers the landlord's interest his own, for it is his own true and permanent interest to care for, and improve the property. If mutual good will is set up between the two by fair and liberal dealing, the best results may be expected to the interest of both. But we have only designed to glance at this topic as brought to notice by Mr. Davis, and commend his views to the consideration of those concerned:

GREENWOOD, August 20, 1866.

Messrs. Worthington & Lewis:

GENTLEMEN: For my delinquency in not acknowledging the receipt of the first number, present series of the *American Farmer*, I send you enclosed six dollars for my own and two new subscribers. Address below.

These two new subscribers are my tenants, to whom I thought I could not render a better service than by furnishing them the instruction and entertainment with which your columns abound. This brings me to the important subject of the relations between landlord and tenant, now to enter so largely into the practice and policy of Southern agriculture. It is a subject which I desire to call to your attention, and to invite to its discussion your clear and able pen. The laws governing the subject, the principles which should control, and the practice, so far as it has entered into our system, are questions which undoubtedly will be interesting to your readers. I now have eight tenants, where, under the old system of involuntary servitude, I managed and directed myself. Sufficient time has hardly elapsed to form a just comparison of the relative advantages and profit of the two systems. Its discussion, too, would now be of no practical value, as the one is inevitably abolished, and the other, by the force of circumstances, fixed and unalterable. My experience, thus far, has taught me that it is to the interest of landlords to provide comfortable, and I would also add, attractive houses for their tenants, and also good stabling, and convenient farm buildings, as soon as practicable. This, I am aware, in many instances, and perhaps generally throughout the South, will entail a heavy tax upon landlords, but the sooner it is met, the sooner will they be able to command sensible, industrious and genteel tenants, and with such it ought to be the aim of every landlord to surround himself. In this they have the best guarantee for good farmers, and an active and intelligent co-operation for mutual benefit and improvement. I say *mutual*, because, in my judgment, both landlord and tenant should learn to look upon each other as tenants, in common, or co-partners in business. The terms between them should be arranged so that both can prosper, and find it

their interest to augment the productiveness, and improve the value of the land cultivated. Successfully to accomplish this, capital is necessary. In this it is to be regretted, tenants for the most part, in this country, are deficient, and the burthen falls upon the landlord. Thus, in addition to the funded capital in the land, the landlord has also to advance an undue proportion of the working capital. This augments his burthen and diminishes the interest the tenant should feel in the common stock.

But I find myself saying more than I intended, which was simply to call your attention, and that of your many intelligent correspondents to the subject.

With my congratulations upon its revival, and best wishes for a future of uninterrupted prosperity to the old *American Farmer*,

I am, truly yours,

A. B. Davis.

Book Table.

Diseases of American Stable, Field and Farm Yard. *By Robert McClure, Principal of Philadelphia Veterinary College.*—We noticed briefly last month the receipt of this work. It is a most valuable book, gotten up especially for the farmer, stock breeder, and amateur. We can safely recommend it as an able assistant in the treatment of stock. It does not agree with the common system of treating animals—is intended to include a familar description of diseases, their nature, causes and symptoms, the most approved methods of treatment, and the properties and uses of remedies, with directions for preparing them. It makes a volume of 400 pages, price $5.00. We give on another page the author's very sensible views on the healing powers of nature, and should have given further extracts, but did not get the book in time from a friend to whom we submttted it, as more capable than ourselves of forming an opinion of its merits.

War Poetry of the South. *Edited by W. Gilmore Simms, L. L. D. New York, Richardson & Co., 550 Broadway.*—The *imprimatur* of Mr. Simms is a guaranty of the literary merit of this collection of Southern Poetry. The book is a volume of nearly 500 pages, elegantly bound and beautifully printed. To use the words of the editor: "It constitutes a contribution to the national literature which is not unworthy of it, and which is illustrating the degree of mental and art development which has been made, in a large section of the country, under circumstances greatly calculated to stimulate talent, and provoke expression through the higher utterances of passion and imagination."

The American Journal of Science and Arts—*Conducted by Profs. Silliman & Dana, New Haven*—Contents of November number: William Rowan Hamilton; the Vowel Elements in Speech: Conclusive Proofs of the Animality of the Citrate Sponges; Caricography; Index to the Species; On the Oil producing Uplift of West Virginia: Remarks on the Drift of the Western and Southern States; New locality of Meteoric Iron in Cohahuila, Northern Mexico; On the Spectra and Composition of the Elements; Contribution to the Chemistry of the Mineral Springs of Onondagua county, N. Y.; on some new Manipulations; Experiments on the Electro-motive Force and the Resistance of a Galvanic Circuit; On the Spectrum of a new Star in Corona Borealis; On the Source of Muscular Power.

Ohio Agricultural Report, 1865.—We are indebted to Secretary Klippart, of the Ohio State Board of Agriculture, for this volume. It contains his own valuable report on the agriculture of Germany, with notes on the agricultural institutions of France, and French horses, the results of Mr. Klippart's travels in those countries in the spring and summer of 1865. We hope hereafter to give some interesting extracts.

We are indebted to Sandford Howard, Esq., for catalogue of officers and students of Michigan State Agricultural College for 1866.

Surry of Eagle's Nest; *or, the Memoirs of a Staff Officer serving in Virginia. Edited from the manuscript of Col. Surry. By John Esten Cooke. New York, E. J. Huntington & Co., 452 Brome street.* We have not had time to give this handsome volume a careful reading, but the title and the name of Mr. Cooke will commend it more strongly than any praise of ours.

Nameless. *By Fanny Murdough Downing. Wm. B. Smith & Co., Field and Fireside Publishing House, Raleigh, N. C.*—This book is superior to the great mass of matter for light reading, issuing from the New York press. The plot is well laid and well sustained, the characters admirably and distinctly drawn, and the style, clear, simple and elegant. It marks the authoress as a woman of genius, and of true, womanly culture and piety. It is in all respects a good book, and we regret that our limits do not permit us to speak more fully of its merits.

From the same publishers we have Lee's Last Campaign. *By Capt J. C. G.* A historical narrative of the final events of the war in Virginia.

Also, The Deserter's Daughter. A story of the war in North Carolina.

Also, Castine. A novelette of charming interest.

FROM RICHARDSON & CO.—We have their *Educational List* of important and valuable text books, for schools and universities, prepared by distinguished scholars and friends of education in the South.

THE WESTMINSTER REVIEW for October has papers on "The Irish Church," "The Apostles," "The English and their Origin," "The Abbe Lamenais on Dante," "The Canadian Confederation and the Reciprocity Treaty," "The Dog—his Intelligence," "Our North Pacific Colonies," "The Forrest of Fontainebleau, and the usual review of contemporary literature.

BLACKWOOD, for October, contains the continuation of "Sir Brook Fossbrooke," "Nina Balatka," and "Cornelius O'Dowd," and also "Concerning Salads and French Wines," "Light and Dark Blue," "Allison's History of Europe, 1815–52," and "Lectures on the History of the Jewish Church."

THE LAND WE LOVE.—This able Magazine, edited by Gen. D. H. Hill, at Charlotte, N. C., is getting we trust, the liberal support it well deserves. The November number, besides a great variety of other matter, has two excellent agricultural articles, "The Nutrition of Animals," and "Red Clover."

GODEY'S LADY'S BOOK, for November, is a good number, with beautiful engravings, and in its literary department well sustains the reputation of this old and very meretorious Periodical. Our lady friends can be thoroughly posted up in all the elegancies of dress and fashion through the Lady's Book.

THE MAILS.—A subscriber, writing from the neighborhood of Newbern, N. C., expresses disappointment that he has failed to receive our October number. We can only say to our friend, and to others who have the same complaint to make, that it is no fault of ours. Every subscriber's paper is properly addressed and punctually mailed, but, we are sorry to say, there are too many instances of failure to reach their destination, especially when directed to North Carolina. It can be only the fault of the mails, but how it is to be remedied we do not see.

DRESSING POULTRY FOR MARKET.—Messrs. Halstead & Putnam, Produce Commission Merchants, New York, inform us that the article in our November number on dressing poultry, credited to the *Canada Farmer*, was first issued from their house, and send us their circular containing directions for putting up various articles of country produce for the New York Market, from which we will hereafter make extracts.

The Maryland Horse Fair.

An association under this title with John Merryman, Esq., as President, held its first exhibition and trial of speed beginniug on the 13th day of November, on the Herring Run race course. The occasion brought together some of the most celebrated trotting horses of the country, *Dexter, George M. Patchen, Silas Rich, Dan, Sleepy Davy, Ned Forrest, Lady Guilford, Warrior, Maryland, Belle of Baltimore, Hector, Flyaway, &c.* No betting was allowed, the best order was preserved throughout, and everything, so far as we can learn, went off well. We give the result of the trials of speed as follows:

FIRST DAY—FIRST RACE.

Purse $250, mile heats, best three in five to harness:

Br. h. Ned Forrest	1	1	1
B. m. Lady Guilford	distanced first heat		
G. h. Warrior	distanced second heat		
Br. m. Maryland	distanced second heat		
B. m. Belle of Baltimore	3	3	3
Br. h. Hector	2	2	2

Time: 2.36½, 2.36, 2.36½.

SECOND RACE.

Purse $200, mile heats, best three in five to harness:

B. m. Lady Warwick	1	2	2	3
Dun. g. Sleepy Davy	0	1	1	1
Bl. s. Flyaway	0	0	0	0

Time: 2.38½, 2.38½, 2.38, 2.37.

SECOND DAY—FIRST RACE.

Purse $500, double teams, one mile and repeat, to wagons:

Lady Guilford and Hector	1	1
Belle of Baltimore and Baltimore county Maid.	2	2
Bill and Sam, (withdrawn.)		

SECOND RACE.

Premium $4000, free for any horse, mare or gelding in the world; $1000 to the second horse, $500 to the third, best 3 in 5 to harness:

Br. g. Dexter	1	1	1
S. s. Silas Rich	2	2	2
Br. s. G. M. Patchen	3	3	3

THIRD DAY—FIRST RACE.

Premium $200 for colts of 5 years and under, mile heats, three best in five, to harness:

B. c. Whitefoot	1	1	1
B. f. Estella	2	2	2
Bl. c. Frank, Orrick,	Withdrawn.		
Br. f. Mary	Over age.		

Time: 3.06½, 3.18, 3.02.

SECOND RACE.

Premium $2000, $500 to the second horse, free for all horses not in the larger purses, three miles and repeat, to harness:

S. g. Silas Rich	1	1
Br. s. George M Patchen	2	2
B. g. Dan	3	3

Time: 7.57, 8.02.

Of the fourth day's proceedings, we give the following account from the report of *Daily Sun:*

The horses took position, Flyaway at the pole; Warwick second and Davy outside. They got off well, but soon Davy drew ahead, which position he maintained to the close, making the mile in 2.39¼; Warwick second and Flyaway third. In the second heat, with Davy at the pole, a good start was had, and a closer race ensued, the horses throughout keeping very close together, Warwick coming in winner by a length in 2.35¾, Davy second.

In the third heat Warwick had the pole, and an exciting race was had, the rush down the home stretch, at the close, being desperate, Warwick and Davy passing the judges' stand almost neck and neck, in 2.36—Flyaway trailing. The heat was declared dead by two of the judges, General Grant being of opinion that the heat was won by Davy. In the fourth heat, Warwick at the pole, Davy broke badly immediately after the start, and did not fully recover throughout the heat.

The contest was close between the mare and Flyaway, the former winning by a length in 2.38½, Davy narrowly escaping being distanced. In the fifth heat a good send-off was effected, and the friends of Sleepy Davy were sanguine of his success. The race was close to the half mile, when Lady Warwick broke, losing ground considerably, and falling behind Flyaway and Davy, the latter coming in a winner by half a length, amongst the shouts of his admirers, in 2.40, Flyaway being second. The latter, not having won a heat in five, was, under the regulations, ruled out by the judges, the contest thus narrowing down to Davy and Lady Warwick, the odds on the track being one hundred to eighty in favor of the former.

In the sixth and last heat the horses got off well, Davy having the pole, the mare ahead to the half-mile pole, when she broke, but getting down again, got the lead of the home stretch, apparently determined to win, but Davy not being very sleepy, crept up, and crossed the line ahead by two lengths, in 2.39, winning the heat and the race. He was immediately surrounded by his admirers, who lavished all kinds of praise upon him.

The Dexter race took place between the second and third heats of the preceding race. The famous horse was brought on the track to trot to saddle against a running horse to beat his unrivalled time of 2.18. This magnificent animal was ridden by Bud Dobell, and appeared to be in splendid condition, extoriing expressions of admiration fsom General Grant and other admirers of fine horses.

After some delay Dexter got off well, closely followed by the running horse, trotting the mile without a break in 2.27¼. A second trot was made, Dexter making the half-mile in 1.09, but broke shortly afterwards, and came home in 2.24½, which, considering the raw weather and heavy track, is said to be extraordinary time.

Our Correspondence.

The tenor of our correspondence, in its kindness of expression, and the hearty cheer with which it gives us encouragemant, may be thought somewhat monotonous. For the sake of variety, as well as for candour sake, we show the other side. Indeed we are not willing to miss the fun, of exhibiting to ardent Southern friends, some of the cool, refreshing qualities of our self-elected critics. Here is a specimen from a man, who, it will be observed, is not a subscriber, and has never been, but writes out of the mere overflowings of his self-sufficiency and impertinence. He thinks it a part of his mission to lecture the *American Farmer* gratis. The gravity of our offence in the article alluded to, was, that we took in vain the names of Hon. Thaddeus Stevens and some of his compeers, and did not speak with due respect of the late John Brown, who was righteously hanged by 'the neck by Gov. Wise. If we could exhibit the manuscript of this writer, *literatim et spellatim*, it would add richness to the suggestion about school-masters and mistresses:

PHILADELPHIA, Oct. 9, 1866.

EDITORS OF THE FARMER: I was out in Chester county, this week, and picked up your paper which had been sent as a sample, and, after reading it, observed I was very much pleased with it, and should subscribe for it, as the articles seemed better adapted to our wants than some I was taking. Having a farm in Kent county, Delaware, one of my friends asked me if I had read an editorial on "Homes," I said, no; he read a part, and I was surprised I took the paper, and read the article, and I must confess that to find such a mixture of sense and nonsense, proper advice, and really wicked suggestions, from the centre of Baltimore is astounding. If you will make such selections as are in your August number, and write nothing yourselves until the writer of that article arrives at age, and can write for readers of good, common sense, your paper will do; but don't send any more north until that is the case, and if your Southern readers want such food as that article

supplies, then in mercy, stop all papers and send schoolmasters and mistresses and fit them to judge for themselves, for with such leaders their condition will continue to be miserable.

Respectfully,
E. HUNN.

A philosopher who hails from Lincoln, London county, Va., enjoyed the courtesy of our columns in years past, in giving the world some lessons of wisdom on topics agricultural. He was tendered likewise the courtesy of a free copy of our paper, which he did not decline. These courtesies being now renewed, as he says, we might have anticipated a civil response from a "Virginia gentleman," but our correspondent being a philosopher, (natural,) and a free quoter of Scripture, does not see the necessity of being a gentleman too. He writes us, at large, through two closely written pages of his fool's-cap, doing, all the time, various damage to the Queen's English, in the several circumstances of its Orthography, Etymology, and Syntax (An editor should no more be abused in bad English, than a soldier shot with a rusty pistol.) He classes us with "Secessionists," "State's Rights men," and other wicked people, says our "conduct has given the lie to our professions," that "the hope of the hypocrite, (meaning ourself) shall perish," that "Divine justice will give every one their (his?) due," and proposes to be its pious instrument on the *American Farmer*. Our correspondent, it seems, met with losses by the war "to the tune of thousands," which is a sad thing to think of, seeing nobody else lost anything, and will not support the President's policy or make any terms, with those who "caused the losses," "without having some evidence of repentance."

We solace ourselves under this infliction, with the words of cheer of a Christian gentleman, on the opposite shore of the Potomac, in Frederick county, Md.:

EMMITTSBURG, MD.

MR. EDITOR: I am very glad to see again the "American Farmer." I have received the three last numbers, which I have found very interesting and instructive. Every farmer or tiller of the soil should be a subscriber—if he wishes to conduct his business surely and profitably.

I am but a small farmer, having only 50 acres of land, yet I find, in every number of your valuable monthly, instruction and information, worth a year's subscription.

I enclose you two dollars for the year's subscription. Very respectfully,

JAMES D. HICKEY.

G. W. G., Memphis, Tenn., who has kindly added several names to our list of subscribers, says: R. G. C., Esq., takes great interest in the *Farmer*, and will exert himself in its behalf. Please send us a number of specimen copies for distribution. He will take his commission in extra numbers to be distributed to get more subscribers. We are determined you shall be patronized.

W. T. T., Charlotte C. H., Va.—I send you two dollars for the *American Farmer*, for whose welcome presence I return you my sincere thanks. I have ever had a particular regard for the success of your valuable paper, as I am one of the old subscribers when under the control of the late lamented Mr. Skinner. I had the pleasure of forming the acquaintance of Mr. Worthington, one of the present proprietors in the city of Baltimore, in 1835, when he first became a partner in the paper, and under whose direction it has done such valuable service to the agricultural interests of our country.

Prof. W. H. D., Greensburg, La.—A friend was so kind as to lend me a copy of your most excellent magazine. I read it carefully, came to the conclusion it was the best agricultural publication I had ever seen, and hasten to transmit to your address, two dollars.

J. T. D., Thomastown, Leake county, Miss.—At the close of the war I was left so poor, that I concluded I could not indulge in luxuries. Though I thought of you, I had not the courage to enclose two dollars, I find so many places for the application of this small sum. Yet your kindness and liberality in sending the three numbers without hearing from me at all has triumphed, and I have no doubt all of your old subscribers will sooner or later respond in the same way. Our farmers should rally to the support of the old *American Farmer*, as to that of the old American Constitution. Some publishers have made a mistake in dropping some of their *very old* subscribers, supposing that everybody South was hopelessly poor, or could not be trusted. I hope soon to send you some subscribers.

W. L. W., Loretto, Va.—Permit me to return you my sincere thanks for numbers of the *Farmer* sent. It was most cordially received as old friends always are.

S. H. B., Charlestown, Va.—Pardon me for not having sooner acknowledged the receipt of your very valuable and highly interesiing paper. It was with real pleasure I looked upon the face of my old familiar friend. There is no periodical that I read with so much pleasure and profit. I think I can send you some new subscribers before long.

W. S. K., Brunswick City, Va.—Two numbers of the *American Farmer* have been handed me by neighbours. Although I have never been a subscriber to that valuable work, my earliest recollections are associated with it, and it was so long the only agricultural publication known to me, that it seems as if the sole right to that branch of industry belongs to the name, *American Farmer*. Send it to me.

B. R. M., Chaptico, St. Mary's county.—I was surprised and delighted yesterday, by the receipt of three numbers of the *American Farmer*, with a receipt for one year's subscription. This is the work of some kind, thoughtful, and sensible friend, who knew my wants better than I did myself, and was better able to supply them. It was the very thing I wanted, and I heartily thank my unknown friend for his (or her?) kind consideration.

Dr. H. W. D., Manchester, Chesterfield county, Va.—A short time since I received from you a copy of that most valuable and time-honored periodical, the *American Farmer*. Would that every farmer in Virginia was able and willing to subscribe to it. It is the only object of real beauty and pleasure I have received from north of the Potomac since the war. Could you be instrumental in instilling a true agricultural spirit into our people, you will do more good to Virginia than by any other means, for our fortunes are now to be dug out of our native soil. If we cannot govern our land as we wish, we may, perhaps, be allowed to cultivate it as we choose.

J. L. M., Charlottesville, Va.—Please find enclosed two dollars, along with my hearty thanks for your paper. It comes just at the season that I most need it, but any time would be a pleasant reminder of our *ante-bellum* communications, as it is also a perfect type of what such a paper should be.

Farmers' Convention at Richmond.—We have not received in time for notice this month any account of the proceedings of the Convention of the farmers of Virginia, assembled on the call of Hon. Willoughby Newton, President of the State Agricultural Society. We do not doubt it was an important gathering, and that happy results will follow it for the agriculture of Virginia.

Hessian Fly.—The Practical Etymologist gives the following rule for eluding the Hessian fly, which appears to be a good one: Notice in each neighborhood at what date the latest sown wheat that is taken by the fly was sown, and sow for the future a little later than that particular date.

Business Notices.

To Subscribers.—Our friends, to whom the *Farmer* has been sent for now six months, will note that we have not dunned nor hurried them in their payments. We prepared ourselves in the beginning to wait patiently, knowing that with a great many there would be need to wait. Where there is real need of it, we can wait still, but we are very well assured that the least prompt to pay are often those who are most able. There is some evidence of this in the fact that our Maryland subscribers are much behind those of more southern States. It is not, certainly, because they are unable to pay, but on the principle, we suppose, that those who live nearest to church are most apt to disturb the worship by coming in late. Let them not think, however, that they will want a welcome, or in the least disturb our little church by coming in at any time. But *now* is a great word in matters temporal as of those of greater import. *Now* is just the time we most want the small amounts due us. *Now*, when the Christmas times are coming.

Agencies and Helps.—A host of friends have done us valued service in making additions to our list of subscribers. We are under great obligations to all these. We are sure a great many more can help us in the same way, and we beg our friends everywhere to remember how great the benefit to us would be, if each subscriber would but get us another.

We will pay liberally those who give their time and attention in acting as agents for the *Farmer*. We know, at the same time, that a very large number among our subscribers who will not receive commissions, can, by a friendly word said in season, render us the aid we need.

It will be noticed that we do not resort to the method used by very enterprising contemporaries to force up extraordinary subscription lists. We want very good rather than very large lists. That is, we want appreciative readers, and those who need the services we offer them. We want the solid, substantial men scattered through the country, rather than unwilling readers, who may be begged or offered an inducement to subscribe by an indefatigable drummer.

Our Exchanges.—We are under the greatest obligations to our country exchanges for their very friendly notices of the *Farmer*, especially during the month past. We wish it were in our power to thank each one specially and by name. We cannot doubt that while they do us a valuable service by their appreciative notices, they are doing good service, too, to their several communities.

OFFICE OF THE MARYLAND STATE AGRICULTURAL AND MECHANICAL ASSOCIATION, Baltimore, November 23, 1866.

The first quarterly meeting of the Executive Committee of the Maryland State Agricultural and Mechanical Association will be held at the office of the Association, 67 W. Fayette street, on Tuesday, 4th December, at 11 o'clock.

B. H. WARING, *Gen. Sec'y.*

Remarks of Col. A. Bowie Davis,

At the Meeeing to organize a State Agricultural Society.

I beg to return you my thanks for the honor you have done me in calling me to preside over this meeting of the farmers of Maryland. It is doubtless owing to the fact that I am, perhaps, the oldest member of the late Agricultural Society present. I attended the first meeting, called by the late lamented Calvert, to consider the best means of promoting the farming interest of the State, in 1848. The meeting was presided over by the late Judge Glenn, then the president of the Maryland Farmers' Club, originated and sustained exclusively by the liberality and energy of that lamented jurist and farmer. From that meeting sprung the Agricultural Society of Maryland, of which Mr. Calvert was the first president, and all of us know with what zeal, ardor and ability for several years he discharged the arduous and important duties of that office. Its early growth was slow and discouraging to so earnest and energetic a presiding officer as Mr. Calvert; and for want of funds to offer adequate premiums and defray the expenses incident to the first agricultural exhibition, he hesitated to announce a cattle show for the first year. Judge Glenn, hearing of this state of things, with his characteristic public spirit and liberality, immediately stepped forward and offered, on his own individual responsibility, to guarantee the success of the exhibition, or to make good any deficiency, either in premiums or expenses, which might result from failure or only partial success. Thus assured, the exhibition was announced by the president, and resulted in complete success. Not only did the farmers of Maryland come out with their stock—horses, cattle, sheep and hogs, mules and oxen, the productions of the farm, the dairy and the poultry yard, with fruit in tempting and various kinds and excellence, but also were present the mechanic and the manufacturer, with all the skill and ingenuity peculiar to the genius of the American character. Also were present other States—little Delaware challenged old Virginia; the Keystone State was here to cement the arch, and the great Empire, with her representatives, to see what was to be seen—and to report what she did see. The merchants and hotel keepers of Baltimore, with a few honorable exceptions, had hitherto been indifferent, standing aloof from the enterprise; but now, seeing that there was reality and advantage in the undertaking, came forward and tendered for ten years the use of a lot on which to hold the future exhibitions of the society—thus securing to Baltimore the vast incidental advantages growing out of the annual meetings and commingling of the great body of farmers from this and the surrounding States. Such were the fruits of the little meeting (far less than this) presided over by Judge Glenn, which, led on and carried out by Charles B. Calvert—names ever to be honored and held in grateful esteem and respect by every farmer of Maryland, and whose zeal and public spirit it is ardently to be hoped will animate and influence this meeting in the object for which it has assembled.

That object, gentlemen, is the reorgantzation of the Agricultural Society of Maryland, interrupted and broken up by war—a war which turned our beautiful show grounds into recruiting stations and military encampments, and called our members from the peaceful plow handles to the terrific furrows of battle, and from our golden harvest to the bloody harvest of death.

Happily for a common country and a common interest, war has ceased. It becomes us, as farmers and conservators of the land, to heal up the wounds and to smooth down the rugged places.

I rejoice to meet you here, brother farmers, upon a common platform, broad enough and strong enough to take in and sustain all classes and all interests, and where neither sectarian bigotry nor party hate can find food or rivalship upon which to pamper and fatten. To advance a common interest, and through it the whole interest, is the great object for which we have assembled, remembering that to feed the hungry and to clothe the naked is the high and noble mission of the farmer.

MONSTER PUMPKINS.—Mr. Jacob Fehl, of Conestoga township, Lancaster county, Pa., raised on his farm this year a pumpkin which measures seven feet and four inches in circumference, and weighs 170 pounds and 4 ounces. The same vine which produced this monster bore six more pumpkins, two weighing together over 200 pounds, one 128, another 123, and the remainder little less than 100 pounds each.

[From M'Clures Diseases of American Stable, &c.]

Vis Medicatrix Naturæ, or how Diseases are Cured without Medicine.

Intelligent persons have no difficulty in recognizing in the constitutions of animals and men a power of self-restoration, which is capable of resisting the influence of disease. It is this power that heals wounds, unites broken bones, and supplies lost substances. Diseases are not unfrequently efforts in this direction, and to stay the action of hurtful material when admitted into the system. If the eye, for instance, receives a particle of sand or hay seed, the weeping of the secretions of pus are remedial measures to rid the eye of the offending body. Poisons are good examples of the manner in which animals will cure themselves. When poison is taken into the stomach, irritation of the bowels is set up, followed by purging, as an effort to get rid of the poison. Nature, however, is not always successful, and the animal may die from the violent action set up. Again, a sprain will be cured by this very power, provided absolute and entire rest be allowed to the sprained part, without any interference from medicine or art.

The remedial powers of nature often require assistance, as, for instance, in cases of debility, when the blood is becoming too watery. A few doses of iron, and in many cases a little extra food, will enable the sanative powers of the constitution to effect a complete cure. Often the removal of an animal from the sphere of exciting causes of disease, will cause the effect to cease, and the power of nature will cure the affection. Hence, many persons reflect upon the many instances when apparently severe cases of sickness were cured by some simple substance, and much credit given to a power it never possessed. Where the powers of nature are left to perform a cure, let the strength of the animal be maintained, because if that fail, where is the chance of recovery? Blood-letting and physicking are powerful and depressing agents, so much so, that when carried to any extent, few, if any animals, by the little power that may be left, will cure themselves. It is this knowledge that enables Homœpathists to continue their practice; for if it were not for this power in the constitution in each and every animal, Homœpathists would have long since ceased to practice their peculiar art. If farmers and owners of horses and cattle will only cease to bleed, and pour nostrums down the throats of their stock, and learn to rely more upon the great curative that God has implanted in the constitution of all His creatures, as a power in protecting their lives when attacked by disease, it will surely be infinitely more profitable and pleasant to them. In curing disease, medicine and art should be directed to assist the powers of nature to overcome disease—nothing more.

Breeding Horses.

There is much said pro and con, in papers devoted to Agricultural interests, on the propriety and profit of farmers breeding horses, that is those especially adapted for speed. Most farmers keep but one or two brood mares, and hence have only occasionally a horse for sale, still it is of much importance whether that one shall be a profitable one. Fancy horses, that is those that possess style and speed, or those that possess extraordinary speed, although having neither beauty nor style, are the ones which command the highest prices in the market. Speed, in this fast age, is considered a desirable quality, and for all light work on a farm, such are generally well adapted. A horse whose natural formation gives him a gait of ten or twelve miles an hour can perform double the amount of labor with the same expenditure of vital power, as does the one who can only go five or six miles in the same length of time, and hence for traveling purposes should be of double the value, because, time is money. There are, however, some objections in breeding for this kind of stock. Injuries, some diseases, defects and blemishes detract much more from their selling value than does the same in the heavier class of draft horses. Light and ill-formed and incapable ones are always unprofitable; other objections are sometimes urged why farmers should not raise fast horses, that is, that it often draws them outside of their legitimate calling and leads to racing, gambling and dissipation. We can see however but little force in this conclusion, for almost uniformly a commanding price changes the ownership. Therefore we conclude that a good class of roadsters of pure blood will very likely prove the most profitable.

There is another suggestion in connection with this subject that we conceive of some importance, that is, to have the foals come in the fall, instead of the spring of the year. There is then comparatively but little labor for the dam to do during the suckling season, and the colt can be weaned and reared on good spring pasture, and avoid the stunt generally given at this important period, by winter fodder.—*Weekly Telegram.*

Fine Stock.—Let Southern farmers who want fine stock take notice of the advertisement of that enterprising stock breeder, S. W. Ficklin, Esq., Charlottesville, Va.

Pure Southdowns.

Henry Webb, son of the late Jonas Webb, the celebrated breeder of these sheep, alludes to a correspondent in the *Field*, in writing that journal, as follows: Alluding to "Babraham flock," the writer appears to imply that they were not "pure Southdowns," thereby leading your readers to infer that Mr. Webb passed off his flock as "pure" when such was not the case. The article states—"After Ellman's death we lose all positive evidence of the purity of the Southdowns." Now this I must correct, as I have in my own possession the pedigrees of the Babraham flock, commenced by my late father prior to the death of Mr. Ellman, and kept uninterruptedly by him with great accuracy up to the time of the dispersion of his well-known flock, which was originally raised by him from sheep purchased of the late Mr. Ellman, and other eminent Sussex Southdown breeders. I personally asisted my father many years, and am acquainted with every detail relative to the rearing and management of his sheep, and I am enabled to speak positively from my own memory, as well as from my father's books, as to every ram used.

SALT AND ASHES FOR HORSES.—Those keeping horses should, twice a week, throw in a handful to each of salt and ashes. Mix them by putting in three parts of salt to one of ashes. Horses relish this, and it will keep their hair soft and fine. It will prevent bots, colic, etc. A little ground sulphur mixed with salt and ashes, and given once in two or three weeks, is also beneficial. All domestic animals will be thus benefited.

Mutton must have age in order to be good. In this respect it is different from beef. Five years is the time held in Europe to be the best—an age which our wethers seldom attain. It is all lamb with us and young mutton. We can taste of nothing better than well matured sheep, in which case the muscle is tender and solid, the succulent juices all in perfection.

COTTON CROP IN VIRGINIA.—The only crop of cotton raised below Richmond in thirty years has been raised by Dr. Blair Burwell, Jr. It was planted in 210 acres, and yielded 225 pounds to the acre. This is a good commencement, and we hope that cotton-raising will be regularly pursued in Virginia.—*Richmond Dispatch.*

☞ We may certainly conclude that God would not remove good men out of this world, were this the happiest place.

Young Trees in Winter.

We copy the following sensible and seasonable hints upon this subject from the American *Agriculturist* for October:

Many persons seem to think that when they have set out fruit trees, they have done their part, and if the trees do not flourish, the blame is laid to the nurseryman, or they conclude that their land is not suited to fruit. Besides neglect, trees have active enemies, both biped and quadruped. A good fence, with gates securely fastened, is a great protection against the larger animals, no matter whether they have two or four legs. If one has trees in grounds usually approached by a curved path, they stand a poor chance when snow is on the ground. There are certain heathens who will strike a bee line with thier sleighs and sleds from the gate to the house, and if there are any young trees in the way, so much the worse for the trees. We once suffered very severely in this way, and when remonstrance was made, all the satisfaction we got was the information that there were no roads when snow covered the ground. We know of no way of dealing efficiently with these two-legged brutes, but there are some small four-legged ones that need looking after, and whose deprepations can be warded off. Mice are often troublesome in a young orchard. If clean culture has not been followed, it is not too late to remove all dead weeds and other rubbish that can harbor mice. The little fellows like to work under cover, and the remains of weeds and grass afford them convenient shelter. They have a grand time under newly fallen snow, and it is well to head them off by tramping the snow firmly around the trees. Among the various preventives of the attacks of rabbits, none are perhaps more easily applied, or more efficacious, than that proposed by Dr. Warder, at one of our pomological meetings. The rabbit is rather fastidious as to its food, and has a great dislike to animal matters. Indeed it was long ago recommended to shoot a rabbit, split it open, and rub the tree with its body, as a warning to its fellows. Dr. Warder's plan is to spatter the tree with blood. Blood is readily obtained wherever slaughtering is done, and with a vessel of this and a swab made of corn husks tied to a stick, one can bespatter a young orchard in a short time. Dr. W. states that a single application suffices for a whole winter.

SOME ONE SAYS.—The simplest way to prepare bones for manure is to break them into small pieces with a hammer and mix with an equal quantity of earth or ashes, when they will decompose.

Housekeeper's Department.

COFFEE.

Baron Liebig, the great chemist, gives us at length, a scientific exposition of the mystery of coffee making. He is not without cooking observation, if not experience, and assures us of his opportunities in this regard as a boy in a ducal kitchen, presided over by a French cook. "I watched," he says, "with the greatest interest the process of roasting a joint from the first when it was put raw on the spit, till that consummating moment when the fire had imparted to it a rich, brown covering of sweetest savor."

I observed how the roast-veal was sprinkled with salt, the capons wrapped in slices of bacon; nothing escaped my eager boyish attention.

Hence I have retained a taste for cooking, and in leisure hours occupy myself with the mysteries of the kitchen; with the preparation of articles of human food, and all thereto belonging, in which are not unfrequently included matters of which chemistry knows next to nothing.

We hope our lady readers will give their best attention to the principles of coffee making here laid down, and save the waste of so precious a commodity, and the necessity of resorting to the many poor substitutes that have come into common use.

Be the method of preparing coffee what it may, it is first requisite to sort the berries. Foreign substances are frequently found among them, bits of wood, feathers, and usually a number of black mouldy berries, which must be taken away; for our sense of taste is so delicate that the smallest admixture cannot escape notice.

Berries of dark or green hue are generally dyed; and these must first be washed in a little water and afterwards dried with a warm linen cloth; with those of a pale color this is unnecessary.

The next operation is the *roasting*. On this depends the good quality of the coffee. In reality the berries should only be roasted until they have lost their horny condition, so that they may be ground, or, as is done in the East, pounded to a fine powder.

Coffee contains a crystalline substance, named *caffeine* or *theine*, because it is also a component part of tea.

This matter is volatile, and every care must be taken to retain it in the coffee. For this purpose the berries should be roasted till they are of a pale-brown color; in those which are too dark there is no caffeine; if they are black the essential parts of the berries are entirely destroyed, and the beverage prepared from these does not deserve the name of coffee.

The berries of coffee, once roasted, lose every hour somewhat of their aroma, in consequence of the influence of the oxygen of the air, which, owing to the porosity of the roasted berries, can easily penetrate.

This pernicious change may best be avoided by strewing over the berries, when the roasting is completed, and while the vessel in which it has been done is still hot, some powdered white or brown sugar (half an ounce to one pound of coffee is sufficient.) The sugar melts immediately, and by well shaking or turning the roaster quickly, it spreads over all the berries, and gives each one a fine glaze, impervious to the atmosphere. They have then a shining appearance, as though covered with a varnish, and they in consequence lose their smell entirely, which, however, returns in a high degree as soon as they are ground.

After this operation, they are to be shaken out rapidly from the roaster and spread on a cold plate of iron, so that they may cool as soon as possible. If the hot berries are allowed to remain heaped together, they begin to sweat, and when the quantity is large, the heating process, by the influence of air, increases to such a degree that at last they take fire spontaneously. The roasted and glazed berries should be kept in a dry place, because the covering of sugar attracts moisture.

If the raw berries are boiled in water, from 23 to 24 per cent. of soluble matter is extracted. On being roasted till they assume a pale chestnut color, they lose 15 to 16 per cent., and the extract obtained from these by means of boiling water is 20 to 21 per cent. of the weight of the unroasted berries. The loss in weight of the extract is much larger when the roasting process is carried on till the color of the berries is dark brown or black. At the same time that the berries lose in weight by roasting they gain in volume by swelling; 100 volume of green berries give, after roasting, a volume of 150 to 160; or two pint measures of unroasted berries give three pints when roasted.

The usual methods of preparing coffee, are, first, *filtration;* second, by *infusion;* third, by *boiling*. *Filtration* gives often, but not always, a good cup of coffee. When the pouring of boiling water over the ground coffee is done slowly, the drops in passing come in contact with too much air, whose oxygen works a change in the aromatic particles, and often destroys them entirely. The extraction, moreover, is incomplete. Instead of 20 to 21 per cent., the water

dissolves only 11 to 15 per cent., and 7 to 10 per cent. is lost.

Infusion is accomplished by making the water boil, and then putting in the ground coffee; the vessel being immediately taken off the fire and allowed to stand quietly for about ten minutes. The coffee is ready for use when the powder swimming on the surface falls to the bottom on slightly stirring it. This method gives a very aromatic coffee, but one containing little extract.

Boiling, as is the custom in the East, yields excellent coffee. The powder is put on the fire in cold water, which is allowed merely to boil up a few seconds. The fine particles of coffee are drunk with the beverage. If boiled long, the aromatic parts are volatilized, and the coffee is then rich in extract, but poor in aroma.

As the best method, I adopt the following, which is a union of the second and the third:

The usual quantities both of coffee and water are to be retained; a tin measure containing half an ounce of green berries, when filled with roasted ones, is generally sufficient for two small cups of coffee of moderate strength, or one, so called, large breakfast-cup (one pound of green berries, equal to 16 ounces, yielding after roasting 24 tin measures [of ½ ounce] for 48 small cups of coffee.)

With three-fourths of the coffee to be employed, after being ground, the water is made to boil for ten or fifteen minutes. The one-quarter of the coffee which has been kept back is then flung in, and the vessel immediately withdrawn from the fire, covered over, and allowed to stand for five or six minutes. In order that the powder on the surface may fall to the bottom, it is stirred round; the deposit takes place, and the coffee poured off is ready for use. In order to separate the drugs more completely, the coffee may be passed through a clean cloth; but generally this is not necessary, and often prejudicial to the pure flavor of the beverage.

The first boiling gives the strength, the second addition the flavor. The water does not dissolve of the aromatic substances more than the fourth part contained in the roasted coffee.

The beverage when ready ought to be of a brown-black color; untransparent it always is, somewhat like chocolate thinned with water; and this want of clearness in coffee so prepared does not come from the fine grounds, but from a peculiar fat resembling butter, about twelve per cent. of which the berries contain, and which, if over-roasted, is partly destroyed.

In the other methods of making coffee, more than the half of the valuable parts of the berries remains in the "grounds," and is lost.

To judge as favorably of my coffee as I do myself, its taste is not to be compared with that of the ordinary beverage, but rather the good effects might be taken into consideration which my coffee has in the organism. Many persons, too, who connect the idea of strength or concentration with a dark or black color, fancy my coffee to be thin and weak, but these were at once inclined more favorably directly I gave it a dark color by means of burnt sugar, or by adding some substitute.

The real flavor of coffee is so little known to most persons, that many who drank my coffee for the first time doubted of its goodness, because it tasted of the berries. A coffee, however, which has not the flavor of the berry is no coffee, but an artificial beverage, for which many other things may be substituted at pleasure. Hence it comes that if to the decoction made from roasted chicory, carrots, or beet-root, the slightest quantity of coffee be added, few persons detect the difference. This accounts for the great diffusion of such substitute. A dark mixture, with an empyreumatical taste, most people fancy to be coffee. For tea there are no substitutes, because everybody knows what real tea is like.

WHAT IS PROGRESSIVE AGRICULTURE?—The New York *Observer* answers this question in few words but very comprehensively, as follows:

Under its influence spring up tasty and convenient dwellings, adorned with shrubs and flowers, and beautiful within with the smiles of happy wives, tidy children in the lap of thoughtful age—broad hearts and acts, as well as words of welcome. Progressive agriculture builds barns and puts gutters on them, builds stables for cattle and raises roots to feed them. It grafts wild apple trees by the meadow with pippins or greenings—it sets out new orchards and takes care of the old ones. It drains low lands, cuts down bushes, buys a mower, house tools and wagons, keeps good fences and practices soiling. It makes hens lay, chickens live, and prevents swine from rooting up meadows. Progressive agriculture keeps on hand plenty of dry fuel and brings in the oven wood for the women. It plows deeply, sows plentifully, harrows evenly, and prays for the blessing of heaven.

☞ To fatten geese, the Irish Farmers' *Gazette* says, put up three or four into a darkened room, and give each bird one pound of oats daily, thrown on a pan of water. In fourteen days they will be found almost too fat. Never shut up less than two together, as they pine if left alone.

Sunday Reading.

Our Lord hath many Divine resemblances in Holy Scriptures, or names to express His nature. . . . But this name Jesus includes all; for in this He shows, not so much what He is in himself, as what He is to us, seeing He vouchsafeth to carry our benefits in His name. It is a name of intercession, of invocation, of remission of sins. The Apostle saith, that "at the name of Jesus every knee shall bow," not only the knees of our heart (which at His name should bow and bend indeed) but "every knee;" He that created the body should have reverence of the body. But why at this name of God, above all other? Because this name cost much, when it was bought by the blood, by the honor, by the life of the Son of God himself; and seeing it cost such a price, we ought with all reverence to be thankful for it: He humbled himself in procuring it; and we therefore in receiving it. Jesus a Saviour: therefore God. Christ, anointed; and so, "the Holy one of God;" Jesus in Hebrew for the Jews, Christ in Greek for the Gentiles; Jesus, to save sinners, and Christ, in respect of us, to kill sin, as Bonavintura saith. It is the property of a Saviour, first to encounter with the enemy: secondly, to help with counsel: thirdly, to give strength; fourthly, not to save once, but still; fifthly, not one, but many; sixthly, not for time, but for ever: all which our Lord Jesus fully accomplished.

This sweet name (Jesus) contained in it a thousand treasures of good things, in delight whereof St. Paul useth it five hundred times in his epistles, as Genebrardus observes.

Lord, be pleased to shake my clay cottage, before Thou throwest it down. Make it totter awhile before it doth tumble. Let me be summoned before I am surprised. Deliver me from "sudden death;" not from sudden death in respect of itself, for I care not how short my passage be, so it be safe. Never any weary traveller complained, that he came too soon to his journey's end. But let it not be sudden in respect of me. Make me always ready to receive death. Thus no guest comes unawares to him, who keeps a constant table.

They, who mean to be doctors and teach others, must in their first accesses and degrees of discipline, learn of those whom God and public order hath set over us in the mysteries of religion.

Happy the man, whose goodness is always progressive, and whose virtues increase, with his years, who loseth not, in multiplicity of worldly cares and pleasures, the holy fervors of his "first love," but goeth on burning and shining more and more, to the end of his days. The church, like her representative, Sarah, is now "well stricken in years:" but we hope that, like her, she will "still bring forth more fruit in her old age:" we look for many more "children of promise" to be born unto Christ, both from among the Jews and Gentiles.

For as a man, who hath stared too freely upon the face and beauties of the sun, is blind, and is dark to objects of a less splendor, and is forced to shut his eyes, that he may, through the degrees of darkness, perceive the inferior beauties of more proportioned objects; so was old Simeon: his eyes were so filled with the glories of this revelation, that he was willing to close them in his last light, that he might be brought into the communications of eternity; and he could never more find comfort in any other object, this world could minister.

The nature of christianity stands in opposition to all other professions in the world: comforts the philosopher, silenceth the scribe, strikes oracles dumb, cries to every man in the world to go out of it. It doth in a manner bid defiance to the whole world. It tells the Jew his ceremonies are beggarly; the wise man of the world, that his philosophy is but deceit, and his wisdom madness. It plucks the wanton from the harlot's lips, tumbles down the ambitious from his pinnacle, disarms the avenger, strips the rich.

We see what small heed is to be given to the judgment of the world, concerning small sins. Those, that the world counts little sins, may be great and heinous in the sight of God; for God "judgeth not, as man judgeth." He is a spirit, and therefore, spiritual sins and provocations, such as inordinancy in the *thoughts*, desires, and affections, are sins, possibly, that are more heinous in God's sight, than more carnal and gross sins are.

They that have learned of the Lord Jesus to be lowly and humble in heart, profit more by meditation and prayer, than by reading and hearing.

The eyes, that have seen Jesus, find all objects but Jesus, unworthy of their regard.

A KANSAS WHEAT CROP.—The *Emporia News* states that M. Wockman, of Pike township, Kansas, recently thrashed the wheat harvested from 13¾ acres, which yielded an aggregate of four hundred and ninety-two bushels, or nearly thirty-six bushels per acre. This is said not to be an exceptional case for that region, as hundreds of fields were equally as good and some better than this one, though not yet thrashed.

Baltimore Markets, Nov. 22.

COFFEE.—Rio, 18¼a19½c. gold, according to quality. Laguayra ——, and Java —— cts. gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	27	—
Good do	29	—
Low Middling	31	—
Middling	35	—

FERTILIZERS.—Peruvian Guano, none in the market, nominal, $95. California, do. $65; Rodunda Island, $25; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $60; G. Ober's (Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkaline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56;—all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a$14.00 per ton. Shell Lime, slacked, 6c., unslacked, 10c per bushel.

FISH.—*Mackerel.*—No. 1, $21a23; No. 2, $18a21; large new, No. 3, $14.75a15.25. *Herrings* —Shore – none. Labrador, $8 00a9.00; Potomac and Susquehna, $8.50a9, Codfish, new, $7 50a$8.50.

Corn.—White, $1.12a$1,20; Yellow, $1.14a$$1,18 per bushel.

FLOUR.—Howard Street Super and Cut Extra, $11 25a $11.75; Family, $14.50a15.00; City Mills Super, $11.00a 11.25; Baltimore Family, $17.00.

Rye Flour and Corn Meal.—Rye Flour, new, $7.25a 7.50; Corn Meal, $5.25a5.50.

GRAIN.—*Wheat.*—Good to prime Red, $2 90a3.00; Choice White—scarce—$3.00; good to prime, $3.00a$3.25 per bushel.

Rye.—$1.25 per bushel.

Oats —Heavy to light—ranging as to character from 57 a65c. per bushel.

HAY AND STRAW.—Timothy $27a30, and Rye Straw $28 per ton.

BEANS.—Common, $2 50a3 00 as to quality.

POTATOES.—$4 00a4 25 per bbl.

PROVISIONS.—*Bacon.*—Shoulders, 16a16¼ cts.; Sides, 16¼a18 f Hams, plain bagged, 19 cts.; sugar cured, 20 cts. per lb.

SALT.—Liverpool Ground Alum, $2.20a2.30; Fine, $3.10 a3.25; Turk's Island, 62½c. per bushel.

SEEDS.—Clover, held at $9.25a9.50; Timothy, $3.50a3.75 Flaxseed, $3 15

TOBACCO.—We give the range of prices as follows:

Maryland.

Frosted to common	$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10.00a15.00
Fancy	17.00a25.00
Upper country	3.00a30.00
Ground leaves, new	3.00a12.00

Ohio.

Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.38a2.42 per gallon. in barrels.

WOOL —We quote: Unwashed, 28a32 cts. per lb.; Tub-washed, 48a51 cts.; Fleece, common, 42a45 cts.; Pulled, No. 1, 30a35 cts.

CATTLE MARKET.—Common, $5 00a$6; Good, $7a$7.25. Prime Beeves, $7.50a8.00 per 100 lbs.

Sheep—5¾a6 cents per lb. gross.

Hogs—$7.75a8.75 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Oct. 20, 1866.

BUTTER —Ohio, in brls. and kegs, solid packed, 20 to 25 cts.; Roll, 35; Virginia and Pennsylvania in kegs and tubs, 20 to 25; Glades, 30a45; Goshen, 45.

BEESWAX—45 cts.

CHEESE.—Eastern, 18; Western, 16.

DRIED FRUIT.—Apples, 10; Peaches, 17.

EGGS—In barrels, 35 cents per dozen.

FEATHERS—75 cents for good Southern.

LARD.—Brls. 15, kegs 15, jars and other country packages 16 cents.

TALLOW.—11¼ cents.

CONTENTS OF THE DECEMBER NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, JANUARY, 1867. Vol. I.—No. 7.

CHRISTMAS.

"No war, or battle's sound
Was heard the world around:
The idle spear and shield were high up-hung;
The hooked chariot stood,
Unstained with hostile blood;
The trumpet spake not to the armed throng;
And kings sat still, with awful eye,
As if they surely knew their sovereign Lord was by."

JANUARY.

"When now, unsparing as the scourge of war,
Blasts follow blasts, and groves dismantled roar,
Around their homes the storm-pinched cattle lows,
No nourishment in frozen pastures grows."

Farm Work for the Month.

We enter now upon the duties of the new year, with the experience of the past to instruct us, and with fresh expectations, and new hopes. The engagements of the future will command our best attention. The plan of operations for the year must be thoughtfully considered, and carefully arranged. Determine what crops are to be cultivated, the extent of ground to be allotted to each, and its particular location. Avoid especially, under the present uncertainty of labour, the evil of over-cropping. Ascertain what amount of foreign fertilizers must be added to your home resources, and arrange for their supply in due season. Examine all implements, supply what is wanting, and make repairs when needed. Look carefully to your accounts of the past year, and start with the determination to have them kept strictly the coming season.

If you have not yet done so, take an inventory of the personal effects necessary for carrying on the farm. Have horses, cattle, hogs, sheep, implements of every description valued at their cash value—also the crops on hand. Have your farm and improvements put at their cash value, and require that they pay you six per cent. interest, and the personal effects ten per cent., after paying all necessary cost of labour, feeding, &c., for the year. It is very advisable too, to keep accounts with separate crops, and with the different kinds of stock, that you may determine, at the close of the year, which has paid you best. Such accounts will give an important insight into the business of the farm, and prove of inestimable value if properly kept, and adhered to for a sufficient length of time.

WHEAT FIELDS.

If the wheat fields have been infested with the fly during the fall, it will be advisable to graze closely with sheep and other stock, during frozen weather. Keep water furrows well opened, that excess of surface water, which causes so much winter killing, be avoided.

TOBACCO CROP.

Continue to "strip," whenever the weather is suitable, look to the careful handling of the bundles when tied, as well as the proper assortment of qualities, and despatch the work of preparation for market. Get in readiness material for hogsheads. The timber for hoops should not be cut until about to be used, as it will not work so well.

SOWING SEEDS.

Tobacco seeds may be sown whenever the ground can be got in good order, and this not unfrequently occurs in the month of January. When this is the case, the opportunity should not be lost. The burning of beds is a laborious

and expensive process, and since the use of guano has been found to be a substitute for it, has been very much dispensed with, unless the necessary burning material is abundant and near at hand. Guano (the best Peruvian) is used at the rate of 800 to 1000 lbs. to the acre, and the preparation of the ground is made as thorough as possible without burning. It is chopped in, mainly, during the hoeing of the ground, a light dressing being put on in immediate connection with the seed. When brush is to be used for burning, have it cut early, and got together, to avoid delay when the ground comes in order. If guano be not used, a good compost of stable and other manures well rotted, and free from grass seeds, should be chopped in at seeding time. Get this compost in readiness now. An experienced planter, of St. Mary's county, top-dresses his bed, when ready for sowing, with the freshest stable manure—wheat straw alone having been used in the horse-racks—and sows the seed on top of this dressing.

STOCK.

Give stock of every description the best care. Sows becoming heavy with young, should be separated from other large hogs for fear of accident. As ewes approach the lambing season, see that they are kept well up in flesh, though they need not be fat. Let them have a little grain if necessary. Fill up deficiencies in your working stock. Look to it that young hogs have no opportunity of lying in heaps of fermenting manure.

WORKING IMPLEMENTS.

Keep them, of every description, out of the weather. If you have not heretofore prepared proper shedding, or house room for everything, see now the necessity for doing it, and use the present leisure for the purpose. Have gearing, of every sort, overhauled, repaired, and occasionally greased. Give blades of scythes, the knives of reaper and mower, and everything about your agricultural machines or implements that is likely to suffer from rust, a thin coating of grease and beeswax, melted together. Have ice-hooks, leather mittens, saws and axes, all ready for a speedy gathering of the ice crop.

CLOVER FIELDS.

Be sure to protect these from the hoofs and noses of intruders. Let nothing touch them, till the proper grazing season come.

FENCING AND WOOD.

Have full supply of wood for next winter cut and corded. Cut early, all the fencing material that may be needed.

PLANTING TREES.

If trees are to be planted in spring, take any opportunity of the ground being in order to dig the holes; the earth will be the better for exposure to frost. Set stakes near trees planted out in autumn, and fasten the trees to them with ropes of straw. Turn over all piles of weeds, and other trash, and kill the field mice you will probably find there. Fill a bag with straw for a cushion, and go on your knees, with knife and probe, to hunt out the destroyers of your peach trees.

MANURES.

Gather from every source, material for manures. Save very carefully, and compost the rich manure from the pens where your hogs were fattened. See that the spouting around your farm pen takes the water well off, without carrying a strong solution of the manure.

LIME AND ASHES.

When these are needed, and can be obtained, get them, and spread at once upon the surface of any ground you propose to apply them to. Lands to be ploughed for spring crops, however, need not be dressed before ploughing.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER Maryland Agricultural College.

JANUARY.

Drain! drain! drain! These words should be repeated again and again in every agricultural and horticultural journal and magazine, throughout the year. We believe that about nine-tenths of the diseases of fruit trees, the non-production of strawberries, raspberries, &c., the ravages of the potato disease, &c., are the results of a *water-logged condition* of the ground, during the fall and spring months. The crops are planted in the midst of damps, we were going to say swamps, and taken up after the fall rains have soddened the produce. So by canker, and moss, on fruit trees, abundance of bloom but *no fruit;* a cold state of the ground in spring, which renders it impossible to raise the early vegetables, fruit, &c., and a general failure accompanied with mildew, and an unsatisfactory condition of almost everything grown. "These things ought not so to be."

If, therefore, any part of the garden be wet, drain it *effectually,* making the drains from 2½ to 3 feet deep, and from 15 to 20 feet apart, according to the nature of the soil; use tiles, and place six inches of brick ends or stone upon them, as

stated in article upon "renewing orchards," in November number of *Farmer*, page 136.

Cauliflowers.—Give all the air possible to the plants in frames. Watch for mice, and see they do not injure the hearts of these plants as they are very likely to do during the winter months.

Asparagus.—Whenever the weather may permit, make preparation for new plantations by marking out the ground, and trenching from 20 to 24 inches deep. A light, sandy loam is the best soil for asparagus, and a soil almost wholly sand is better than one most wholly clay, because when highly manured the sand will suit it admirably, but without plenty of manure will be useless. In a deep, fertile loam, a moderately heavy manuring will suffice, the manure being well mixed with the soil, and under all circumstances have the ground well drained. If no other than a clay soil, lay on six inches of sand, and spade it in to a depth of twenty inches, mixing it well with the soil, letting the ground remain in that state for three weeks; then spade again and manure liberally. If it be intended, merely to sow for transplanting, a good manuring, one full spade deep, will be sufficient.

Cabbage.—Young plants are apt to die off unless kept dry; a little dry sand, and wood ashes, will be useful to sprinkle amongst them where they are suffering from damp. If the plants are too crowded they will kill each other; it is best to thin at once if necessary.

Lettuce—On protected borders and in frames. See that they are properly protected and looked over upon all favourable opportunities, removing all decaying matter, and covering up when the weather is very severe; keep the surface about them constantly stored whenever it is sufficiently dry.

Horse-radish.—Make plantations of this neglected but useful plant, in deeply trenched and well-manured soil, if you would have it fine.

Manuring should now be proceeded with, and plots marked out. Get ready for sowing as soon as weather permits. Take advantage of every open day to push on all kinds of out-door work. Plow and ridge up vacant ground to the frost. During frost, empty manure pits, wheel out manures, and when the ground is not too hard frozen, turn over the plots that have been spaded up to expose a new surface to the frost. When ground work of all kinds is suspended through severe weather, jobs may be found in repairing fences, buildings, wet bed soil, clearing up rubbish, collecting material for walks and roads, burning weeds, refuse, &c.

The Fruit Garden.

Whenever the weather is open and dry, plow, dig, and trench up all vacant ground which has not been done during the fall months, or any that may have been cleared of crops. In frosty weather wheel dung on plots intended for planting during the spring months. It is very important that all operations that can be performed this month should be completed, as the two following will each bring their own cares, and require all the labour and care which can be bestowed on them. Attend to all plants which may suffer from frost. At the end of the month prepare dung for wet beds, to be ready against the next month. Cut the dead wood out of raspberries and blackberries; prune currants and gooseberries. If any fruit trees, grape vines, &c., remain to be planted in spring, they should be looked after the first favourable opportunity. If it is worth while to occupy the ground with fruit trees, and incur the expense of planting them, it is certainly worthy of serious consideration whether the ground is in the best state of preparation for being planted with fruit trees, and to incur the expense and trouble which may be requisite, in order to render the ground as suitable as can be made for the kind of tree with which it is to be planted.

To do this is seldom a work involving much direct outlay, for if the ground be well drained there is little else required except labour. It will prove a great disappointment to plant trees where there is not a fair prospect of their doing well, and be it remembered that it can be much more conveniently, cheaply, and efficiously made, previous to planting.

The Flower Garden.

Time's stream flows on—now fast, yet fair it flows;
How sweet life's flower upon its margin grows;
And he who plucks its tender blossom here,
Gathers with hope, yet touches them with fear,
Will find their fragrance and their bloom will last,
When the fair bounds of fading earth be past.

Annuals sown in boxes towards the end of the month, and placed in a green-house or frame where frost is excluded, will make a good start for early bloom; the seeds should be sown thinly, the boxes or flower-pots have plenty of drainage, and a light, fibry soil should be used. Mignonette is one of the most useful to sow now, as it will come into bloom by the time the weather is sufficiently genial to allow of the pots being placed in windows. The beautiful varie-

ties of "Phlox Drummondii" offers the gayest flowers for early display in the green-house, sitting, and drawing rooms.

BULBS.—Of hyacinths, tulips, crocus, &c., pushing the ground, should be covered by short manure some two or three inches deep.

FUCHSIAS should be looked over, and those wanted to bloom early should be re-potted and placed in a warm, light part of the green-house or window.

AZALEAS AND CAMELLIAS.—Take care that they have enough water, and, as the blooms open, remove them to a cooler atmosphere, to prolong the blooming.

EVERGREEN SHRUBS had best not be transplanted, or in any way disturbed for the next three months. We prefer not to remove them till April or May. Where hardy shrubs have become unsightly through the loss of the lower branches, layering may be practicable whenever the weather permits. The operation is a very simple one; draw down a suitable branch and peg it to the ground to mark where the tongue should be cut, then enter the knife on the under side and make an incision half through the wood, and turn the knife towards the tip of the shoot, and cut a slit an inch long; remove some of the soil and peg the branch down with a peg inserted in the cut to keep it open, and peg it down firm, covering the tongue two or three inches deep with soil. It will, during the summer, emit roots, and may be left to produce new growth for the purpose of increasing the bulk of the specimen, or be removed to form an independent plant.

PITS AND FRAMES.—These should be well protected in severe weather, and abundance of air be given to ten week stocks, mignonette, pansies, violets, &c. The early potted tulips and hyacinths under sashes, &c., will now begin to grow, and should be removed to the cold pit, or frame, for a short time previous to placing them in a higher temperature.

THE WHEAT CROP IN EUROPE.—Returns from one hundred localities in England show that the wheat crop for the present year is an average one in ninety-six cases, over an average in twenty-one, and under an average in sixty-three places. In a word, the crop is deficient about a fifth in both England and France. In Germany about an average; same in Turkey. In Russia it is a great crop, and far above an average, but whether to make the crop an average throughout Europe is doubtful.

Hardy Herbaceous Plants.

ADAPTED FOR THE GARDEN OF THE FARMER.

No. 1.—PERENNIAL PHLOXES.—There are few hardy, herbaceous flowering plants, superior, or equal, to the improved varieties of phlox decussata, combining, as they do, fragrance, beauty, and size of flower, with a richness and variety of colour scarcely surpassed by any of the many beautiful varieties of hardy, herbaceous plants; they are also gifted with a hardihood that enables the most delicate of the new and improved varieties, with very slight protection, to withstand the rigor of our winters with impunity; they are also very readily propagated by the young shoots in spring; they are also readily multiplied by division of the root when from one to three years old. The phlox delights in a light, loamy soil, with a moderate coat of leaf mold. I would here observe one marked feature in the successful treatment of them, which increases very materially these large heads of flowers, as also the well-being of the plant generally. They should at all times be in a position where they are shaded from the mid day sun, as from the very delicate texture of the petals they are very readily scorched. In the February number of the *Farmer* I will give a list of a few of the best, from notes, when in flower, upon the unique collection of Mr. John Saul, Washington, D. C.

HOG CHOLERA.—The veterinary editor of the North British Agriculturist recommends the following treatment.

As the disorder is so rapidly fatal, remedial measures are seldom of much avail. The stomach and bowels should be unloaded if the pig is tolerably vigorous, by an emetic of sulphate of zinc; a dose of castor-oil should afterwards be given: and if there is pain and scouring, the physic may be united with a little laudanum. A warm, comfortable, clean bed is essential; the diet should consist of milk and water, or well boiled gruel. We have seen little pigs benefited in the earlier stages by a warm bath; spirits and water, or ammoniacal stimulants, should be freely used to sustain the failing strength. The prevention of cholera will be effected by cleanliness, comfortable housing, and proper diet, avoiding especially all putrifying food and filthy water.

A SCOTCH farmer finds by measurement that his cattle drink over twenty-five pounds of water each day.

For the "American Farmer."

Curing Broom Corn.

My attention has been called lately to an article on "the culture, harvesting, and fitting for marketing broom corn." The writer gave such minute instructions that nothing more need be added. But in the curing he says: "The brush is taken into an open. dry house, and spread upon slats to dry. It is turned from time to time, and if the weather is good will dry out and cure in a couple of weeks. * * * In all the operations with the brush before it is cured, care must be taken that it be not piled together in any considerable quantity so that it will heat, since that would destroy the color and injure its sale."

What a world of trouble is involved in all this. Now can it not be cured artificially as it comes from the field, even though wet from rain? I believe it can. Heat alone will not do; that has been tried; it parches the straw and makes it brittle. But a strong current of warm air, meeting the brush first at a low temperature, and gradually increasing to a higher degree as it parts with its moisture is quite a different matter, and exactly suited to the purpose. Such is the drying tunnel, advertised in this paper.

Imagine a tunnel built on the surface of the ground, of brick, or of lath and plaister, eight feet wide, seven feet high, and in length from fifty to one hundred feet, according to the quantity to be dried in a day. It is fitted with a double track of railway and train of cars. Over the entrance is a chimney twenty inches square, and twenty feet high, made of four boards nailed together. Near the exit is a furnace throwing hot air into the tunnel, thus creating a strong current, in fact, a warm, windy, summer's day intensified. The degree of heat is regulated by a thermometer. I find that 135 degrees is enough for fruit and vegetables, and you will remember the beautiful, dried peaches, and green corn, that I brought to you in October, 1860, cured in twenty-four hours, and a specimen of inch boards, green from the log, seasoned in forty-eight, it having lost sixteen per cent. the first day, and four per cent. the next. This is the utmost that the brush can require, and if a second day be necessary, in order to keep the work going you have only to widen the tunnel to receive another track, and perhaps add something to its length.

The process is very simple. The first day is occupied in filling the tunnel; after this, as a loaded car is entered, a dry one is taken out and immediately passed to the press.

Will one of your correspondents describe the machine used for stripping off the seed, the price for those driven by horse-power, and also by hand, and where they can be procured—none are to be had in Baltimore. Your patrons on the Eastern Shore will engage largely in the culture next year, and want all the information you can give.

A gentleman in Northampton, Va., planted this year, sixty acres in broom corn, and was offered $3000 for it as it stood but refused. There came a rainy spell after he had housed it, and mildew was the consequence, which reduced its value one-half. This would have been prevented by the tunnel. FRANCIS H. SMITH.

For the "American Farmer."

Feeding Stock in Winter.

EDITORS AMERICAN FARMER: In your last number I notice Major George Taylor's mode of feeding bullocks. Years ago I kept a large dairy, (120 cows.) My stables were arranged in such way as to allow the manure to remain in them for three days. Twice a week the manure was hauled by teams from the stable to the field, and spread behind the wagon. During the cleaning of the stables, ten cows at the time were let out to the water, remaining out-doors about twenty minutes. The other days the cows were watered in the stables, by letting water run in their troughs. On cleaning days I always had considerably less milk; this showed me that cows lose milk by being exposed to a colder temperature than that of the stable. It is an absolute requirement for cows, and also other cattle, to be kept in a uniform temperature, as any sudden change affects them. (Cows will even give more milk if they get lukewarm water to drink, as they thereby are induced to drink more, and the more a cow drinks the more milk she will give.) The proof of this I had by altering my method and cleaning the cow-stable every morning, without letting the cows out; since then I keep my cows in the stable from the day they are put up until the day I let them out on grass. A cow stable can hardly be kept too warm, *provided* there is a proper ventilation *above*. The same is the case with fattening hogs, whereas the horse stable has to be kept at a much lower temperature, say 55 degrees. The cow stable will not be too warm at 75 degrees. To give cattle dry meal I also cannot approve. It certainly is an established fact, by the experience made in different countries, that meal, mixed with cut hay, straw, or chaff, scalded with hot water, has a far greater fattening and milk-giving property than raw meal; besides, it induces the cattle to

eat hay, straw, or chaff, in larger proportions than if each is fed by itself. Even if the straw or other inferior feed does not increase fat or milk, still it is necessary to fill the stomach. I acknowledge, that feeding as above, gives more trouble and requires more attention from the farmer himself, but he is amply paid for it by the better thriving of his stock and the less quantity of food he uses.

"Keep your cattle through the winter in an even and warm temperature, well-ventilated: keep them clean, give them nothing but chopped food, well scalded, (except at night a little hay or straw,) and I will guarantee your success in fattening and milk production.

L. A. HANSEN.

Clifton, Fairfax county, Va., Nov., 1866.

From Edinburgh Journal of Agriculture.

On Ventilation as Affecting the Health and Feeding of Animals.

The quantity of carbonic acid present in the atmosphere exists just in sufficient quantity to supply food to plants without inflicting any injury to animals; but whenever it acquires considerable increase in confined apartments, it becomes highly noxious to every breathing creature. Carbonic acid is given out largely by every animal, not only by the breath, but by the exhalent pores of the body. It is also the product of combustion of wood, coal, or any other fuel, and of decomposing straw, litter, or vegetable matter. Although Carbonic acid gas is beneficial to the stomach, and constituting one of the principles of wine, and every vinous beverage, and existing as a most wholesome ingredient in the water we drink, it is nevertheless a deadly poison to the lungs, unless largely diluted with atmospheric air; and when we are aware that a human being emits through the lungs and the pores of the skin no less than 40,000 cubic inches of carbonic acid gas every day, we will readily see the importance of attending to the proper ventilation of all buildings, whether for the abodes of human beings, or that of the lower animals.

Certain other gases are constantly emitted from the bodies of living animals, in the form of exhalation or insensible prespiration, and are the products of useless, injurious, and rejected portions of their food and organism, and which are thrust out of the system in a manner strictly similar to excrementation; and act more or less poisonously on every species of animal, but most of all on individuals of the same species as those by whom they were emitted.

The chief of these gases are sulphuretted hydrogen and phosphoretted hydrogen, and also ammonia, substances constituting in a high degree animal fetor.

It is a remarkable fact that hydrogen gas, the lighest of all known substances, quite colorless and odorless, and an antiseptic, should nevertheless be one of the compounds generating putrid disease. Sulphuretted hydrogen is a union of hydrogen gas with sulphur; it is an invisible gas, heavier than common air as 36 to 30, and so dreadfully poisonous that one part of it mixed with 249 parts of air would destroy a horse, if breathed by that animal. It is known that some individuals give out so large a quantity of this gas as to destroy white paint. Its odor, when inhaled by itself, is that of rotten eggs, it being to the emission of sulphuretted hydrogen these owe their odious stench. Hydrogen and phosphorous form several combinations equally offensive. The phosphoretted hydrogen is a transparent colorless gas, having, when free, an odor resembling putrid fish. Ammonia is largely generated in all animal bodies, and plays an important part in the dangerous action of animal exhalations upon the human frame. The constituents of ammonia are hydrogen and nitrogen, and the latter of these is the immediate agent of all decomposing action upon organized matter, from the first vinous fermentation decomposing sugar, to the putrid carcass. Nitrogen acts as a ferment upon all dead vegetable or animal matter, which once in a state of decay or putrefaction, communicates its condition not only to any other dead matter in contact with it, but to living beings within its influence, often producing those dreadful fevers and putrid sores which in all large towns sweep away so many human beings every year, and, in some other countries, generates even more horrible diseases than are at all known in this country.

The awfully sad and fatal effects of the crowding of human beings could be ten times multiplied, by alluding to the abodes of many poor and wretched families, which from want of ventilation are little better than the abodes of death; and to many crowded assemblies, the atmosphere of which is of the most dangerous nature, where, besides the exhalations of healthy persons, there is also that of those actually diseased, and also the fumes of half digested ales and spirits, with the odor of tobacco, &c., sufficient to generate disease even in the most robust and healthy. A knowledge of such facts has been the means of directing the attention of architects and others to discover a more improved system of ventilation in human dwellings and public assembly rooms. Much yet remains to be done for the abodes of

the poor, and also much requires to be done in the abodes of the lower animals, for precisely the same laws apply to both. And when we consider the crowded state in which most of our domesticated animals have to exist, especially during winter seasons—in too many cases imbedded, as it were, in their own excreta, and without the slighest regard to ventilation—need we wonder that a typhoid and pestilential disease should exist? Seeing that such is the case, and that as yet certain of these maladies prove more than a match for all the veterinary art of Europe, we may well inquire, is our ventilation perfect? Is it possible that foul air, and fermenting dung and urine, and other vegetable and animal matter, together with currents of air highly impregnated with poisonous gases, rushing from underground drains and sewers, could be the united means of generating deadly pestilence? Opinions are divided; and although it is quite true that many of the most filthy and worst ventilated of all our towns' dairies escaped, it is no proof whatever that the cattle plague did not first orignate in such places. "Pleura" for a good many years back has been pointing directly to the filth and want of ventilation which exist in town dairies generally, not one in ten of which has been clear of "pleura" for many years; but from the fact of a well-conditioned animal being marketable even in an advanced stage of this disease, it has been much less disastrous, and public attention has been little directed towards it. But in "rinderpest" we have got a remembrancer—a lesson taught at a fearful cost, not only to owners of cattle, but to the nation at large. And the question of ventilation and cleanliness will more than ever force itself on all intelligent minds, and particularly on those who are owners of stock. Having this in view, we have been induced to note down some of our own ideas in regard to the ventilation and drainage of farm offices, in many of which no artificial means whatever have been used, and in some natural outlets very much interfered with. In the generality of buildings a hole below the door, or an open window some two feet from the ground, as inlets, and another hole at the animal's nose, and in the very best arranged, an opening in the roof as outlets for foul air, complete the ventilation of the present state of improved farm-buildings. One moment's reflection will point out the fallacy, nay danger of such an arrangement. In the first place it will be necessary to consider what the foul air we have got to deal with consists of. The chief element, we know, will be carbonic acid gas, given forth by the breathing of the living inmates. Besides this poisonous gas we have a few more still more poisonous. These latter arise chiefly from fermenting urine and excreta, foul drains, &c., and will consist of ammoniacal sulphurretted hydrogen, and phosphorretted hydrogen gases. All these gases are most poisonous, but particularly so to those animals from whom they are given forth. It is generally believed that foul air is lighter than pure or atmospheric air. This, however, is by no means the case. At least we know that carbonic acid gas is one-half heavier than common air when both are of the same temperature. All gases, however, as well as common air, expand with heat, and condense with cold, so that carbonic acid, as produced by the breathing of animals, will be at a temperature which will admit of its rising even in a volume of common air, and hence the advisability of providing an outlet in the roofs of buildings to admit of its escape. The other foul and more dangerous gases will naturally rise from the floors of the buildings, from the fact of their being generated by fermenting urine and solid excrement, foul drains, &c. They are all in union with hydrogen, which, by itself, is upwards of 14 times lighter than common air, and these will, of course, quickly rise. Our chief attention, therefore, ought to be directed to the creation of a current towards the roof, but of course as much out of the way of the animals as possible, instead of past their noses, as is generally the case; and in order to carry out this most effectually there would require to be funnels inserted in the roof, instead of mere openings; these funnels to be not less than from four to eight feet in length, according to the height of the building, and from two to four feet wide at their base, tapering towards the top. They might show about one foot outside the roof; to have one side open, and constructed so that the portion of the funnel shown outside would turn by a vane, keeping the opening always to the lee side, which would not only favor the outlet of the air, but would also prevent snow or rain from being driven in.

It is obvious from what has been said, that a strong current of air could thus be maintained on all occasions, and would, no doubt, require to be regulated by a valve at the upper end of the funnel, to be wrought from below by a cord, as at times a stronger draft might be produced than was necessary. Next may be noticed the openings required for the admission of pure air. It would not be advisable to have these inserted at a lower elevation than the extreme height of any animal likely to be kept within the building, which would prevent the possibility of such animal being exposed to the draft or current.

At the same time the current would certainly gradually draw off the light and heated air which would be found surrounding the warm bodies of the animals, and the vacuum at once would be filled up by a portion of the cool and heavier air which had just been admitted. And by having the building quite shut up below, all extremes of temperature could be avoided. The advantage of this mode of ventilation will be at once seen when compared with the prevailing custom of admitting fresh air by openings in the door or lower part of the windows, whereby some of the animals must stand in a cold draft, otherwise some will be overheated, breathing the same poisonous atmosphere over and over again. A most reprehensible practice all but universally prevails in stables of having openings in front of each animal, when a current from below the door, or some such opening behind the animals, is kept up, carrying every foul gas generated in dung and urine forward to the noses of the animals, as if such were necessary as agents of health. This cannot be too much condemned. It is evident that the poor animals thus live in a constantly poisonous atmosphere, which must be prejudicial if not dangerous to health. Nothing—wholesome food excepted—can tend more to promote the health and vigor of animals, preventing very much all attacks on the lungs, and all diseases of a typhoid nature, than an abundant supply of pure and fresh air. It is important to have a perfect system of drainage in connection with farm-buildings, otherwise it is impossible to get the benefit of pure air, as the surrounding atmosphere will be less or more surcharged with the gaseous vapors arising from stagnant water run from the roofs of the buildings, and afterwards filtered through the dung courts, occasioning two-fold mischief by washing out the most soluble and valuable portion of the manure to be evaporated as a deadly gas. This, and the most dangerous of all gases which escape from badly working drains and sewers, ought to be at once attended to by farmers or others in charge of stock and buildings, otherwise it is impossible to have pure air in or about farm-buildings, whatever mode of ventilation exists; and the serious loss in manures is scarcely less important. It will, no doubt, be many years yet before all our homesteads are roofed in, although such a proceeding would be one of the greatest improvements that could well be carried out in connection with the comfort of farm-buildings, and the proper management or making of manures.

Every farmer, however, can have proper roans or spouts along the eaves of all his buildings, so that every drop of roof-water may be carried off, and by proper attention to levelling and packing of the dung-heaps, so as to prevent fermentation, and a slight covering of gypsum applied now and again over the whole heap, and daily over the floors of byres and stables, piggeries, &c., would cause every gas valuable as a manure, yet dangerous in the atmosphere, to be fixed; and become ever after an inseparable ingredient in the manure; and the whole premises would thus be kept clean and sweet, and much of the very pith of the manure saved for its legitimate use.

From McClure's American Stable, Field and Farm Yard.

Abortion in Cows.

Abortion.—This is the coming away of the calf, at so early a period, and before it is perfectly formed and matured, that it cannot live, and occurs at any time from conception, to within a few weeks of the full time of calving.

Causes.—The frequency of abortion, the apparently epizoötic form which it sometimes assumes, together with the immense loss which thereby occurs to the farmer, and through him to the country at large, makes the *cause* of abortion in cows one of the most vital of subjects. The theory of *sympathy*, which some authors and farmers favor as a cause of abortion, is not to be entertained for a moment by any one having any pretension whatever to a knowledge of physiology, and the pathological anatomy of cattle. I have known a whole herd of cows, with but one or two exceptions, *abort*, and yet not one of those cows ever saw one another. Some of those cows came from the State of New York, and yet they were kept separate from those already upon the farm. The owner had for this cause, and for the second time, sold every cow on his farm. The first herd of cows, however, were allowed to associate with one another. The second herd was, as has been already stated, kept separate, but fed upon the same grass and hay, the produce of the same farm. So much then is this against the theory of sympathy, not to speak of the utter impossibility for a cow to possess a power wisely withheld and denied to the higher and lower orders of animal kingdom. For if this were not the case, how long could we be assured of the perpetuation and continuance of our own race, and of other species in the animal world?

Having thus denied the possibility of sympathy as a cause of abortion, let us now inquire what are the more *immediate* causes, and after which we will endeavor, as best we can, to elucidate the more *remote* causes. The *immediate* causes of

abortion are the separation of the appendages and attachments of the calf from the womb, and the contraction of the womb itself, whereby the calf is expelled to the outer world. The *remote* causes of abortion are few, and we will state them in the order of their importance. First, and by far the most important, and the one which is most likely to produce abortion in an epizoötic form, is weakness and debility of the cow. This debility is the result of *irritation* of the fibrous, serous, tissue of the body, occurring at seasons of the year, which generally produce, and gives rise to coughs, colds, and throat diseases. Hence, the epizoötic form of abortion, so often seen, and attributed to sympathetic causes. This irritation and debility is of frequent occurrence, and is so insidious in its character, that even those persons most about the animals are not aware of anything being amiss with them. This is not strange, for we have heard, read and seen animals in the worst forms of pleuro-pneumonia, and nobody thought of, or had seen anything wrong, worthy of observation or remark. It is but the other day, one of the papers of Philadelphia announced that a certain farmer had lost $1500 in a week or two by the death of some cows which were not thought to be sick. It is only the true medical man who can estimate aright the consequences of even slight irritation of the white membranes of the body. In this connection, it may be well to state, that cows in calf are more susceptible of debility than cows which are not in calf, for the simple reason that a great quantity of blood is required for the growth and maintenance of the fœtus.

This fact goes far in destroying that which nature so strongly endeavors to make perfect, or in other words, nature in this case defeats her own ends. Debility from the cow being in calf, and from the irritation of the shining membranes of the body, more especially of the windpipe, are the true causes of epizoötic abortion in cows. The solids of the body become relaxed, soft and flabby, the placenta, or calf attachments separate from the fundus of the uterus, and the death of the calf from starvation, it is then a foreign body, the womb contracts and expels it, and this is called abortion. Farmers and others should not deceive themselves by thinking that when a cow is fat she is not weak nor out of order. Cows of this description are most likely to be the victims of irritation of the throat, and its train of consequences. Having thus defined what I believe to be the true cause of epizoötic abortion, and which will, I think, upon fuller investigation of the subject be fully borne out, I will now speak of the causes of *sporadic* abortion, or abortion occurring in single or isolated cases. A cow may or may not *abort* after having suffered from an accident or injury, which will depend whether the calf or womb has been injured. A kick from a horse, or a gore from another cow, is often the cause of abortion. The eating of diseased grass seed is another cause of abortion, but not so much, nor so often the cause as many persons suppose. For a cow will readily and without injury, take one ounce of the strongest and best ergot of rye to be found in the market; now where is the cow to get one ounce of ergotized grass seed or any other diseased seed?

There may be, however, other cryptogamic causes which we are not as yet acquainted with, and if we were aware of the existence of such, we are still ignorant of their action, if any, upon the uterus of the cow; so I think we may as well dismiss this as being utterly untenable also. There is still, however, one other cause to be considered before we close the subject, and that is, a cow having once aborted is ever after liable to do so again, and at about the same period of the previous abortion. The causes of this are local and confined to the womb itself, such as distention, dropsy, physometra, tubercle, fibrous tumor, polypi and hypertrophy of the womb; one or other of those diseases singly, or combined, are often seen in the womb of cows subject to periodical abortion.

Prevention of Epizootic Abortion.—When one or more cows have slunk their calves, the other cows without a day's delay should have the following powder mixed in their feed night and morning for a week, and commence again and give every alternate week for a month or so. Powdered sulphate of iron, two drachms; powdered gentian root, half an ounce; mix and make one dose, to be given as above directed. This will be a powerful tonic, adding richness to the blood, strengthening the mucuous surfaces, and imparting health and strength to the whole system, thereby enabling the animal to carry her young to its full time. Good and generous feeding is also a preventive by itself, but better in conjunction with the above powder. Cows having aborted from weakness and general debility, can be prevented from aborting again by maintaining a high standard of general good health.

☞T. C. Peters, of Maryland, says that the average yield of wool, from an ordinary flock of sheep, will be about 1 lb. to 20 lbs. of carcass, live weight, and that if more is obtained, it must be paid for in better care and keeping.

Winter Management of Stock.

Prerequisites for properly wintering stock are, 1st, good stock; 2d, proper kinds and quantity of fodder; 3d, convenient, comfortable buildings. To enter into all these prerequisites would extend this article beyond the limits of a single paper, and exhaust the patience of the general reader. I shall, therefore, confine myself to the general management of farm stock. The health and comfort of all stock is of the first importance in good management; to secure this, sufficient room and good ventilation are indispensable. A certain degree of warmth is also desirable: to insure this, tight floors and buildings are necessary. Ventilators should be supplied, so as to carry off all the foul air without contaminating the fodder; and to give the stock pure, fresh air, without subjecting them to a draft of air. The wintering of cattle and stock embraces their treatment, from the time they are brought from the pasture in the fall, till turned away again in the spring. Milch cows and cattle, intended for fattening, will need to be brought up and fed earlier than other stock, although they may be allowed the run of the pasture during the day. When the fall frosts affect the feed, or when it becomes short, a little hay and grain should be fed night and morning till it is time to shut them up; and here many are apt to err in letting the cattle run too long before bringing them in. Often the feed that they get does little if any good, merely stuffing them without increasing flesh, which is very essential for their well-doing in cold weather. It is often practiced to give out the poorest feed first, and then gradually keep improving. This feeding dry straw only, when first from grass, is a sort of torture that should be abandoned. Some succulent food should be given to keep the animals improving, and gradually accustoming them to the change, thus keeping them improving, instead of checking their thriftiness. Regularity in feeding is of the first importance in keeping stock improving; a much less quantity of feed is required to keep cattle thriving than when fed irregularly. When fed at irregular intervals or periods they are often hungry, and on the look-out for a supply, causing uneasiness. This is not the case when fed at regular intervals; they then eat their feed with a relish, ruminate and rest contented till the time for the next feeding comes around. All stock should be fed three times a day what they will eat up clean, and at a regular hour; be watered three times, morning, noon and night, with good fresh water at the yard, not driven to the pond, or stream, to push each other, and perhaps get lamed, by slipping upon ice, etc. Rock salt should be kept where they can have daily access to it; they will take no more than they need, and it will tend to keep the blood cool and the system healthy. A variety of food is as well relished, and is as desirable for dumb animals as for their masters. An occasional change from cornstalks to hay, and *vice versa*, will tend to keep up their appetite, or a change of kinds of hay; an occasional feed of roots is also desirable, tending to keep the system healthy, as well as giving a relish. For milch cows, carrots, parsnips and beets are preferable to turnips, as these roots do not affect the flavor of the milk unfavorably.

All animals should be kept cleanly, as cleanliness is essential to health. The skin performs some of the most important functions of the body; keep it clean, and in good order, by carding at least once a day. I once knew a man who fatted some of the best stock sent to market in those days, who made a practice of taking a card in his hand, and using it every time he went into the yard or stable; the result was, as might be expected, his cattle were always clean, quiet, healthy, improving and gentle, expressing the greatest satisfaction on his appearance. A good bed of straw will aid in keeping animals warm as well as clean. A few hours spent in the yard daily in pleasant weather, will greatly promote comfort, and whatever promotes comfort, tends to keep animals thriving. The different kinds of stock should be kept separate, not allowed to occupy the same yard at the same time.—STOCK BREEDER.—*Rural American.*

Mashes for Horses.

The following receipe was given me by a celebrated steeple-chaser—I never knew any horse refuse it: Take a feed of oats, a double handful of lindseed for each horse, and boil for three hours; then turn into a large tub or earthenware pan, and add as much bran, with just enough warm water to moisten the whole through; put a cloth over it, and let it stand an hour; then mix it well, and feed as soon as it is cool enough. This mash is very useful when horses in hard condition "dry up" and grow thin, in spite of continual feeds of corn. I give it once a week all the year round, but oftener if required by any particular horse. A few beans may be boiled with the corn if the horse is in a very low condition.—*London Field.*

HOG CHOLERA.—*Mr. Miner:* I send you a safe and sure cure for the hog cholera. When a hog has the disease, throw it and give two large tablespoonfuls of the common pine tar, and it will cure it if not dying.—S. REYNOLDS, *Brooklyn, Ind.*—*Rural American.*

The Fast Nags.

The fastest time "on record," at all distances, is as follows:

1 mile, pacing, Pohahontas	2.17¼
1 mile, trotting, Dexter	2.18¾
2 miles, trotting, Flora Temple	4 50⅝
3 miles, trotting, Dutchman	7.31½
10 miles, trotting, Prince	50.00¾
20 miles, trotting, Trustee	59 35½
100 miles, trotting, Conqueror	855.62
100 miles, double, Master Burke and Robin	1017.22
1 mile, running, Henry Perrist	1.42½
4 miles, running, Lexington	7.19¾

WARTS ON HORSES.—H. H. Howe, of Nebraska, informs the Rural New Yorker how to cure warts on horses: "Mix equal quantities of spirits of turpentine and sulphuric acid, stirring slowly in a tumbler and afterwards bottle the mixture. Rub grease around the base of the wart and then apply the medicine to the wart with a feather once or twice a day; it will gradually eat them off. I have thus taken them off a horse's neck when as large as a turkey's egg."

Dr. H. Hinkley.

We regret extremely to hear of the death of this gentleman, so well known to the agricultural press of the country. He died in Green county, Alabama, about the 20th November, before the following letter, the last, perhaps, he ever wrote for the press, was published.

Dr. H. was a most enthusiastic agriculturist, and lover of improvement, and while busily occupied with a large cotton plantation, found time to communicate his intelligent views of matters of interest to the agricultural community, through all the leading journals. For very many years he has been a correspondent of *The Farmer*, and was one of the first to greet its reappearance. He was a native of Baltimore, and in his last letter to us expressed his earnest desire to get back to his old home in Maryland, and spend here the evening of his life. He has been cut off in the mid-day of his career, being but forty-five years of age.

Cotton Culture—Costs and Risks.

BY H. HINKLEY, M. D., EUTAW, GREENE COUNTY, ALABAMA.

"Timothy Bunker, Esq.," (page 316, Sept.,) has gone into big figures in his estimate for a cotton place, and his figures may be considerably reduced. His estimate of yield takes for granted a crop is certain. But cotton is one of the most precarious crops grown, and has numerous enemies. A man in Sumter, ten miles from here, who planted 600 acres of cotton, will make one bale to 50 acres; cause of failure, rust and worms. His loss will be over $20,000. This is but one case in many this year. I planted 300 acres, expecting to make 100 bales cotton. Rain, rust, boll worm, and caterpillar will cut the yield off so I shall be glad to get 20 bales. Others are better or worse, as the case may be. Tim Bunker puts down 60 hands for a 500 acre place. Forty hands are plenty, and 30 is all I want. I cultivate this year 300 acres corn, and 300 cotton, with 18 hands; will make 6 or 8,000 bushels corn, and had it not been for causes above mentioned, would have made 100 bales cotton. I have 16 mules, run eight double plows part time, and part time six. I worked corn and cotton with Sulkey cultivators. Wages $10 per month, and doctor's bills. Rations 3½ lbs. bacon and one peck meal per week. Three thousand bushels of corn do the plantation one year. Mr. Bunker only enumerates wages for 10 months; it takes the whole 12 on a cotton place, and sometimes 13 could be used up. There is no rest or intermission in work for cotton.

Land is scarce that yields one bale to the acre: the majority of cotton lands yields only half a bale—much land one bale to three acres; a bale is 500 lbs. Land can be rented at less than $10 per acre—for all except the very best. Five hundred acres land worked in cotton, could be stocked and worked for $15,000 per annum for first year, by any white man with brains, very easily, after first year; cost of stock and implements to be deducted, and seed also.

Half a bale to the acre would yield 250 bales of 500 lbs., at 30 cts. per lb. worth	$37,500 00
Deduct $30 per bale for rope, bagging, hauling, wharfage, insurance, tax, commission, etc.	7,500 00
Leaves	$30,000 00
Less expenses of plantation	15,000 00

Leaving a profit of $15,000 for first year, provided nothing happened to injure the crop, etc. White men who improve their own land, work improved machinery, and work better than negroes, may do better even.

There is no need of rushing at the thing so largely. Why not be satisfied with one or two hundred acres? The cotton fever is likely to kill some, some never recover, and some are not injured by it. This year it will kill a good many. A New York General has thrown up a large plantation in disgust, and gone back to New York; others are weathering the storm.

☞During six months there were exported from Canada 15,000 horses, 103,810 cattle and 158,000 sheep.

Plank Drains—Suggestions about Draining.

I notice a correspondent, p. 336, wants more information, &c. A neighbor of mine had quite a quantity of draining done, some six or eight years since, thus:

The ditch was dug about two-and-a-half feet deep and fourteen inches wide at the bottom. Then a V shaped channel was cut in the centre of the bottom about five inches wide and the same in depth, leaving about four-and-a-half inches flat surface on each side of the channel. Hemlock slabs were then laid over the channel, and a little waste straw or leaves were then put over the joints where two slabs meet to keep the dirt from falling through the loose joints, and then the ditch is filled up.

The drains have been in constant and very useful operation since, without any repairing.

I have just had thirty-five rods of draining made in the same way, except that I sawed the slabs into pieces fourteen inches long, and laid them across the channel, after having the sharp edges hewed off and straightened.

I am inclined to think that where the bottom of the ditch is "hard-pan," and the descent not very rapid, so as not to *wash* or *gulley* out, this is a cheap way of draining that will pay; and in such a case as mine it will pay every three years—though I hope it will last twenty-five years. The descent is only one inch to the rod, but water runs freely, and there was a perceptible alteration in the surface soil within forty-eight hours.

I think there is much discretion needed in *laying out drains*, so as to accomplish the best effects with the least amount of draining. Very many, if not most of the wet lands, are made wet by the springs which ooze out near the foot of the hills which lie about them; consequently, if this water is conducted off before it disperses itself through the porous soil of the flat, that soil will not be affected by it. In order to do this, the ground must be examined at different seasons of the year, springy places noted, then drains must be laid out, just *below* them, as near *parallel* with the hill as will afford sufficient descent, somewhat as eave-troughs are arranged to carry the water off from our houses, so that the door-yards will not be all wet.

It would be very easy to show by diagram and mathematically, or rather philosophically, that as water observes the laws of gravitation, the above is a correct *theory* of *laying out drains;* and practically there is *any amount* of *proof* of it.

Of course, where there is a large spring, so large as to keep for itself an open channel, the most *direct* route to the river is the best; but in all other cases, one drain, properly located, nearly parallel with the hill, will affect more than several located vertically, or in the direction of the apex of the elevation, which answers to the *ridge* of a house roof. No one would think of adjusting troughs every two or three feet, running from the eaves in the same direction of the rafters, for saving the water or preventing the door yard from being overflowed.—RUSTICUS.—*Country Gentleman.*

The Fishes of the Valley of the Amazon.

BY PROFESSOR AGASSIZ.

The following extract from a brief report of lectures of Prof. Agassiz, will be read with interest, as indicating the extraordinary wealth of the waters, as well as the lands, of the regions of the Amazon. The Professor reports 1800 varieties of fish in the waters of the valley, against 100 in the Mississippi, while the rivers of the old world, have, with few exceptions, little more than 60, 70, or 80 varieties. The curious will be amused to learn that some of these varieties, sit on, and hatch their eggs, like hens; taking to the land, and even climbing trees. We are indebted for this report to the *Boston Cultivator.*—ED. AM. FAR.:

Professor Agassiz then proceeded with an account of the most common varieties of fishes, illustrating his descriptions of their peculiar formations and characteristics by means of drawings. He began first with the families of the Mississippi river, saying that, with the exception of two families, none of them had representatives in Southern waters. One of these families was the *Siluridæ*, known as the catfish, bull heads, and pouts. These were also found in the rivers, on the Atlantic coast, and sometimes in the Arctic regions, but not in Europe, excepting in the Danube river. The characteristics of the family were delineated briefly, and a description of the sturgeons given, and compared with the catfish—the points of difference being explained by means of drawing. The family of *Goniodontes*, which was found in the Mississippi, was not represented in South America. The most numerous family in the Mississippi river was that commonly known as suckers—*Cyprinidæ*. These differed from the *Siluridæ* in the absence of teeth in the mouth, and having them at the entrance to the stomach. The largest were found in the Missouri river, where they grow to a weight of sixty pounds. Not one of them could be found in South American waters, while there were as many in Europe as in America, and they were also found in the islands in the Indian and

Pacific oceans. There was another kind of fish somewhat similar in form to the *Cyprinidæ*, but with teeth in their mouths, and having their heads flattened. They were called *Cyprinidontes*, and the common minnows were of this kind. The next family was the perch, which had representatives among us. They differed from the others in the formation and position of their fins, and were found in Europe and Northern Asia, but not in South America. Another family with us was the pickerel, the chief characteristic of which was the position of the dorsal fin. Of this family we found nothing in South America, but they were yielded in Europe and Northern Asia. The trout was next taken up. The family was distinguished by a very small fin on the under part of the body near the tail, and was common in northern countries. The white fish and lake herring were of this species. They were never seen in warm latitudes. There was a species called *Characines*, which frequented waters nearer the temperate zones, while the fish in the more northern waters were called *Salmonidæ*. Herring were considered as not being properly a fresh water fish, and only in the Amazon were they permanent inhabitants of fresh water. Eels and cod were also briefly mentioned.

The lecturer then stated that every river system had its own kinds of fish, and that the fishes of the southern waters were not the same kind as those in northern rivers. The fish which gave character to the North differed in kind from those of the South. In Europe there were three great river systems—the Rhine, the Rhone, and the Danube—all rising in Switzerland, and flowing in opposite directions. At their sources these three rivers yielded the same species of fish, but in their lower courses these head-water fishes disappeared, and the varieties were different in the rivers. In Europe the perch, pickerel, trout, and eel differ from those of America. They were corresponding, but not identical, and the same was true of all fish in every locality—with the exception of the salmon, which was a sea more than a fresh water fish.

The *Goniodontes* were peculiar to South America, and not to Asia, Africa, or Australasia. In the Amazon they teemed in many species, combining the characteristics of the pout and sturgeon. The kinds varied in the different places in the valley, no two localities yielding the same kind. They were also found in other rivers in Brazil, and even north of that country in South America. They were to be found in the mud, and in hollow trees in the water. One of the species took care of its young as no other fish did, being provided with apron like appendages on their jaws which extended along half the length of the abdomen. On this they deposit their eggs, and carry them about until the young are hatched. Another kind bored holes in the river bank three or four feet in depth, and deposited their eggs therein in round bunches.

In the tenth lecture of Professor Agassiz's course on Brazil, the lecturer began by saying that in his public lectures he had usually aimed at giving general results, rather than showing how those results are obtained. But the growing interest in natural history warranted him in giving the *modus operandi* of naturalists at work. Supposing they had fishes to examine, they first determined if they really were fishes, or whether they were aquatic reptiles, such as star and craw fishes, which, though usually designated as fishes, really belong to a different branch of the animal kingdom. Naturalists now designate as fishes those marine animals which agree with the mammalia in general structure. They go a step farther, and divide these into orders, as, for instance, the *Goniodontes*, whose peculiarity is an imperfect mouth; and other orders with other characteristics marking them. Next to the orders are groups called families, not having a genealogical relation, but related by form. Slight differences in detail characterize still another division called genera. The lecturer gave illustrations on the blackboard, of these differences, marking the genera, mainly in the forms of the fins, tail, head, and scales, not changing the general outline giving the family character.

The Professor then described several families of the *Goniodontes* found in the waters of Brazil, remarking that he gave these details to satisfy his hearers that the animals of Brazil are entirely different from ours, and as having an important bearing on the question whence they come, and how animals are distributed on the globe. One was the family of *Callicthists*, characterized by two rows of scales upon their sides, with a depression between them. These fish have the peculiar habit of leaving the water at times; and the Professor said he had frequently found them on dry land three miles from the water. They deposit their eggs in a cavity, after the manner of the stickle-back, and hatch them by sitting, as it were, upon them. They ascend trees, and the same shot of the sportsman which brought down a parrot has been known to dislodge one of these fishes.

The next family mentioned were the *Dorades*, mainly distinguished by a single row of scales on each side, though some of the genera have two and three rows. Another family, the *Asphe-rides*, lay their eggs and then pass over them,

the eggs becoming agglutinated to the under sides of their bodies, and remaining held there by a filament until hatched. Still another family possesses a peculiar property which is used by the Indians to embellish their pet parrots, the fish being given as food to the birds, whose green plumage is thereby tinged with yellow spots. Some of the parrots seen in our cabinets, the Professor remarked, which were considered to be distinct species, were really specimens of the bird thus variegated in color by the Indian method of feeding.

The lecturer described several other families of this order, with their peculiarieties of form, color, and habits, remarking that several of these families have hitherto been unknown to the naturalists. He then passed to another order, the *Characines*, representing in the tropic waters our salmon. The peculiar construction of the mouth marks the different families of this order, some of them being entirely toothless, others having teeth only in the upper jaw, and others having both jaws armed with teeth. These families also differ so much in color that the combination of lines seems almost endless, though there is a general plan in the colors as much as in the form. One of these families is a most formidable fish, having a wide mouth, armed on both sides with pointed, serrated teeth. A horse or cow falling into the river would be devoured in one hour by these greedy fish. A man would fare no better.

The Professor briefly and rapidly sketched other families of this order, one of which he said comprised forty genera, only three of which were before known. One of these three was the electrical eel, so highly charged with electricity as to be able to give several shocks in quick succession, without sensibly diminishing its power. These eels are caught, as related by Humboldt, by driving mules into the water, to receive the shocks until the eel becomes perfectly harmless.

☞ Achievement, the two year old prodigy of the English turf, continues to meet with success in her career. She won the Champagne stakes at Doncaster, thus making her total winnings, this far for the year $41,885. She has been worth more than a gold mine to her fortunate owner, Col. Pearson, and if the promise of her present age is transmitted to and preserved in her three year old form, her name wil descend to posterity linked with the undying honors of the English turf. Achievement is a sister to Lord Lyon, the winner of the St. Leger, and the hero of the grand triple event. Her engagements for 1867, are: The One Thousand Guineas Stakes, of 100 sovs. each; the Oakes Stakes, of 50 sovs. each, and the Great Surrey Foal Stakes, of 10 sovs. each, 100 added: Epsom, Summer; the Prince of Wales' Stakes, of 60 sovs. each, 1000 added, and the Cornation Stakes, 100 sovs. each; Ascot, Summer; the Great Yorkshire Stakes, of 10 sovs. each, with 100 added, at York, and St. Leger, of 25 sovs. each, at Doncaster.—*Mass. Ploughman.*

Facts in Farming.

There are some things in farming that are established, namely:

That manure must be applied, not only to get up land, but to keep it up. That wet soil must be drained, either by ditching or otherwise. That sub-soiling is good. That grain should be sown earlier than it generally is; that it should be harvested earlier than it is done; that grass should be cut when in blossom; and never when ripe, unless for seed. That our soil is not sufficiently worked, especially in hoed crops: that stirring the soil and keeping it well pulverized, is a partial guard against drouth. That the most advantageous grain for horses is the oat; that it improves fodder to cook or steam it. That warm shelter in winter saves fodder, and benefits stock. That the best blood is the most profitable. That there is much advantage in selecting the best seed, the earliest matured and the plumpest. That in-and-in breeding is not good in close and consecutive relationship, but must be carried on by foreign infusion of the same blood. That warm quarters and good treatment are necessary in winter to produce eggs from most hens. That top-dressing grass lands should be done with fine, well-rotted manure, applied close to the ground. That it is, in general, best to sell produce as soon as ready for market. That blackberries require rich soil; strawberries and raspberries vegetable mould—such as rotten leaves, chip manure, &c. That more lime should be used. That salt, in some cases, is good for land—also plaster, the phosphates, guano, &c. That fall ploughing is the best for clay lands; that land should not be ploughed wet. That young orchards should be cultivated. That compost heaps are a good institution. That clay and lime, rather than animal manure, be employed in raising fruit. That manure should be rotted before it is used. That agricultural papers are an advantage to the farmer. That a cultivated mind is requisite to high farming, and that a good reputation exerts a good influence on the farming community.—*Rural World.*

Poultry Yard.

HATCHING CHICKENS.

To such an extent is the system of poultry raising carried on in France, that in some parts of that country the *hatching* forms a special trade or business carried on by a class of persons known as *Coupeurs* or Hatchers. These people hatch for farmers at all times of the year at so much per egg, or purchase the eggs in the market, and sell the chickens, as soon as hatched, at from six cents to twelve cents each, according to the season of the year. The hatching-room is kept dark, and at an even temperature in summer and winter. In this room a number of boxes, two feet long, one foot wide, and one foot six inches deep, are arranged along the walls.—These boxes are covered in with lattice or wire work, and serve for turkeys to hatch any kind of eggs. Similar boxes, but of smaller dimensions, are provided for breeding fowls. The bed of the boxes is formed of heather, straw, hay, or cocoa fibre; and the number of eggs for a turkey to hatch is two dozen, and one dozen for hens.

At any time of the year, turkeys, whether broody or not, are taught to sit and hatch in the following manner: Some addled eggs are emptied, filled with plaster of Paris, and placed in a nest, after which a turkey is fetched from the yard, and placed on the eggs, and covered over with the lattice; for the first forty-eight hours she will endeavor to get out of her confinement, but soon becomes reconciled to it, when fresh eggs are substituted for the plaster of Paris ones. They will continue to hatch, without intermission, for three to six months, and even longer; the chickens being withdrawn as soon as hatched, and fresh eggs substituted. After the third day the eggs are examined, and the clear eggs withdrawn, which are then sold in the market as new laid; but as they may be soiled or discolored from having been sat upon, they clean them with water and silver sand to restore their original whiteness. The turkeys are taken off the nest once a day, to feed and to remove the excrements from the nest; but after awhile they cease self-feeding, when it is necessary to cram them, and give them some water once a day. "At one place we observed," says Geyelin, in his account of a visit made but a few weeks ago, which we alluded in the last number of the *Ploughman*, "sixty turkeys hatching at the same time; and we were informed that during winter and early spring, M. Auche had sometimes upwards of one hundred hatching at the same time, and that each turkey continued hatching or setting, as we term it, for at least three months."

"At a farm near Lizieux," says he, "I saw a turkey that was then sitting, and had been so upwards of six months; and, as I considered it rather cruel, the hatcher, to prove the contrary, took her off the nest and put her in a meadow, and also removed the eggs; the turkey, however, to my surprise, returned immediately to her nest, and called in a most plaintive voice for her eggs; then some eggs were placed in a corner of the box, which she instantly drew under her with her beak, and seemed quite delighted. Moreover I was informed that it was of great economical advantage to employ turkeys to hatch, as they eat very little, and get fat in their state of confinement, and therefore fit for the market any day."

The extraordinary advantages of this singular system appear in its cheapness—the sitting bird covering nearly double the number of eggs that we commonly put under a hen, and at the same time getting fat for market instead of famishing in the process; in the uninterrupted succession of chickens—the hatching being completely independent of a broody condition in hens, which is often delayed or interfered with by wintry weather; in the wide margin for hatching, and the certainty of none but large broods coming off at every three weeks; and in the power to get chickens from the "live hatching machines," at any season, and thus time them as adults for the high prices of spring and early summer, without any troublesome and expensive provision of relays of pullets of different breeds and ages, which must otherwise be kept for the purpose.

We think this method well worth a careful trial with us. We shall describe the mode of raising the chickens hatched in this way in our next number.—*Massachusetts Ploughman.*

PROFITS OF POULTRY.—*Messrs. Editors:* In 1866 I kept fifteen hens—three of which were eight years—five were three years—seven were one year old—began laying March 9th—laid till September 30th—stopped laying on account of moulting. We used for cooking for a family of three, which I did not keep account of. We packed seventy-two for winter use, raised forty-five chickens, and sold seven hundred and thirty-two eggs.

Average price per dozen, twenty-one cents	$12 81
Sold thirty-three chickens—weight eighty-three pounds, at thirteen cents per pound	10 79
Total	$23 60
It cost me for keeping fifteen hens and one cock	10 39
For care and profits	$13 21

This is an exact account. The hens were not

fed during the summer—they ran around the barns and picked up their own living.—A FARMER BOY, *Lewis Co*, *N. Y.*

We give the above as an example to farmer's boys in account keeping. Who of them that reads the *American Farmer* will take account of the cost of keeping, and the product of their hens for a year?—ED. AM. FAR.

CHARCOAL FOR FATTENING TURKEYS.—"Having made an experiment in feeding charcoal to fattening turkeys, the result surprised me," says a writer. "Four turkeys were confined in a pen and fed on meal, boiled potatoes and oats. Four others of the same brood also, at the same time, confined in another pen and fed on the same articles, but with one pint of very finely pulverized charcoal mixed with their feed—mixed meal and boiled potatoes. They had also a plentiful supply of broken charcoal in their pen. The eight were killed on the same day, and there was a difference of 1½ lb. each in favor of the fowls which had been supplied with the charcoal, they being much the fatter, and the flesh greatly superior in tenderness and flavor."

[Did the use of coal tend to promote digestion, and, therefore, thus to increase the nutritive extract from the feed? What say poultry-feeders? —*Mass. Ploughman.*]

The Mineral and Agricultural Wealth of Southwestern Virginia.

There is, perhaps, no portion of our State which contains within itself more of wealth than the section known as "Little Tennessee." The fertility of the soil, the salubrity of the climate, and the varied mineral deposits with which the earth is liberally filled, combine to render it one of the most interesting and attractive regions of the State. With the exception of a few miles immediately contiguous to the line of the Virginia and Tennessee railroad, the great area of this beautiful country is litterally a *terra incognita* to enterprise and capital. The distance from market and the absence of many facilities for developing the agricultural resources of the country, combined with the natural adaptation of the soil to the production of grasses, have conspired to make the inhabitants of this section of Virginia rather a pastoral than agricultural people. Lying in the great limestone region, which stretches from the St. Lawrence to the Gulf, it partakes in a high degree of all the characteristics of this favored formation. Consisting of valleys, and groups of valleys, alternating with mountains rich in mineral and clothed with verdure, this region throughout its whole extent presents remarkable uniformity in its geological conditions. Throughout its extent we have the same productive soils, everywhere bounded by the same great geological formations.

Through New York and Pennsylvania the whole of this beautiful region is crowded with a dense and prosperous population, with cities and towns springing up like magic; with furnaces, and mills, and factories in full blast, teeming with wealth, and glorious in its beauty.

But in Virginia and Tennessee and Georgia, it is comparatively a wilderness. Three-fourths of the country remains in original forest, and in many sections the solitudes are as deep and unbroken as if the foot of man had never intruded upon them. Why should not this section of Virginia rival the prosperity and wealth of corresponding portions of Pennsylvania? She is blessed with a more delightful climate, equally fertile soil, and mineral deposits not inferior in richness and variety to those which have secured to the latter State such a degree of prosperity.

The great need is capital and enterprise. With these, properly applied, Southwestern Virginia would, in a few brief years, rival the most favored regions of the Keystone State. We must therefore invite this capital to investments here. We can and must so present the advantages and capacities of our State as to command the attention of capitalists, and court the fullest and most searching investigations into the resources of the country.—*Lynchburg News.*

Coal Ashes.

Coal ashes in England have been found to be excellent top-dressing for clover and grass lands, especially on dry, sandy soils. The quantity used is from fifty to sixty bushels per acre, spread either immediately after harvest, or during the winter or early spring. The qualities of coal ashes are said to be improved by covering up in every cart load of ashes one bushel of lime in its hottest state, for about ten or twelve hours, when the lime will be entirely fallen. The whole is then mixed together, and turned over three times, when the cinders or half-burned pieces of coal, which would otherwise be of no use, will be found reduced to as fine a powder as the lime itself. The coal ashes should be kept perfectly dry, and when thus prepared with lime and applied to swampy soils, is said to improve them very materially. Dry coal ashes, applied to night soil, from time to time, frees it from unpleasant odor, and forms a highly concentrated manure, which is in proper condition to be carted away.

Much of the coal used for fuel in England is the soft coal, but we have no doubt good results would follow from the use of ashes of American coals. Indeed, in proof that they have considerable manurial value, we have often seen squashes and other vegetables growing in great luxuriance upon a heap of coal ashes which had been thrown out from the grates, and entirely free from a mixture of earth or manures. The consumption of coal in the inland cities and villages is becoming every day more extensive, and the ashes for the most part are thrown away as useless material.

To those living within the reach of cities and villages, it would be well worth while to collect this waste rubbish and experiment with it upon grass lands, with a view of determining its real value. It is a mine which may be well worth working, and one which the practical farmer should not overlook.—*Utica Herald.*

A Great Invention in Bee-Culture—How to Empty Combs.

The Bee papers of Europe and this country are filled with accounts of the discovery of a German Apiarian, of a method of emptying combs of honey without injurying them. The process is exceedingly simple, and consists only in slicing off the caps of the cells, and then causing the combs to revolve on the periphery of a wheel or cylinder, which empties one side of honey; then the other side is turned and emptied. Liquids, upon bodies which are whirled or revolved, tend to fly off by what is called centrifugal force. In this case the revolution is so graduated that only the honey flies off, and dead bees, bee-bread, &c., remain behind, so that not only is the comb saved, but the honey is purer and better than that strained. The temperature requisite to success, is about 80° Fahrenheit, which is gained in a warm room, or on a summer day.

The value of this invention may be the better appreciated when it is known that it requires the consumption by the bees, of 15 to 20 pounds of honey, (estimates vary,) to make 1 pound of wax, consequently, that the comb requires for its construction the use of just about as much honey as it will contain when filled. It may be found that in the economy of bee life, it is essential for the bees to make or excrete a certain amount of wax in order to remain in good health; but this is hardly probable, for it has long been the practice of bee-keepers to save empty or partly filled combs with scruplous care, and give them to the bees. And no bad results have ever been noticed.—*American Agriculturist.*

Manurial Values.

Fertilizers purchased for agricultural purposes have been a fruitful subject of discussion, arising from the discrepancies that often exist between their value *in the market*, owing either to cost of production or to a demand for other uses—and their value *on the farm*—what they will actually bring out of the ground in increase of production. Prof. Anderson writes a letter to the Scottish Farmer, in which he refers to saltpetre, as an example of the kind—an article which, commercially speaking, is of so much greater value than it is in a manurial point of view, that no farmer can afford to purchase it; because, although to a certain extent it is a valuable fertilizer, yet the results produced by it would be too dearly purchased at the price which it is worth in the market. After mentioning this, the Farmer adds:

On the other hand, the commercial value of a fertilizer may be considerably increased, simply because its manurial value is such that the farmer can afford to give more for it, and the demand which arises for it from this cause will, as a matter of course, increase its commercial value, which may be still further heightened if the supply at any time falls short of the demand. In the latter case the commercial value might become too great to allow it to be used profitably as a fertilizer. Again, there may be a difference even in the manurial value of a fertilizer, as an article may be more advantageously used as such on certain soils, and under certain conditions than in other cases, and thus the manurial value will be greater to some farmers than to others.

From all of which we may safely conclude, that when the chemist, after completing an analysis of any fertilizer, goes on to give an estimate of its *money value*, he ventures on what must, of necessity, be subject to constant fluctuations, and if correct for the time and place for which it is calculated, may be quite erroneous—when quoted at a different date, or in another country.—*Country Gentleman.*

Signs of a Severe Winter.—Says the *Lynchburg News:* The phenomena which usually presage, according to the notions of the very observant in such matters, the approach of a hard winter, are becoming very marked as the season progresses. Hives are overflowing with honey, the husk of corn are declared to be of extra thickness, and the furs of animals are pronounced exceedingly rich and heavy. It is observed, too, that the squirrels are making arrangements on an increased scale for storage of nuts.

The American Farmer.

Baltimore, January 1, 1867.

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BALTIMORE.

Christmas and New Year.

We greet our readers everywhere with the joyful Christmas Proclamation, "*Peace* and *Good-Will*." Let the New Year take up the words of love, and carry them outside of the churches, and into the fields, where the Angels first uttered them. Let them go forth with men into all their callings, and all their daily life, not as words merely, but as powers, to do the works of peace. It is the noble privilege of man, to speak the words, and do the works, of the Ministering Spirits of God.

No Politics.—A Philadelphia friend says he is glad to see *The Farmer*, but would like him better if he would drop all politics. *The Farmer* takes his kindly suggestion in the spirit by which it was prompted. A too keen remembrance of the sad past, or a "rash humour," it may be, not yet toned down to a becoming meekness, has been exhibited occasionally in the prosecution of our proper work—instruction in agriculture. But, withal, to such as will let "by-gones be by-gones," and who feel, and mean, kindly to those with whom he had sympathized and suffered, there is no heart that goes out with less of bitterness, or more of brotherly kindness, than this old *Farmer's*. Would that he had the power to still the bitter waters of strife, and to make the people North and South feel, that, after all, they are *brothers*.

☞ We call attention to the advertisement of the Leonard Scott Publishing House.

Executive Committee of State Ag. Society. The first quarterly meeting of the Executive Committee of the State Agricultural Society was held on the 4th of December, at the office of the Society, 67 West Fayette street. John Merryman, Esq., was appointed permanent President of the Committee. A communication was received from Ross Winans, Esq., declining, from personal considerations, the office of President of the Society. The committee will meet again early in January to elect a President, according to the constitution, from among the Vice-Presidents.

Sub-committees were formed to take charge of the Finances, the obtaining a charter for the Society, and the selection of a show ground.

☞ An inquirer says: "Can you tell us why it is that Peruvian guano has come to be nearly worthless? That which I have used for the last three or four years was not actually worth $20 per ton. I have bought my last bag.

"I have been using Peruvian guano for the last fifteen years, and what I state here I know to be a matter of fact. I have made inquiries of all the farmers in my section, and they are of the same opinion about guano."

Got supplies from the wrong quarter we suppose.—Ed. Am. Far.

The Louisville Journal.—The thirty-sixth anniversary of this Journal was celebrated recently by a banquet. The venerable senior editor, the renowned Prentice, presided, and "gave to the occasion the brilliancy of his wit, and the eloquence for which he is so famed."

General Rousseau sent the following toast:

"*The Louisville Journal.*"—Its leader of today is sufficient evidence that it is as vigorous and powerful as when, thirty-six years ago, it sprang into being, matured and full-armed like Minerva from the brain of Jove.

Post Masters.—Will Mr. John Dabney, a P. M., who wrote to us lately on business, please write again, and say in what part of Uncle Sam's dominions he has the honour of keeping a Post Office, and give us the name of his office? He does not give it inside of his letter, and it is not legible outside.

☞ The paper of Dr. Lee on "The Study of Agricultural Facts, and the value of fertilizers," will be found very interesting and instructive. We hope the doctor will favour us further on kindred topics.

The Agricultural College of Maryland.

ELECTION OF PRESIDENT AND PROFESSORS.

A meeting of the Board of Trustees of the Maryland Agricultural College was held in Baltimore on the 10th of December for the purpose of electing Professors for the reorganization of the College.

There were present: Gov. Swann, Lieut. Gov. Cox, and Rev. L. Van Bokkelen, representing the State; and Hon. James T. Earle, President of the Board, Rev. Dr. William Pinkney, Hon. Charles B. Calvert, Col. Edward Lloyd, Otho H. Williams, Esq., and Col. William H. Purnell, representing the private Stockholders. The election resulted as follows:

Gen. Custis Lee, President, and Professor of Mathematics and its Applications, and Military Science.

N. B. Worthington, A. M., Professor of Moral and Mental Philosophy, and English Literature.

Dr. Jas. Higgins, Professor of Natural Sciences and Agriculture.

Battista Lorino, L. L. D., Professor of Ancient and Modern Languages.

Mr. Daniel Barker had been previously appointed *Practical Agriculturist* and *Horticulturist*.

Other Professors and Assistants will be appointed as the exigencies of the institution may require it. The College will be reopened on the 5th of February.

Farmers' Clubs.

We do not suppose that there is in any portion of the country, so much apathy as to agricultural interests, as here in Maryland. States devastated by the war have had great agricultural gatherings, and numerous counties in those States have had neighbourhood meetings for the discussion of their affairs, and have organized associations, and appointed stated times of meeting. In New Orleans there has been one of the most imposing gatherings, with a spirited exhibition of agricultural and mechanical productions. In Richmond, there has been a great convention of her farmers, and a discussion of many days, upon the important topics presented by the present condition of the agricultural affairs of the State. North Carolina has had her agricultural State convention for the same purpose. In these and in other States, there have been many associations formed in neighbourhoods and counties, which indicate a spirit and energy that make us very hopeful of the rapid revival of Southern agriculture.

Here, in Maryland, we have, indeed, organized a State Society. This is, at least, a good beginning. Let this first step be followed up. Let the Society be, by all means, encouraged. Let every Marylander, who calls himself a farmer, become a member, and give it his personal influence and support, and let us have a State Association of farmers that we may be proud of. But what we would call attention to, especially, in these lines, is the lack of neighbourhood association—farmers' clubs. Where is there now one in the State, but the time-honored association of Talbot county, the club that for so many years has held its monthly meetings, going from farm to farm, and eschewing all topics of conversation and discussion, but those especially pertaining to the order of the day—a good dinner, indeed, being always discussed as not out of order. Why should there not be in every county of the State a half dozen such clubs? These should then unite in a county association, and the county associations should be the earnest, active, allies of a great State Society. We earnestly commend the matter to the consideration of our friends throughout the State, and hope the leisure of the winter months will be taken advantage of to get up farmers' clubs in every neighbourhood.

Labour.

Many sermons have been written on the "dignity" of labour, and much pains has been taken to persuade young men that it is "dignified" to roll up their sleeves, and toil and sweat in the dirt. Has any one been persuaded that this is "true preaching," and, if so, has he been prompted by it to go to work? No. No man ever worked because of the dignity of labour, and the argument may as well be dropped.

Most men work from necessity, or what seems to them so, all should work because it is their *duty*. This is the word—DUTY. It is due to himself, his friends, his country, and, above all, to Him who gave the faculties and the power to work, that every young man should take hold at once of that which lies before him, and do it with his might.

We like, therefore, the preaching of Gov. Wm. Smith, of Virginia, who, in his speech at the Farmer's Convention at Richmond, is reported as follows: "When he got home after the war, he found citizens of the village standing at the corners of the streets, the young men idle—but he reminded them of their duty. He told them if they could not earn a dollar a day then they ought to take less, and they would have the consolation of knowing they had done their duty. That was the principle." This is indeed the "principle"—the very beginning of all right-

doing, that a thing be done because it ought to be done.

But, alas for our weakness! this first law of duty does not often sufficiently constrain us, and He who "knows what is in man," has hemmed us about with necessities, real or supposed, which whip us to our work. The necessity of food and raiment for ourselves, and those dependent on us, the supposed necessity of providing a home of our own, of keeping our position in society, of making a good show before the world, of laying up some fund for a future day, of supplying the thousand wants, many of them imaginary, which press upon us day by day; our pride, our vanity, our ambition, our avarice, our love, our honour, all supply us with motive power to do what we often persuade ourselves is done from a sense of duty. Labour in the callings of life is right and good in itself, without reference to the imperfect, or even vicious, motives which prompt it. God's work in the world is often done by evil agents, and through vicious promptings. There are motives, too, other than duty, that are amiable, and lovely, and of good report. But the "principle" of duty, to begin, or be moved to, a work because it is good, because it is right, because it is the very work which has been set us to do, while it does not change the character of the action makes the doer God-like. Let us tell our young men, then, not that labour is "dignified," but that it is *right*—that it is their "duty."

President of the State Agricultural Society.

At a meeting of the Executive Committee of State Agricultural Society, held on the 4th of December, a communication was read from Ross Winans, Esq., declining the appointment of President of the Society. This was matter of great regret to the committee, as it will be to the community, for no man in the State could more worthily and efficiently fill the position. It devolves now on the Executive Committee to fill the office from among the Vice Presidents, and a suitable selection will, no doubt, be made from so respectable a list of Maryland gentlemen.

ORCHARD AND HERD'S GRASS.—A correspondent in Augusta county, Va., inquires: "How much seed to the acre of these grasses?" Orchard grass is very light and chaffy, and when sown alone not less than two bushels is required. Of Herd's grass one bushel per acre. If mixed, halve these quantities; and so when sown with clover or timothy.

Old Virginia.

"'Twas my forefather's hand
That placed it near his cot,
There, woodman, let it stand.
Thy axe shall harm it not."

The thoughts upon the holding of our homesteads, and the value of our lands, which we have poorly, but earnestly, expressed in the *Farmer*, in months past, are nobly and powerfully uttered from the late Farmers' Convention at Richmond, by the President, Mr. Willoughby Newton, and ex-Governor Smith. To preserve the old homes and the old land-marks, that not a house be alienated nor a tree cut down, should be the prompting of every true Virginian; not from hostility or unfriendliness to any outside of the Old Commonwealth, but that the identity of her people may be preserved, and that the sons and the grandsons of her present and past generations may not fail of their inheritance in the future wealth and grandeur of the noble old State. And more, that this great future may be the work of their hands. It is a rich heritage, and a noble work. Let others come from every quarter, for there is room and verge enough, who would make new homes, and take part in the great work, and be adopted as sons, but let the Old Dominion be still the land of the old Virginians. We make the following extract from Mr. Newton's address:

"To sum up my advice in as few words as possible, I would say: Hold fast to your lands. Do not sell them under any circumstances except at a fair price. Do nothing in haste—await developments. You had as well be ruined by interest, as by the voluntary sacrifice of your property. Do not refuse to sell your *surplus land at a fair price to pay just debts;* but cling to the homestead. Whether it be the humble cottage or the stately mansion that has sheltered you and your fathers, let it continue to shelter your children and your children's children. Teach the rising generation to preserve the land-marks, to venerate the 'patrimonial oaks,' and be sure to love each shrub and tree planted by their fathers as if it were a sentient being. You will thus cherish a sentiment stronger than law, by which your homes will be preserved to your posterity.

"If your estate is large, divide it with your sons, and keep them in the State; for one of your young men of proper spirit is worth a hundred immigrants. You may retain a thousand acres of arable land, which may be cultivated under your own eye with entire convenience, with the aid of a bailiff, according to the English system of managing large farms. As an illustration, I cite the Netherby farm, in Cumberland, England,

containing 1290 acres of arable land, exclusive of parks, of the operations on which a detailed report is given in the Library of Useful Knowledge. Smaller farms of 500 acres, or less, may be cultivated with equal success, under the management of an active and intelligent proprietor, with the aid of a bailiff. To the highest degree of success, lime, grass, stock, labor-saving machinery and manures—home-made and bought—are indispensable. The truth that poor land cannot be cultivated by hired labor without loss, must never be forgotten. This makes improvement a matter of necessity, if not of choice, and may, in the end, prove ample compensation for the loss of our slaves.

"The soil of Virginia is kind, and easily cultivated; the climate genial, and the variety of her productions greater than that of any other region. In addition to all the productions of Great Britain, we have the important staples of cotton, tobacco, and Indian-corn. We have abundant water-power, boundless mineral resources, free navigation, and open markets with all the world. Why, then, should our lands, not have a high market value, and be capable of profitable cultivation by hired labor?"

Governor Smith said:

"He agreed with the President, that large farms could be managed better than small ones, if there was capital to do it. When a man had a little farm he became like one of his own cattle, for he had to work incessantly, and there was no time for the improvement of the intellectual man. He had earnestly impressed on his friends not to leave the country. Where would they go? Virginia was the place for them, after all. Let every Virginian say 'this is the spot for me; here is my ancestors' home. I will die here, and I spare no effort to restore my native State!' Where could they go? To Mexico? No. To Brazil? To the West? No. For there they would be overwhelmed by hordes of foreigners. He had travelled much of late, and took occasion to converse with the people. He came to this city, and saw palatial residences going up. And for what? To sell other people's industry in. Thousands of dollars were thus spent, when, if they had been applied to manufacturing purposes, other people would be buying from us. He had been to Danville. He saw there a water front of a mile and a half, which could be devoted to manufacturing purposes, but he found the merchants there putting up fine houses in the country, where they spent some of the time which ought to be devoted to business. He saw fine stores going up here, in which to sell shoes and hats, from New England, wine from the Rhine, and silks from France; whilst in place of them new factories should be established, in which the Confederate soldiers could get employment. He looked forward with hope, though the signs of the times were ominous. Let us look forward with hope, and let us go to work and do our duty."

Experiments on Potatoes.

The distinguished agricultural chemist, Baron Von Liebig, has published a paper containing the records of a series of experiments on the growth of potatoes, and analyses of the results, which are worthy of attention. The soil selected for the experiment was a coarsely powdered turf. One of these was left unmanured, the others were manured. One received a copious dressing of phosphate, sulphate, and carbonate of ammonia; the other was supplied abundantly with the phosphates of potash and soda, carbonate of potash and gypsum. The result of this upon the soils of the three boxes is represented in the following table, of which No. I. expresses the unmanured box; No. II, that treated by the salts of ammonia; and No. III, that supplied with the alkaline phosphates and gypsum:

	I.	II.	III.
Phosphoric acid	2.20	1.96	0.93
Potash	1.10	....	2.83
Soda	0.23	....	0.44
Lime	11.08	....	0.68
Chlorine	0.39	....	....
Silicic Acid	22.45	....	....
Sulphuric Acid	1.21	0.98	0.98
Magnesia	0.95	....	....
Sesquioxide of Iron and Alumina	26.40	....	....
Nitrogen	24.60	1.51	....
		In addition to contents of No. I.	In addition to contents of No. I.

The ammonia appeared at first to retard vegetation, the shoots of the potatoes making their appearance above ground two days later in the turf which had received the ammonia than in either of the other boxes. The shoots in No. III. grew much more rapidly than in the others, but towards the close of vegetation, the shoots in No. II. were quite as luxuriant as those in No. III., though the latter had to the end a brighter colour. Flower buds made their appearance four days later in box No. III. than in box No. II. Soon after the stalks began to wither, the potatoes were dug with the following results:

	Box I. Turf alone.	Box II. With ammonia.	Box III. Without ammonia.
TUBERS.			
Grammes	2520	3062	7201
Proportion	100	121	285
Weight of tubers planted	7.6	9.7	21.7
TOPS.			
Grammes	1837	3535	2870
Proportion	100	192	156

The average yield per acre would have been

112 136 320cwt.

the best arable land producing about 180 cwts.

Calculated dry, the results vary a little, as may be seen by the following table:

	TOPS.		TUBERS.	
	Solid matter grammes.	Water grammes.	Solid matter grammes.	Water grammes.
I.	462.26	1974.64	386.72	2182.45
II.	716.22	2818.78	696.03	2365.07
III.	672.85	2197.15	1427.24	5773.76
	Per cent.	Per cent.	Per cent.	Per cent.
I.	25.17	74.83	15.34	84.66
II.	20.53	79.47	22.74	77.26
III.	23.45	76.55	19.82	80.18

As far as a single series of experiments can go, this would appear to indicate an inverse relation between the quantities of water in the tops and in the tubers, respectively; where the latter were rich in solid matter, the former being watery, and *vice versa*. It would also appear that forcing the growth of the plant diminishes the quantity of water in the tuber, and that ammoniacal manures are especially energetic in this direction.

The results are explained by Baron Liebig, as due to unequal distribution of the elements of plant-food. Thus the potash in the soil amounted to 277 grammes, of which a full potato crop could withdraw only about six grammes. The soil also contains twice as much phosphoric acid, ten times as much lime, and about as much magnesia as potash. Now potato tops are rich in lime and magnesia, and poor in potash, while tubers abound in potash, and are poor in the alkaline earths.

Now, taking the tubers as 10, the tops in box I. were 7.2, and in box II., 11, but considering the *increase*, if the increased product of tubers in box II. were rated at 10, that of tops would be 11. Therefore, the use of phosphoric acid, and salts of ammonia in manure, had brought into play, lime, magnesia, and potash, which had previously been inert, while the deficiency in potash interfered with a development of tubers corresponding to that of tops.

In box No. III, the addition of potash stimulated the growth of tubers, for, taking the tubers, as before, at 10, the relation between tubers and tops was:

	Tubers.	Tops.
On the whole produce	10	4
On the increase	10	2

Still further, of the potatoes grown in the unmanured turf, every tuber was attacked by the potato disease, whence the Baron infers that whatever promotes the natural development of the plant, wards off disease. He attributes the failure in the grape and silk crops of Italy, entirely to the exhaustion of the constituents of the soil essential to the healthy growth of the vine and of the mulberry.

Now, while these experiments are very instructive, we could have wished that they had been somewhat differently conducted. Turf, for example, is an exceptional soil, and its peculiarities militate against the experiments. How much so will be seen when we take account of the quantities of manure added to that which was already in the soil. For example, the ammonia added contained 1.5 grammes of nitrogen, which is less than 1–10th of the whole quantity originally in the soil, while the potash was more than double the amount in the unmanured turf. Such wide disproportion in the relations of the different manures to the quantities already on hand, must vitiate any reasoning upon the results. Furthermore, the organic matter in the turf was constantly supplying nitrogen, and we may rather suppose the increase of box II. to be due to the phosphoric and sulphuric acids, which effected a much greater percentage change in the soil than did the ammonia.

Again, the same weight of tubers ought to have been planted in each box. The manner in which this may have affected the yield, will be seen by a consideration of the proportionate yield as compared with the sowing. Thus, while box III. produced nearly three times as much as box I., it must be borne in mind that it was also planted with nearly three times as much seed. By calculating the actual multiplication of the crop, we get very different results from those given in the tables quoted above. Thus, rating in this way, we find that box I. produced, of tubers, 331.6 fold, the weight planted; box II., 305.5 fold; and box III., 331.9 fold.

Such irregularities as these prevent us from reasoning closely on the actual increase from each manure. The experiment seems to us valuable, chiefly in indicating the direction in which growth is promoted by the different agents employed, and in this the results appear to us important. The difference is rendered still more striking if we consider the proportion between the solid matter in the tops and tubers, respectively, in the three boxes. Taking the dry matter of the tops at 100, we have the following results:

	DRY MATTER.	
	Tops.	Tubers.
Box I.	100	83.6
Box II.	100	97.2
Box III.	100	201.6

Thus the proportion of dry matters, in tubers to that in tops, increased in both the manured boxes, but very much more in that treated with the alkaline salts.

Book Notices.

The Southern Cultivator for December, enlarged to *Forty-eight Pages*, contains the following interesting articles:—Farm Work for December; Agricultural Implements and Machinery; New Process for Dissolving Bones; Chinese Tea in North Carolina; Rice Culture; Possible Number of pounds of Cotton to the Acre; The Dawn of Day in Southern Agriculture; No Profit in Cultivating Poor Land; Guano; Pastures and Forage Crops; Manures; Economical Farming; Sea Island Cotton; Gardening vs. Farming; The Garden; Culture of Vegetables; Mexican Pea; The Flower Garden; The Orchard; How to Plant a Tree; Grapes; Brinly Plows; Guinea Fowls; Food for Chickens; Curing Meat; How to Cook and Make Sausages; The Dead Wife's Portrait, (Poetry,); Mrs. Buckster, Willie's Journey to Heaven; besides Editorials, &c., &c. The 25th volume commences January, 1867. Now is the time to subscribe. Wm. N. White, Athens, Ga. $2.00 per annum.

Publishers wishing to club with the *Southern Cultivator*, are supplied with it at $1.50 per annum.

The Southern Review.—A Quarterly to be called *The Southern Review*, will be regularly issued in Baltimore from and after January 1, 1867. The *Review* will be edited by Albert Taylor Bledsoe, L. L. D., one of the profoundest thinkers, most vigorous writers, and ablest scholars of the South. As a lawyer, a mathematician, a linguist, and a man of letters, he is surpassed by few in any country. The contributors to the *Review* are all gentlemen of high scientific and literary attainments.

A Wonderful Microscope.—The editor of the New York *Sunday School Advocate*—Rev. Daniel Wise, D. D.—says:

"The simplicity, cheapness and great magnifying power of the celebrated Craig Microscope struck me with surprise. Then I was examining a fly's eye by its aid, and was struck with wonder at the skill and power of the Creator which is displayed in its structure. When I saw a statement in an advertisement that this microscope magnified one hundred diameters, or ten thousand times, and could be bought for $2.50, I thought it was one of the many humbugs of the hour, for I had paid $20 for a microscope not long before. But now I find it to be a really valuable instrument which I should like to see introduced into the families of our readers in place of the manifold useless toys which please for an hour and then are destroyed. This microscope would both amuse and instruct them, and I advise every boy and girl who wishes to know the wonders which lie in little things to save his money until he has $2.75," and send it to Geo. Meade, Racine, Wisconsin, and you will promptly receive this beautiful new microscope by mail, postage paid.

Poudrette—How to Prepare it.—A correspondent at Greeneboro', North Carolina, wants information on this subject. There is no book or publication that he can resort to. The practice is, mainly, to haul the raw material to some spot where it may be spread and dried in the sun, and to mix it with earth, ashes, or any refuse that will help to dry it, and make it fit to handle. It makes most valuable manure, and should never be wasted where it is possible to put it in condition for use. To make it portable, it is important to use the least quantity of drying material that will answer the purpose; but, if it is to be hauled short distances only, it is of less consequence.

☞The experiment of sowing oats in February, made by our correspondent of Baltimore county, is a striking and useful one. It is well known that there is great advantage in the earliest possible sowing of this crop consistent with its safety, and which the preparation of the ground will allow. If further trials, on the suggestions made, shall show similar results, a great improvement may be made on our common practice. It will greatly favour too the clover seed, if it can be sown thus early on land prepared in the fall.

How to Select Fowls.—In view of the fact that the holiday season is at hand, when poultry is more frequently on our tables than at any other time during the year, an exchange submits the following rules for selecting good fowls: A young turkey has a smooth leg and soft bill, and if fresh the eyes will be bright and feet moist. Old turkeys have scaly, stiff feet. Young fowls have a tender skin, smooth legs, and the breast bone yields readily to the pressure of the finger. The best are those that have yellow legs. The feet and legs of the old fowl look as if they had seen hard service. Young ducks are tender under the wing, and the web of the foot is transparent. The best are thick and hard on the breast. Young geese have yellow bills, and the feet are yellow and supple; the skin may be easily broken by the head of a pin; the breast plump and the fat white. An old goose is unfit for the human stomach.—*Ex.*

For the "American Farmer."

The Study of Agricultural Facts.

BY DR. DANIEL LEE.

In the December number of the American Farmer. Peruvian guano is quoted at $95* a ton: while such appears to have been the demand for this fertilizer that the market is bare* of the article. Common cow manure, formed by the consumption of wheat straw, rye or oat straw, is not worth more than a dollar a ton for agricultural purposes. How many farmers or planters have thoroughly studied the causes of this remarkable difference in the price and value of these substances, both of which are largely used as plant food? Mr. David Dickson, of Hancock County, Georgia, made a fortune by early mastering this problem in agriculture, and largely utilizing the material facts which it discloses.

Why should the dung of sea-birds be worth from fifty to one hundred times more, pound for pound, than that of cattle? Both are animal excrements, both nourish agricultural plants. Why then is the imported manure worth so much more than the homemade? There are good reasons for this difference, and every farmer ought to understand them.

If the constituent elements of both were the same in quantity, condition, and necessity to be applied to tilled land, any essential difference in price would be absurd. On the contrary, if the cow manure is composed mainly of substances which rain water and atmospheric air can supply to growing crops, and has only a trifle of assimilable nitrogen and phosphorus, while Peruvian guano has very little of those elements which air and water furnish, but is rich in available nitrogen and phosphorus, (which are deficient in most soils,) we have only to prove the necessity of nitrogen and phosphorus to plant growth, to explain in the clearest manner why the one manure is worth so much more than the other. All reading farmers are so well satisfied as to the necessity of assimilable nitrogen and phosphorus in the healthy organization of plants and their seeds, that no space will be occupied in the Farmer in discussing that point. It is vastly more important to learn, if we can, how to concentrate homemade manure, and give to a ton of it the same agricultural power and value which exist in the best Peruvian guano. Mr. Dickson purchased annually ten thousand dollars' worth of this and other highly concentrated manures, mainly because with them twelve hundred acres of land were readily fertilized for cotton or corn before planting. To make good cowpen and stable manure enough for twelve hundred acres, and apply it before planting every year, would be a formidable, not to say, an impracticable undertaking. The latter operation he did not attempt, while the expense of annually manuring twelve hundred acres, so far as the labor of distribution was concerned, was comparatively small, and the profit large.

When a man makes four hundred pounds of clean cotton on an acre, and sells it, something less than one pound and a half of nitrogen, (which is so valuable in guano,) leaves his plantation. The bale of cotton contains also about four pounds of incombustible salts. For the sake of round numbers, call the loss in both six pounds. Let us assume that to each acre planted in cotton he applies one hundred pounds of Peruvian guano, and thirty-three and a third pounds each of potash, common salt and epsom salts, and that the surface soil gains as much by moving water bringing fertilizers into it, as it loses by washing or leaching. In this case the acre receives two hundred pounds of agricultural salts a year, and parts with six pounds, having a clear gain of one hundred and ninety-four pounds per annum. A thousand acres of Mr. Dickson's piney woods plantation, treated in this way ten years, would lose, on producing a bale to the acre, of four hundred pounds on an average, sixty thousand pounds of agricultural salts, and gain one million pounds of Peruvian guano, and the like weight of potash, common salt and epsom salts. The excess of gain over the loss would be one million nine hundred and forty thousand pounds.

With this enormous balance in favor of fertilizing atoms applied to the soil, should not Mr. Dickson's home plantation grow rich quite as fast as its owner? This plantation contained, when I saw it, some nine thousand acres; and it is pertinent to inquire whether a man, who buys ten thousand dollars' worth of highly concentrated manure a year, may not so use it as to draw fertilizing elements from what were before insoluble silicates, phosphates, sulphates and chlorides in the ground, as well as carbon, nitric acid and ammonia from the atmosphere? Is it not a part of the great and perfect economy of nature that manure, as well as the seeds of plants and all animals, shall be reproductive of more food for plants? If so, is not this reproductive function a matter of the highest importance to all tillers of the earth, who need plant food as much as bread?

A little phosphate of potash, extracted from a granite rock, by a few cells of moss growing on

*This was an oversight, and the price should have been quoted $86 per ton.

it, enables this plant to produce, for plants of a higher order, much more assimilable potash and phosphoric acid derived from this adamantine rock. Explain this phenomenon as you please, to my mind it is highly instructive. Can there be a reasonable doubt that a little manure of the right kind, often sends the needy roots of corn, and cotton, into fresh pastures beyond what they would reach without this acid?

If the countless rootlets of plants have any power at all on the earthy matters that surround them, whether chemical, vital, electric or any other, the extension and increase of these rootlets must augment their peculiar force. A fertilizer that contains no carbon often develops cotton, corn and wheat plants, that have three or four times more carbon than those growing on the same soil, but not fertilized at all. In the same way a few pounds of gypsum applied to an acre may send clover roots into fresh pasture, and thereby give to this renovating plant twice or three times more sulphur than the gypsum contained. Soluble phosphoric acid and potash have the same recuperative and reproductive power.

Viewed by the light of undeniable facts, good manure has substantially the reproductive function of good seed corn; and the painful fact should not remain hidden under a bushel that, while most farmers save their seed-corn with commendable care, they waste seed-manure as though it had no value whatever. Two hundred pounds of manure will fairly seed an acre, if it is sound, and of the right sort. It was this kind of *seed* that enabled Mr. Dickson to raise three times more cotton seed on an acre than would grow without it; and this excess of cotton-seed, used as a manure for corn and field peas, more than doubled his crops for feeding hogs and cattle. From these he produced meat to sell on a cotton plantation, and such heaps of hog manure of the richest kind, as might rejoice any owner of piney woods land. Deep plowing enabled his first seed manure, his cotton seed manure, and that from hogs, cattle and mules, to operate with double effect on both soluble and insoluble salts in the soil.

Gap Creek, Knox county, Tenn.

☞An agent is now in England purchasing brood mares and young stock for the King William Stud Company, at the Cape of Good Hope. In that extreme point of the world they are giving great attention to the breeding of horses.

☞At $150 per bale the South will realize from her cotton crop alone about $225,000,000.

For the "American Farmer."

Sowing Oats in February.

CLAIRMONT, Baltimore county, Md.

MESSRS. EDITORS: By reference to books on the subject of agriculture, and the monthlies, I have yet to learn that oats have been sown in February, neither have I heard the practice verbally suggested. Believing the object could be profitably accomplished, I prepared in the autumn of '65 a small strip of tolerably rich clay loam, having an easterly exposure, and, on the last snow in February, I sowed it down in oats, at the same time the land was top-dressed, at the rate of twenty-two horse cart loads of barn-yard compost per acre.

If there is a sufficiency of vegetable or animal matter on the land, and manure made on the farm is not sufficient for the crop, guano and other fertilizers may be resorted to, and with a saving of 100 to 200 per cent. over and above the cost of carting manure from the city.

For the process of covering the seed and manure, I relied on the honeycomb state of the land, aided by the melting snow and spring rains; as I anticipated, the seed germs started vigorously and promised success; when the plants were sufficiently grown and the land dry, I passed a common dray harrow over it, followed by the roller. I ploughed, manured, and managed three acres under similar circumstances, and sowed the oats about the tenth day of the following April. Now to the result. The oats sown in February produced a heavier crop, greater weight of grain and straw, and was ready for the scythe upwards of *two weeks earlier* than the April crop, thus affording not only an increased yield, but an opportunity of getting the crop in market early, and obtaining the highest price. Clover and other grass seeds may be sown in February, at the same time of seeding the oats. In preparing land for oats, or any other spring crop, it should be ploughed in the autumn, for reasons that every observing farmer understands. I am strongly in favor of the propriety of surface manuring: to gain the utmost by the practice, the manure should be spread after ploughing, and thoroughly incorporated by repeated cross-harrowing. With those who are opposed to the practice, and prefer to plough the manure under in the autumn, I will compromise by proposing that the land be cross-ploughed and subsoiled the following spring, after which harrow the land till it is harrowed enough, then harrow once more. The subsoil plough should be run sufficiently deep, to elevate the manure applied in the autumn. If the sub-stratum is rich, and

the upper stratum impoverished, the subsoil plough may be run as deep as possible. Again, on the contrary, if merely pulverizing the substratum is the object, it will be necessary to remove the elevating slide. By the free use of the subsoil plough and cultivator, drought (under ordinary circumstances) need not be feared.

As ground plowed in the autumn is seldom or ever harrowed, the oats may be sown without that preparation, and with fair success.

Yours, respectfully,

RIALCNIS.

Productiveness of North Carolina Lands.

DUNN'S ROCK, Transylvania co., N. C.,
December 10, 1866.

Messrs. Worthington & Lewis, Baltimore.

DEAR SIRS: You have conferred a great favor upon your friends by reminding them that the "American Farmer" not only exists, but that its constitution is in no degree impaired by the long course of alteratives we have all, *nolentes volentes*, been compelled to take.

Greenbacks are very scarce, and it is only because I confidently indulge the hope that the many practical hints given in your monthly, will do vastly more than replace the outlay, that I have brought my resolution to the sticking point, to renew my subscription to my old friend, the *Farmer*.

I observed in your November number, a long letter setting forth in glowing colors the benefits to be derived from a settlement in the pine hills of Georgia. Allow me to say a few words in behalf of that section of country in which I reside, and which is commonly known as the Valley of the French Broad.

About twelve or fifteen years ago, a friend of mine, an experienced rice planter and a thoroughly practical man, whose health had broken down from too earnest a devotion to agricultural pursuits, on the coast of South Carolina, determined, if possible, to find a home in some region where productiveness of land was not incompatible with the enjoyment of robust health. After a careful and prolonged search, the desired location was discovered in this valley, and, to prove that the decision arrived at was a wise one, I will add that the health of my friend which had suffered severely from, I think, twenty-seven attacks of low country fever, was, in three or four years, so thoroughly re-established, that no finer specimen of athletic manhood could be found anywhere. So much for climate.

The lands of this valley require no auctioneer's puff; their productiveness is simply a fact, but *because* it is so, and *because* the wretched system of renting by the year has long obtained, some of the lands thus wanting the supervision of the owner have deteriorated.

This was the case with a considerable portion of the large farm, or rather collection of small farms, purchased by the gentleman I refer to. His practical eye, however, saw no discouragement in this, and the impoverished soil soon, under his skilful management, brought forth abundantly—if a crop of corn, in some instances, averaging over seventy-five bushels to the acre, can be said to prove it.

This land was "brought up" by nothing except stable yard manure, and lime. The latter can be procured in any quantity, at about fifteen cents per bushel, delivered, and when applied upon worn-out land will ensure a return of from forty to seventy bushels per acre, thus repaying the outlay in the first year after the application of the lime. From forty to fifty bushels of lime to the acre is requisite.

On virgin land, without the addition of any fertilizer, the following fact will show what can be done: From thirty-three acres of land just reclaimed from the forest, a crop of corn, averaging eighty-seven-and-a-half bushels of corn per acre, was harvested. This was the natural return for the ordinary processes of ploughing and hoeing.

So far, I have written only of the river bottoms, and I should fail in giving a fair description of this region of country, if I omitted all mention of the uplands.

The richness of low lands has, for many years, caused the value of the adjoining second bottom, and uplands to be disregarded, and they have generally been thrown in to the purchaser, at from one to three dollars per acre.

I will content myself, as before, with facts. Appreciating, perhaps, more than some of my neighbors the combination on a farm of a variety of soil, I proceeded, on purchasing a few years before the war, to clear some of my hill sides. On a field of about ten acres four good crops of corn have been made, and last spring I sowed this field in oats, and harvested eight heavy stacks from one, and a half of which I threshed out thirty bushels of prime quality oats. The same field is now in rye and promises well.

As I have no land to sell, and my only object in addressing the *Farmer*, is to call attention to what I consider a very desirable location for any one searching for health and plenty, I will only make one or two necessary remarks in conclusion.

The late unhappy war left its mark here as

everywhere else. The owners of some of the finest farms were ruined, or nearly so, and a settlement that promised to be (excuse the word) unique, was rudely broken up. Our lately built Episcopal Church is closed, but only waits the advent of more settlers to throw open its doors. Our new county-town of Brevard is endeavoring to recover from the fall that retarded its growth while yet in swaddling clothes, and all that is now wanting is intelligence and capital, to give our reviving settlement a push forward.

There is abundant water-power for all purposes, and one farm now, I think, on the market, has a mill building, just finished before the war, and designed for a saw mill, grist mill, and wool carding machinery combined.

Messrs. Editors, our work is all before us, and it is a great work. Let us not flinch from it. God has given us abundant material. Let not the necessary intelligent energy be wanting to become co-workers with Him in the noble effort to regenerate our now prostrate and struggling country. RUSTICUS.

Rotting of Turnips.

NEWBERN, N. C., Dec. 1, 1867.

Editor Am. Farmer:

DEAR SIR: I have recently been reading a treatise on "English farming," and find that in some particulars it might be applied with profit to the eastern part of this State. We have the finest summer pasture for cattle, sheep and hogs, but they get poor in winter, because cotton and Indian corn is the chief product of this section. The one they cannot eat, the other commands too high a price, (so the producer thinks,) and in this way stock is poor in spring, if indeed they survive until that time.

Turnips, as I read, has revolutionized husbandry in England. Man and beast fare sumptuously on them, and so it could be here, and is so for a short period.

Little attention and labor produces large yields on almost any land.

Sow them broadcast among corn on our swamp lands, and the lands will be literally acres of turnips; yet they profit us little, from the simple fact that we have not yet learned how to keep them for winter use. I have put them in dry cellars, they shrivel up, and become dry and useless before spring. I have banked them in heaps as we do sweet potatoes, and they invariably heat and rot in a very short time. The article I allude to, as having read, only teaches the cultivation; we have no difficulty on this part. It says not one word of the mode of preserving for late use. If you will inform us you will do the country service.

Root crops must, in this section, to a great extent, take the place of cereals; and, I hope, between this and spring, you will tell us something about beets, carrots and parsnips, as well as turnips. Respectfully,

H. J. B. CLARK.

We cannot speak confidently of a remedy for the difficulty mentioned by our correspondent, but will suggest that it may be met by allowing the crop to stay in the field unharvested, taking up not more than a week's supply at one time. Turnips will stand pretty hard frosts, and in the latitude of our correspondent may preserve their feeding qualities through winter. A pasture of early sown rye should be provided for spring.—ED. AM. FARMER.

Wheat Binders.

Having had occasional inquiries about Wheat Binders to operate by machinery, we addressed a line to Messrs. Emery & Co., of the *Prairie Farmer*, and, by their courtesy, have the following reply:

OFFICE OF THE PRAIRIE FARMER,

Chicago, Illinois, Dec. 8th, 1866.

Mess. Worthington & Lewis, Baltimore, Md.

DEAR SIRS: We are in receipt of yours of the 3d, and noted the same. There have been quite a number of inventions got up in the West for binding grain, to be attached to a reaping machine. The most successful machine is the invention of W. W. Burson, Rockford, Ill. This machine binds with wire, and has been quite extensively used, but is not growing rapidly in favor.

The best, and most practical machine for cutting and binding we know of, is called Marshes' Harvester. The grain is cut and carried by an endless apron, up to a platform, where two men stand and bind with straw, as on the ground. We have seen one man alone bind on the machine an acre in fifty-five minutes, leaving the field cleaner than by any seven mowers of hand raking and binding. The proprietor of this machine is J. D. Easter, Chicago, Ill.

The objection to the binders attached are various, the expense of wire or twine being one of the principal; and then the mechanism is complicated, and requires skilled hands to manage it. Yours truly,

EMERY & CO.

Lime Kilns—How to Make.

CHRISTIANSBURG, Montgomery co., Va.

DEAR SIR: Allow me to ask of you some information in regard to burning lime. I wish to try the system practiced in Pennsylvania and Maryland, of applying lime in clover sod, to improve my farm, which is a small one, well adapted to the growth of clover and other grasses, and have the finest of limestone marl at hand. What I wish to know is, how to build what is called the perpetual kiln, in which the lime, as soon as burned, is taken out below without stopping the fires. Can this kind of kiln be used with wood instead of coal? If not, can you direct me how to build a stationary kiln? By this I mean a kiln, the walls of which are built either of sandstone or of brick, that will stand fire, having flues below for the wood, and the lime to be taken out when cold. The only advantage, I presume, of this kind of kiln is, that it will burn all the stone put into it, instead of leaving a wall all round of unburned lime as in the old-fashioned kilns. J. R. G.

Will some friend do us the favour to furnish an answer to the above.—ED.

NEW BRUNSWICK, NEW JERSEY.

Please inform me whether the Scuppernong grape succeeds as far north as the latitude of Baltimore; and, if so, would it not do well in Southern New Jersey. I would like to purchase 25 Scuppernong vines, 1 or 2 years' old. Can you tell me where I can get them? I have read an article upon that grape by J. Van Buren. Is he a nurseryman?—H. K. H.

The Scuppernong does not succed so far north as the latitude of Baltimore, and the plants are not to be had here. Mr. Van Buren is an experienced nurseryman in Georgia; his post-office address we do not know.—ED.

MT. AIRY, HALIFAX CO., N. C.
December 3d, 1866.

Editor of the American Farmer:

DEAR SIR: Though somewhat late in doing so, permit me to congratulate you on the reappearance of your valuable journal, which was welcomed by all of us with unmixed pleasure. Indeed, like the fabled giant of old, it seems to have gained renewed strength from its temporary prostration.

With many apologies for the delay, for which the *state of the times* is my only justification, please see enclosed the amount of subscription.

Very respect'ly, and with all good wishes,
Your friend and ob't serv't,
C. B. E.

Peach Orchards.

GENTLEMEN: You would do good service to a large interest in Maryland and Delaware, if you could publish some good, practical articles, on the management of peach orchards, particularly with reference to the prevention and cure of the yellows, which is destroying us in Cecil county.

The article in your last number, on landlord and tenant, by Mr. Davis, is good as far as it goes. The changed social condition of the State will, no doubt, much increase the class of tenants, and whilst it is of great importance to encourage in every way their improvement, something, too, should be done, to protect the interests of *landlords* against them, more especially as they outnumber and outvote the farmer, and are likely to possess, even more than now, controlling influence in legislatures and courthouses. I may, perhaps, if agreeable to you, send you something on this subject. L. S F.

Shall be glad to hear from our correspondent on this or any other topic. Will not some friend give us the desired article on the management of peach orchards.—ED.

From a lady friend of the "Farmer," Cecil Co., Md.

Editor of the American Farmer.

DEAR SIR: My heart indited a letter of warm welcome to the "Farmer," upon its first appearance after its long, sad absence; but the "thief of time," whose hold grows stronger upon me as I advance in years, has prevented my clothing thought in words. Believe me, you will always be, as you have always been, a most welcome visitor. I enclose two dollars for one year's subscription, for Mrs. ....., Wilson's Depot, Crimea P. O., South Side Railroad, Dinwiddie county, Va.; a dear friend who has suffered greatly by this wicked war, and two for ourselves; the beginning of a subscription never again, I hope, to be interrupted.

With best wishes for your success in this and every undertaking, I am yours, very truly.

Lime on Wheat.

November 7, 1866.

MESSRS. EDITORS: You will please tell me, through the old time-honoured *American Farmer*, what you think of giving a wheat field, which was a heavy clover fallow, a dressing of lime. I have an idea of applying it through the winter. The next crop will be corn. My mode of farming is four fields. I commenced the four field system about fifteen years ago; before that time I had but two fields, wheat and oats, after corn, and very little made of either. In 1840 I be-

came a subscriber to the *American Farmer*, and through its instruction, I have made my farm produce more than five times as much as it did before. You will also tell us how to make cheese, for we have been Yankeeized, and we will have to learn all the small things, even to the wooden nutmeg business. Yours, resp'tfully.

There can be no objection to putting on lime as proposed by the writer, if done when the ground is firm. It may not materially benefit the crop of wheat, but will be just right for the coming crop of corn.—Ed. Far.

Care of Long-Wooled Sheep.—Experienced breeders of Cotswold and Leicester sheep say that these sheep should not be kept in the same pasture with Merino sheep. They say that the odor from the bodies of the Merino is not only offensive, but hurtful to the English breeds. The long-wooled sheep are little disposed to roam over the pastures; they eat what they want, and then lie down. The Merinos, on the other hand, are much disposed to ramble all over the pasture, picking a little here and there. The consequent trampling of the grass, and scattering of the droppings of the sheep, seem to effect unfavorably the Cotswolds and Leicesters, so much so that it is advised, even where they are kept alone, that at least three pasture lots be kept, so that the sheep may have fresh pasture frequently.

Canadian farmers, who think highly of the long-wools, claim that the prejudice which exists against them in many parts of the United States, is owing to this mismanagement of those who own them.

Cashmere Goats.—Mr. J. B. Akin sold a pair of beautiful, pure blooded Cashmere goats to Mr. Green Jones, of Lincoln county, a few days ago. The large quantity of cashmere goods now worn, and the high price these goods command, and the erection of factories in the United States for their manufacture, is an indication that the intrinsic value of the Cashmere goat is appreciated. Our fine cashmere shawls, cashmere trimmings used by ladies for mantillas, dresses, &c., are made of the wool of these animals. They are superior in almost every respect to sheep. They require but little care, are secure from attack of dogs. We would advise our farmers to look to their interest, and secure some of this stock.—*Danville Advocate.*

In this connection we will state that Mr. Jas. G. Colmesnil, near Shepherdsville, Ky., will furnish a few half breed Cashmere kids at reasonable prices, if application is made before Christmas.

Compounding Manures.

There is no soil so fertile, naturally, as not to be improvable by the application of some extraneous substance. The best constituted soils, when chemically examined, exhibited some deficiencies. These are quite prominent and obvious in their character, and are supplied by the addition of some of the primitive earths, as sand, clay or lime, or by the admixture of vegetable animal organisms which are in fact composed of each.

When manure is to be made from various materials, we should endeavor to ascertain whether it is required that the base should be silicious, argillacious, or calcareous: if the former, sand must be the principal ingredients used; if either of the latter, lime or clay. This fact ascertained, a sufficiency of the requisite article should be obtained and duly prepared, and the work commenced. All green vegetables, and all substances, whether vegetable or animal, as well as many mineral matters, come in here to aid and assist us. The mould which reposes beneath the forest; the dark muck that is exposed in the beds of ponds and lakelets; the refuse vegetable productions, and the decomposable substances which are presented everywhere, are all adapted to the purpose of making manure.

Having spread your basis material on the surface of the soil, in a convenient place, say six inches deep, spread over it a stratum of forest mould, muck or other material proper for such use, and so on till the heap is finished. When a large number of ingredients are made use of, it will be well to mix them together in order that the perfected article may possess as homogeneous a character as possible, as well as to facilitate the operation of composing it. When the mass has remained for several weeks, it will be in a condition to be turned, or "cut down," a process performed by commencing at one side, and, beginning at the top, cut clean down through the strata, with a shovel, and throwing the material into a heap, where it is allowed to remain for an equal period of time undisturbed, to macerate and decompose. When the compost is designed to be used on sandy lands, the percentage of clay in compost intended for its permanent amelioration, should not be less than fifty or sixty parts of the entire mass, and in cases where the sandy constituents greatly preponderate over the others, the percentage of clay should be even greater than this. The more complete the admixture of the components is, the more efficient as well as more immediate will its action be on the crop. When such materials are mixed, fermentation to a greater or less extent, alway-

takes place; the heating of the mass breaks up the physical texture of the materials, and the play of chemical affinities induced thereby, and constantly going on in the mass, tends to solve and prepare the same for the use to which it is ultimately to be applied.

Of the almost infinite variety of materials used in composting operations, there are few which require any previous preparation; they are all of a character rendering their immediate addition to the mass of other ingredients practicable, and when so added the chemical changes they experience, gives them the conformation demanded for the exertion of their powers both upon the soil and crop.

Muck is often found to contain an acid principle which is easily corrected by the alkalescent matter in the other ingredients, or by the fermenting process which is engendered thereby. The other ingredients of a purely or semi-vegetable character, decompose readily under the chemical influences to which they are exposed, and become homogenous and soluble in a high degree.

No substance is perhaps more conducive to the health and rapid development of vegetation than good compost. It is almost invariably much more pure than simple animal excrement, contains a greater number of the essential elements of vegetable nutrition, as well as a more liberal quantity of those mineral matters which act mechanically on the improvement of the soil.

In all cases where much crude vegetable matter is used in composing, a considerable quantity of caustic lime will be required, not only to accelerate decomposition, but to neutralize the native acids they contain, often in large quantities, and which are in their nature uncongenial to the life of plants. Muck that has been formed by submarine action or decomposition is almost invariably impregnated with an acid principle which, if not corrected, will be found highly detrimental to vegetable growth. Most of the plants belonging to the lower orders of vegetation, require to be thoroughly decomposed before they can be rendered available as a manure, and this, where there is not a powerful fermentation in the mass, is, as a result, often found to be attended with considerable difficulty, unless assisted by the decomposing action of lime.

In forming composts from green vegetable substance of all kinds, sulphuric acid should be freely used. Sprinkling the heaps daily with a gill of acid diluted with two thousand times that quantity of water, will add greatly to the efficiency of the compost by absorbing and fixing the ammonia and carbonic acid which are always copiously evolved during the process or decomposition by all kinds of manure.—*Gem. Tel.*

Stone for Stable Floors.

The use of stone in the construction of floors for stables, we believe, is not common in America, at least not in the central counties. We found them in universal use abroad, and they presented quite a marked feature in contrast with the plank floors which are so common with us. In some of the best stables both for cattle and horses, cobble stones are bedded into the earth in a similar way that pavements are made in the cities. At first they looked as if they might be uncomfortable, especially for horses, but we were assured no bad results followed from their use, and the uneven surface was regarded as an advantage, as it served as a preventive to the animals slipping. Immediately back of the animals the floors are made to descend, forming a curved ditch or alley for conducting the urine. In looking at these stables, the thought often occurred whether similar structures could not be profitably introduced with us. The first cost may, perhaps, be a little more than plank, but in the long run they are infinitely cheaper. There is another advantage—the saving of room and the prevention of accumulated filth underneath the floor, quite common where plank is used.

An objection might be urged, that in our cold climate stone floors are liable to become frosty, thereby rendering cattle uncomfortable and proving injurious; but in properly-constructed stables it is doubtful whether any inconvenience would result from this source. Being lower down than plank, and upon the ground, there would be less exposure to winds and cold from beneath, and when timbers were properly underpinned with wall, the heat from the cattle must prevent freezing in all ordinary winter weather.

At Alderman Mechi's farm near London, the stables for cattle have floors composed of slats not quite two inches apart, the slats being three inches thick and four inches wide. Below this floor is a tank built of brick and cemented watertight for the reception of the manures, both liquid and solid. The tank which is some three feet deep, has a bottom that slopes toward the centre, and is connected with pipes to the large cistern outside, and from time to time water is let in to liquify its contents, so as to be conducted off in the cistern referred to. From this reservoir the liquid is forced by steam through different parts of the farm and the crops irrigated.

Under the system of irrigation adopted by Mr. Mechi, grand results have been obtained, but

this plan of floor is more adapted to his peculiar system of husbanding manures.

Slatted floors, however, as a matter of convenience, could be adopted with good results in hog-pens, and also for young calves in spring, which must be stabled until the weather is warm enough to turn them out. In both cases they would serve the purpose of keeping the animals dry and clean, a consideration which adds greatly to their thrift. In raising calves, every one must have observed how difficult it is to keep the stables dry, requiring constant attention, in change of bedding, which soon becomes foul. With slatted floors and conveniences for removing the manure below from time to time, would not only lessen labour out by the use of muck or other absorbents to take up the liquid as it passes through the slats, would add considerable to the compost heap. For hogs Mr. Mechi's slats are three inches wide, and one-and-a-quarter inches apart. For calves, two inches thick, three wide, and one-and-five-eighths apart.

We saw floors in England that had been in use an hundred years with little or no repairs, and which were likely to last one hundred years more. The time will come when stone floors in many parts of our country will become a necessity, and it is a question whether their adoption upon farms where stone may conveniently be had would not now be far more economical than wood.—*Utica Herald.*

English National Horse Show Association.—It is proposed to establish a Grand National Horse Show Association, holding its shows annually in the city of Hereford. The Hereford Times says:

Even such an exhibition as that afforded by the Bath and West of England Society, is tame and insipid compared with the incidences of a horse show, as we have now come to interpret the term, viz: a show in which the horses are exercised in what we may call their "trades;" that is, the hunter crossing the country, taking "bullfinches," gates, water leaps, and such other obstruction as come in the way of the huntsmen; the hack, well mounted and showing his stepping powers, whether his *calibre* be that of a 16-hander, a cob, a pony, or for carrying a lady; the harness horse driven in harness, and proving the style in which he can do his ten or twelve miles an hour, without any risk of coming "down." These are what we now regard as the leading elements of a horse show, and it is such a show that the promoters of the Grand National Association are desirous of establishing in Hereford.

Alsike Clover.

Mr. Chauncey Miller, of the Shaker Family, near Albany, furnishes us the following statement of his experience with this plant for the *Country Gentleman:*

We find the Alsike Clover a very superior grass in the following plants:

1. For its value as a hay crop, on a great variety of soils, being of a growth, in height, varying according to quality of soil, from ten inches to two-and-a-half feet, and yielding from one-and-a-half to three tons per acre, according to soil; thus comparing with our best red clovers, though, of course, not so high as the great western pea vine clover, but, with us, one-third higher than the small, southern red clover.

2. For fineness of stalk, or haulm.

3. For its multitude of sweet flowers, blooming, perhaps, three or four times as much as red clover, making, when in bloom, literally "a sea of flowers."

4. Its adaptation to heavy soils, clays or heavy clay loams, as well as sandy soils, not being so liable to heave out by frosts in winter and spring, as red clover, on account of the root being more fibrous, partaking somewhat of the character of the white clover, (trifolium repens,) being the product of a cross between the red and white clovers originated in Germany.

5. To all farmers who keep bees largely, the crop would be of great value, as bees can work upon the flowers equally as well as upon white clover, as they are about the same size, and precisely the same habit, as the latter, but are much more abundant in honey; bees appear as fond of the flowers as of mignonette, and, in its season of flowering, which lasts about six weeks, are continually upon it, from dewy morn until dusky eve.

6. To those farmers raising clover seed for market, the Alsike clover, in our opinion, would be of great value, as it seeds enormously, and the seed threshes easily, by flail or machine, leaving a beautiful quality of hay, the stalks retaining their greenness, when most of the seed is quite ripe.

7. It holds many weeks in bloom, thus giving the farmer lee-way of time and weather, in regard to securing the crop.

In the past the three years we have spent about sixty dollars for Alsike clover seed to sow upon our lands; we have tried it upon a variety of soils. We like it so well, that should all circumstances favor the enterprise, we think of seeding, next spring, in considerable quantity to this grass, and, if practicable, it is possible we may import pure seed from Germany for that purpose,

not raising enough of our own seed to sow: as we find, on trial, that much of the seed of this plant, which has been imported into this country, other than through the Patent Office Department, has been largely adulterated with other clovers, daisy, &c., &c., either before or after entering this country: possibly *we* may not be able to obtain *pure*, even in Germany, but we hope to do so. We mention this incidentally, as much futile inquiry has been made by farmers, aparians and seedsmen, where pure seed could be obtained, and we fear it is to be obtained only in Germany. A party in Vermont has affected to distribute much Alsike clover seed to aparians within the past three years, five dollars worth of which we tried, and found it did not contain one-thousandth part of Alsike clover seed, but was quite pure white clover seed.

Again, we would say to farmers that we have found it to be necessary, in order to be sure of seed, to order it in the fall, or early winter, as the demand is generally such that it is all sold off before sowing time in the spring. If we are successful in sowing in larger quantity, we will again report, and we propose to try it on a greater variety of soils.

☞The following remarks on the advantages of book-keeping, are from the *Phrenological Journal*:

"If the internal revenue shall cause farmers, manufacturers, *all* classes to 'keep accounts' of incomes and outgoes, and for what, we think it will be worth millions to the country. The present 'slip-shod manner' with many is ruinous. How few there are who know exactly how they stand—whether they are gaining or losing! and how almost universal is the habit of crying 'hard times,' when, if the great leaks were stopped, all would go well and each have plenty. One 'saves at the spigot and wastes at the bunghole,' and for want of accurate accounts seems insensible as to the causes of his being forever 'short of means' to carry on his work. Another becomes thrifty and forehanded by careful attention to his accounts. Every man ought to have his business so clearly recorded that he can tell in a moment to a fraction exactly what he is worth, what he is making or losing on each particular item, be it grain, fruits, flesh, or other productions. But how few there are who do it. If the book under notice will serve to systematize this thing; if it will enable and induce men to keep accounts, it will, we repeat, be worth millions to our country in dollars; and that which money cannot buy, namely, that peace of mind which results from a perfect knowledge of our affairs."

THE WOOL CROP OF CALIFORNIA, for 1866, so far marketed, is about 5,000,000 pounds, of which 3,000,000 pounds have been purchased for the mills in San Francisco, and the balance exported to the Atlantic States. Oregon this year produced not far from 1,800,000 pounds of wool. 1,100,000 pounds being taken by her woolen mills, 300,000 by San Francisco mills, and the balance exported. The wool used by the Pacific coast mills varies in value from sixteen to twenty-seven cents per pound. Oregon wool being cleaner and of finer quality, brings the highest price. California wool loses about fifty-five per cent., and Oregon forty per cent. in cleaning.

☞The Cotton Planters' Asso. of Georgia met at Milledgeville a few days ago. The following named officers were elected for the ensuing year: B. C. Yancey, of Clark, President; B. B. Moore, of Thomas, 1st Vice-President; J. B. Jones, of Burke, 2d Vice President: T. J. Smith, of Hancock, Treasurer, and Capt. H. L. French, of Schley, Secretary. A resolution was adopted providing for the introduction of a bill in the Legislature to change the name of the body from "Cotton Planters' Association" to "The Agricultural and Manufacturing Association of the State of Georgia."

THE COTTON CROP.—We have very good reason to believe that in Maury county there never was before raised in one year as much cotton as has been grown this year. Some large farmers may have raised more in other times, but there never was a season when so many acres in the county were devoted to cotton. Every farm in the county almost has a patch of cotton on it this year. As a happy result, everybody that now farms, is getting in a little money, and the merchants are selling goods, and trade generally is brightening up. The depression in the cotton market, however, is disappointing everybody very sadly.—*Columbia (Tenn.) Gazette.*

☞A new and fatal disease is killing the hogs in Fleming county, Kentucky. Mr. D. Johnson has lost one hundred and forty-eight hogs by what he calls diptheria. He says he examined them very closely, and found a yellow thick substance around the windpipe, and nothing wrong with their entrails. They run a bloody substance from their ears and nose. He foots up his loss in hogs at over one thousand dollars.—*Danville Advocate.*

Sunday Reading.

Religion is a generous and noble thing in regard to its progress; it is perpetually carrying on that mind, in which it is once seated, towards perfection. Though the first appearance of it upon the souls of good men may be but as the wings of the morning, spreading themselves upon the mountains, yet it is still rising higher and higher upon them, chasing away all the filthy mists and vapors of sin and wickedness before it, till it arrives to its meridian altitude. There is the strength and force of the Divinity in it; and though, when it first enters into the minds of men, it may seem to be "sown in weakness," yet it will raise itself "in power." As CHRIST was in His *bodily appearance*, He was still *increasing in wisdom and stature, and favor with* GOD *and man*, until He was perfected in glory; so is He also in His *spiritual appearance* in the souls of men; and accordingly the New Testament does more than once distinguish, of CHRIST, in His several ages and degrees of growth in the souls of all true christians.

As in the first institution of nature, and the propagation of corporeal essences, it was enacted and yet continues, that "every thing should bring forth fruit, after his kind;" so I find it in the propagation of virtue and vice; they bring forth fruit "after their kind." Virtue begets virtue, vice begets vice. And it is as natural for a man to expect a return of virtue out of virtue, and a return of vice out of vice, as it is for him to expect an elephant should beget an elephant, or a serpent a serpent. Nay, not only the *germs* but the very *species* holds, and oftentimes the proportion of that *species* too. . . . He that sows iniquity must look to reap it. Did not David's murder and adultery bring the sword and incest into his family?

Our LORD sanctified every age of life by His own susception of it and similitude to it; for He came to save all people through His own person; all, I say, who, by Him, are born again unto God—infants, boys, children, young men and old. Made an infant, He sanctified the state of infancy; and being Himself a child, He sanctified the state of childhood.

It is fit that the Word, being more precious than gold, yea, than much fine gold, a priceless pearl, should not be laid up in the porter's lodge, the outward ear, but even in the cabinet of the mind.

The soul of the true Israelite is as "a garden by the river's side," not only lowly and situate where she may have the advantage of springs and rivers as well as rain from heaven, (i. e., all the means of grace,) but be well fenced and enclosed, both by the discipline and the orders of the church, and the conseqent favor and protection of Providence. . . . Her verdure is conspicuous and ever constant; whether in the summer of prosperity or the winter of adversity, her actions and principles are ever upright and fair; her hopes and affections and desires are ever ascending towards the noblest and most sublime objects, the things that are above, the glorious things of heaven. . . . . The deeper the soul is rooted in humility and grace, the higher will its affections ascend towards heaven, and the wider its branches of charity extend towards men.

How many *thanks* and praises do we owe unto Him for this our salvation, wrought by His dear and only SON CHRIST! who became a pilgrim on earth to make us citizens in heaven; who became the Son of man to make us the sons of GOD; who became obedient unto the law to deliver us from the curse of the law; who became poor to make us rich; vile to make us precious; subject to death to make us his forever! What greater love could we silly creatures desire or wish to have at God's hands? . . . Therefore, let us confess Him with our mouths, praise Him with our tongues, believe on Him with our hearts, and glorify Him with our good works.

Can we think that Holy Scripture thus tells us of the sacred childhood of Jesus, and means us not to reverence childhood? Feel we not (at least if we be not deadened by this world's vanities) a drawing forth of our inmost hearts towards them, a tender love, a reverence for them, which, alas! we cannot have for ourselves, and often not for others of riper years?

Good men are always walking on from strength to strength, till at last they see God in Zion.—Religion, though it hath its infancy, yet it hath no old age: while it is in its minority, it is always *in motu;* but when it comes to its maturity it will always be *in quiete;* it is then "always the same, and its years fail not, but it shall endure for ever."

The empyrean heaven saved not the angels, who in that heaven committed sin. The terrestrial Paradise saved not Adam, who in that Paradise committed sin. And dost thou presume to hope in the church for impunity of those evils, which in the church you perpetrate?

Baltimore Markets, Dec. 22.

COFFEE.—Rio, 18½a19½c. gold, according to quality. Laguayra ——, and Java —— cts. gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	27	—
Good do	29	—
Low Middling	31	—
Middling	35	—

FERTILIZERS.—Peruvian Guano, $80; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $60; G. Ober's (Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkaline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette. $20; Baugh's Raw-bone Phosphate. $56;—all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a$14.00 per ton. Shell Lime, slacked, 6c., unslacked, 10c. per bushel.

FISH.—*Mackerel.*—No. 1, $19a20; No. 2, $18a19; large, No. 3, $14.50a15. *Herrings*—Labrador, $6.50a7.50; Potomac and Susquehna, $8.50a9; Codfish, new, $7a$7.50.

Corn.—White, $1.00a$1.05; Yellow, $1.05a$1.08 per bushel.

FLOUR.—Howard Street Super and Cut Extra, $11a $11.55; Family, $15.50a16.00; City Mills Super, $10.50a 11; Baltimore Family, $17.50.

Rye Flour and Corn Meal.—Rye Flour, new, $6.25a 6.50; Corn Meal, $5a6.00.

GRAIN.—*Wheat.*—Good to prime Red, $3 15a3.30; Choice White—good to prime, $3.25a$3.40 per bushel.

Rye.—$1.25 per bushel.

Oats—Heavy to light—ranging as to character from 57 a62c. per bushel.

HAY AND STRAW.—Timothy $26a28, and Rye Straw $28 per ton.

BEANS.—$3.50a3 75 as to quality.

POTATOES.—$4.00a4 25 per bbl.

PROVISIONS.—*Bacon.*—Shoulders, 12a13 cts.; Sides, a2a13; Hams, plain bagged, 19 cts.; sugar cured, 20 cts. per lb.

SALT.—Liverpool Ground Alum, $2.15a2.20; Fine, $3.10 13.25; Turk's Island, 62½c. per bushel.

SEEDS.—Clover, held at $9.25; Timothy, $3.50a3.62; Flaxseed, $2 90.

TOBACCO.—We give the range of prices as follows:

Maryland.

Frosted to common	$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10.00a15.00
Fancy	17.00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00

Ohio.

Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.30a2.35 per gallon, in barrels.

WOOL.—We quote: Unwashed, 25a27 cts. per lb.; Tub-washed, 45a57 cts.; Fleece, common, 40a48 cts.; Pulled, No. 1, 27a32 cts.; Merino, 35a37 cts.

CATTLE MARKET.—Common, $5.00a$6; Good, $6.50a $6.75. Prime Beeves, $7.50a8.00 per 100 lbs.

Sheep—4½a6 cents per lb. gross.

Hogs—$8.75a9.50 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Dec. 22, 1866.

BUTTER.—Ohio, in brls. and kegs, solid packed, 20 to 25 cts.; Roll. 35; Virginia and Pennsylvania in kegs and tubs, 20 to 25; Glades, 30a45; Goshen, 45.

BEESWAX—45 cts.

CHEESE.—Eastern, 18; Western, 16.

DRIED FRUIT.—Apples, 10; Peaches, 17.

EGGS—In barrels, 35 cents per dozen.

FEATHERS—75 cents for good Southern.

LARD.—Brls. 14, kegs 15, jars and other country packages 16 cents.

TALLOW.—11¼ cents.

CONTENTS OF THE JANUARY NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, FEBRUARY, 1867. Vol. I.—No. 8.

FEBRUARY.

"Forth goes the woodman, leaving unconcerned
The cheerful haunt of man; to wield the axe,
And drive the wedge, in yonder forest drear,
From morn till eve, his solitary task."

Farm Work for the Month.

WORKING STOCK.

If the working stock has not had the best care through the months past, all must now be especially looked after. It is mistaken judgment to suppose that horses, which must go through the heavy farm labour of spring and summer, may be properly supported through the winter months, because they have comparatively little labour, on hay, or corn fodder. Horses whether at work or not, should have the same care, and the same kind of food, though during the leisure of winter the quantity of grain may be diminished. As the spring approaches they should have food enough, and of such kind as will put them into the very best working order. We do not doubt the economy of feeding horses always with ground and chopped food. Use comb and brush freely, and regularly, and see that they have water at least twice a day. Oxen that have heavy spring work to do, must have the same kind of attention.

COWS.

Cows, in milk, must be fed regularly with such food as will keep up the flow. Well-cured corn fodder, or clover hay, and some roots, with a little corn meal, should be the staples of their daily diet. Those that are to have young in early spring, must be kept, not fat, but in full health and strength. Any approach to weakness, from want of proper food and protection, is likely to prove fatal to the mother and her young.

EWES.

Ewes will require constant looking after, as the time of having their young approaches. Any showing falling off in flesh, should be separated from the flock, and fed more liberally. All should have a moderate supply of grain.

HOGS.

Give hogs food enough through the winter, to keep them in thriving order. Do not allow them to lose flesh, and when the grass begins to start in spring they will grow rapidly, and get the full benefit of the whole season's growth.

No hog, male or female, should be used for breeding purposes, before one year of age. A neglect of this advice has had the effect, very possibly, of lessening the physical stamina of our best breeds, and inducing disease.

Do not fear that breeding sows will get too fat. There may be possible evil from it, but it is not very probable. Much greater danger lies in the other direction.

TOBACCO.

Get on as fast as possible with the preparation of the old crop for market. As the spring weather approaches, bulks that have lain through the winter must be looked to frequently, and on any approach to getting warm, must be shaken out and hung up, or laid lightly in another bulk.

Prepare beds as the weather and condition of the ground may permit, looking to our suggestions of last month. Be sure to sow a sufficiency of seed, and ground, but more sure to have it well done.

MANURES.

Let stock, of every kind, have all the litter necessary to make them, good bedding, and to keep them dry. Beyond what is necessary for such purposes, the coarse material of the farm may be taken directly to the ground it is intended to fertilize, and thrown at once over the surface. The stalks from a large corn field should be fed on some turf land, whenever it is firm enough to bear the tread of cattle.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER Maryland Agricultural College.

FEBRUARY.

Whenever the weather permits, the operations that peculiarly belong to this month should be proceeded with. Digging, trenching, and manuring should not be delayed. Every piece of unoccupied ground should be turned up, if only to destroy weeds and insects.

ASPARAGUS.—Prepare the ground for new plantations, which should be done with the greatest care, which, if properly done, with due attention afterwards, will last, in good condition, for many years. The principal requisite is a good, sandy loam, and rotten dung. Our method, in forming new beds, is to lay on four inches of good, rotten manure upon the surface; trench the ground two feet deep; then add as much more dung, and dig in as deep as for ordinary crops. The beds are then marked off, four feet wide, leaving a pathway two feet wide; then mark out the bed for three rows, one in the centre, and one on each side, a foot from the centre. Lay a ridge of good loam, dung and sand, where each row is to be, about two inches high, upon which plant the plants with an equal portion of roots upon each side of the ridge. We then place about two inches of white sand upon the roots, and above that four inches of good, rich soil, and about the first week in May give a good mulching of rotten manure, which keep the beds moist, and help the plants well through the summer.

Early as the ground is in good working order, there should be no delay in getting ready every inch of ground intended for summer crops. Have all plots requiring manure ready early as possible, as it is much better to have the ground prepared in advance, that the manure may be more completely incorporated with the soil, then to sow or plant immediately after manuring. Ground for cauliflower, brocoli, cabbage, peas, beans, onions, and spinach, should be liberally manured, and deeply spaded. Where onions are only grown upon a small scale, mark out the beds four feet wide, and leave the surface quite rough by so doing; at sowing time the surface will be well pulverized through exposure to the air, and the seed can be sown clean, and rolled in firm, which cannot be done when the ground is pasty, or has been recently turned up. Choose for potatoes such ground as was the last season planted to cabbage, cauliflower, celery, &c., and for which the ground was well manured; make up good, rich borders, under walls, fences, buildings, &c., for early lettuce, radish, &c. On dry soils, plant a few early potatoes; on wet soils, the planting must be deferred until the season is more advanced. For a few early potatoes a very simple method is to make up a slight hot bed with fresh horse manure, and leaves, and if not convenient, to place upon it a frame and lights, cover it with straw mats, or any kind of covering, sufficient to keep out the frost, and by the time the tops appear, the season will be sufficiently advanced to admit of the covering being taken off by day, putting it on at night whenever there is danger of frost.

CABBAGE AND CAULIFLOWERS.—Plant out from the frames all the young plants before they become too much crowded; make fresh sowings in very slight hot beds.

LETTUCE.—Sow a crop of the early French Silesian in frames, to succeed those planted out last fall.

PEAS.—Where the climate, or soil, is too cold to sow in the open ground, cut fresh sod about one foot long, and five inches wide; turn the grassy side downwards, and make a channel along the centre of the upper part, in which sow the peas as you would in the open ground, placing them in the cool grapery, green-house, or frame, from where they can easily be transferred to the open ground whenever the weather is favorable, when the plants will root through the sod into the soil, and will sustain but little check.

SPINACH.—Soon as the ground is in good working order, run the hoe through the fall sown crops, and pick away all decayed leaves and weeds.

Whatever arrears of winter work remain should be completed as soon as the weather permits, or the consequences will be serious; fortunately, the weather has kept things in their places for some time past, for which those who have delayed their fall work may be thankful. Make a thorough clearing up of all the vegetable plots, if not already done; plant all the old stumps of

cabbage close together, to furnish sprouts during early spring. Soon as the soil becomes sufficiently mellow, let all coming-on crops have a thorough hoeing, or surface stirring: this is of the utmost importance at this period; it must not, however, be done until the ground is in good working order.

Do not omit to collect a quantity of tree leaves; they will be very useful for helping to make up hot beds, and for making leaf mold, so useful in potting window and many other kinds of plants; but, in collecting leaves, if regarded only in the light of manure, we think it would be a very expensive material, if all the trouble of raking, hauling, &c., be duly considered. We have used many loads of them in a half rotten state, upon the vegetable garden, but never found them to produce monstrous vegetables, but generally afford those of a superior flavour. For heating purposes, we think much of them, but not as much when used alone as when mixed with about an equal quantity of well-fermented dung.

Do not allow the soap suds to be wasted, as they may be most beneficially poured upon the manure heap, or upon any vacant plot of the vegetable or fruit garden, and over asparagus, and rhubarb beds, in the growing season: they may also be poured between the rows of any of the cabbage tribe when growing.

The Fruit Garden.

When the frost is not too severe, proceed with pruning apple and pear trees. Any gooseberries and currants not previously pruned should be forthwith attended to. See that fall planted trees are properly staked and mulched, and after high winds it will be necessary to look around them, and press the earth gently around the base of each tree.

Where there is any planting to be done let it be performed as soon as the ground is in a fit state for the purpose. In planting do not make the mistake to induce by rich manure the promotion of gross, long jointed wood, in any state of the existence of any kind of fruit tree. Wood of that kind is seldom well-ripened, consequently non-productive, and with peaches, in particular, is liable to gum, and canker, and premature death.

Ground intended to be planted with fruit trees of any kind should be efficiently drained, and trenched, or plowed from sixteen to twenty inches deep. Thereon depend in a great measure the success or failure of the plantation.

Strawberries in pots, placed in the green-house or forcing pit, should, whenever the weather permits, have plenty of air, plenty of light, and plenty of water. Tepid manure water will materially assist in augmenting the size of the berries, but for good flavor and color there must be plenty of light and air.

Refer back to the directions given in this department for the past three months. Complete pruning, planting, trenching, draining, &c., &c., early as possible; lightly fork over vine borders, and avoid cropping them as much as possible.

The Flower Garden.

"I know a garden where in magic bowers,
Enchanted spring most rare and wondrous flowers,
Kept by the charm that on the garden lies,
Invisible to cold, unloving eyes;
That so from those who walk in scorn, and pride,
Each floweret seems of its own self to hide;
But when *they* come who know the blessed spell,
That bids each bud to life and fragrance swell,
Beauty awakes where'er they turn their eyes,
And rarest perfumes at their call arise."

Continue to plant and prune hardy trees and shrubs whenever the weather permits: the protection afforded tender trees and shrubs should be looked to, and kept in good order, as it is not unusual for such plants to suffer as much the present and next month as any time during winter. When the ground is in a proper state proceed with the planting of hardy roses. If the plants are strong the knife must be used with caution; if weak, cut all the shoots back to three or four eyes. Shorten all long roots and cut away all such as may be bruised or broken. If the ground has not been well prepared, we would dig good-sized holes for each plant, using six or eight spades full of good, rotten stable manure to each, and by all means avoid deep planting. If any plants in beds have been raised by the frost they should be fastened, and a top-dressing of leaf mold or manure given to them.

Tulips and Hyacinths, the great favourites of the ladies, should be protected by covering them with three or four inches of leaf mold or well-rotted manure. When planting hardy, herbaceous perennials, the object should be to have as much variety of colour, and succession in the border throughout the season as possible. Complete all new work early as the weather admits. *The busy season will soon be upon us.*

In the arrangement and planting of shrubbery, all trees and shrubs which are to remain permanently should be planted first, and at such a distance from the walks and drives, and from each other, as not to interfere with either the one or the other for years to come, being careful to give

them every chance to develop their proper character. In planting, this is too unfortunately lost sight of, and instead of having our beautiful trees and shrubs in detached groups, and single specimens, giving each ample room to stand forth in all their beauty of outline and tree character, we find them huddled together without form or arrangement, a mass of incongruity, which, to the lover of the beautiful, is painful to behold. The intervening spaces between those which are to remain permanently, may be filled up with mere common sorts, and as they encroach upon those which are to remain pemanently, should be removed. Trees and shrubs managed in this way will need but little pruning and spading about their roots, which we consider a very bad practice. We think the beauty of the grounds around trees and shrubs very much enhanced by a beautiful lawn, one of the most beautiful examples of which may be seen at the experimental gardens, at Washington, D. C.

Kentucky Agricultural College.

This department of the university is fast filling to the capacity of accommodation. There are about eighty students, and a finer and more gentlemanly set of young men are not to be found in any college in the country. It is a handsome sight to see them on parade with their new uniforms and martial air, stepping with the precision of veterans to the drum and fife. There are no students taken under sixteen years of age, and those now entered are fine grown, athletic young men, in the very picture of health. They present a marked contrast to most college students, with their sickly bent forms and cadaverous countenances. This is the result of the outdoor exercise and work which they do. The drill which they go through straightens their forms, and their mental discipline deprives them of the brutal expression which is observable in the mere soldier. We confess a partiality to this department, and Regent Bowman has shown admirable judgment in the manner in which he has organized it. Mr. Bell, the landscape gardener, has supervision of the manual labor department, and he sees that no idle bread is eaten by those under his charge. If any of our readers wish to pass a pleasant hour, let them go out to Woodlands any evening at four o'clock and witness these boys on parade. They can there judge how completely bumpkins can be trained into graceful, stately youths, by the skilful manipulations of Major Arnold and President Williams.—*Lexington Gazette.*

For the "American Farmer."

The Theory of Agriculture.

Editors of American Farmer:

GENTLEMEN: In the October number of your valuable periodical, I notice the *conclusions* of a remarkable essay, by "J. G. McVicar, D. D.—Moffat," on the true theory of agriculture. Such an article when read over carefully several times, and well studied, will repay the reader for at least one year's subscription. The conclusions are of the same kind that I published in the following propositions, that I gave a manufacturing chemist of your city in November, 1860, (who is now out of business,) together with a formula for a manure based on these principles—as the occurrence of the war prevented the introduction of the article—and the great principles upon which it was based, do not seem to be appreciated by the manufacturers. It may be that the agricultural community are at fault here, as the manufacturers will always produce what the people demand. It has become customary to use lime, &c., in large quantities *alone*, and most of our fertilizers contain only one or two elements in sufficient quantity to produce any good effect.

If you think the republication of the enclosed *printed* propositions with *their date and address*, will prove that they have been *sustained* more than six years since in Maryland, and there publicly taught, then they are at your service, with the hope that they may assist in the advancement of rational agriculture.

Yours faithfully,

DAVID STEWART, M. D.

December 29, 1866.

1st. Plants require certain elements to exist in the soil, which are as much their food, as they, themselves, are the food of man—manures should supply the full *proportion* of all these elements, that are removed by cropping. *Ammoniacal Manures.*—Phosphates, and especially super-phosphates, must always be expensive manures when applied alone, and their full influence as fertilizers can never be insured, except by association with a proper proportion of all the other elements of plant food.

2d. *The relative proportion of Nitrogen or Ammonia in Peruvian Guano is too great.*—It uses up the plant food that the soil naturally contains, and consequently exhausts it, and a double quantity of Peruvian guano is required to repeat the effect once produced. This is now generally admitted; see the seven years' experiments of Lawes and Pusey: they call it a self-evident proposition:—That ammonia ceases to produce its full effects as a manure, when frequently ap-

plied to the same land, unless other plant food is combined with the ammonia.

3d. A compound containing more nitrogen than manipulated guano, and presenting all the seven elements of plant food in due proportion, must excel other manures, if concentrated so as to reduce the expenses to a less per cent.

4th. Not only the germination of the seed, but also the more rapid development of the plant, its earlier maturity, and the health and productiveness of the whole plant are insured by the presence in full proportion of all the elements of plant food, as near the seed or plant as possible.

5th. No plant can ever be expected to continue to pay twenty cents per pound for ammonia (the price now paid for it in Peruvian guano,) for each successive crop, and the consequent exhaustion of the soil. Therefore, all fertilizing compounds should be adapted to insure the growth of clover, and forward the permanent improvement of the soil.

6th. A manure that is adapted to insure the success of clover, sown on wheat in the spring, and that can be relied on to refund its cost *in the wheat crop*, is the safest and best investment; because a crop of clover will add more ammonia to an acre in one year, than was ever added by Peruvian guano in seven years.

DAVID STEWART, M. D.,
Chemist of Md. State Agric'l Soc'y,
St. John's College, Nov., 1860. Annapolis.

Compare the above with the conclusions of the learned Dr. McVicar: "*The storing of the soil with food for the plant:* that is, with those concrete air and earth elements of which the plant under cultivation consists. * * * The reduction of the bulk of manure so that it may be carried like seed, and sown with it, as the great object which the enlightened agriculturist ought, at the present day, especially to aim at." The Doctor calls the leaves of a plant its "*air roots*, and the spongioles its earth roots." I would prefer the analogy of the leaves to the lungs of all animals, and the spongioles to the peculiar attachments of the calf to the uterus of its mother, by a sort of foveoli. The question is, whether the analogy should be carried out, viz, whether the earth supplies the stomach of the plant, digests its food, and supplies it in the nascent form *exclusively?* The Doctor seems to favor *this* idea that occurred to me some twelve or fifteen years since; I wrote an essay on the subject for "The American Farmer," and it was copied into the "Annual of Scientific Discovery," entitled "nascent manures." The parenthesis which he introduces in the following sentence, seems to endorse one of the seven propositions I published, (in the New York *Observer*, on the 19th December, 1861, with regard to the action of lime as a manure) "Even nitrogen, as I believe, where it meets with highly tectonic elements, such as lime and potass, in the presence of oxygen, tends to become concrete along with them, and to form beautiful efflorescences. But whether this be granted or not,"??—I reasoned from the following facts—nitrogen is the congener of phosphorus—it is always present, dissolved in every drop of rain, and may be supposed to give water the properties of an acid. Phosphorus is preserved under cold water; the water may be boiled, the phosphorus melts, but is incapable of decomposing the water, although it has a strong appetite for *both* of its elements, (in order to form *phosphuretted hydrogen* and phosphorous acid,) under these circumstances add a lump of quick lime, and immediately, *in the presence of the lime*, the phosphorus gains power to decompose the water, forming a most *brilliant* and instructive experiment. So I argue that lime may enable nitrogen to decompose water, and form ammonia, or nitruretted hydrogen in the soil, especially in the *presence* of the spongioles of a plant that requires it as its specific food.

DAVID STEWART, M. D.,
Port Penn, Delaware.

For the "American Farmer."

Building Lime Kilns.

PAOLI, Chester co., Pa., Jan. 4, 1867.

Messrs. Worthington & Lewis:

DEAR SIRS: Your correspondent, J. R. G. Christianburg, Montgomery county, Va, in the Jan. number of the *Farmer*, writes for information in relation to lime kilns. Experiments on kilns for lime burning, involve both expense and skilled labour. The general forms of all kilns are similar; it is in the *small differences*, that are found the true causes of magnificent failures and success. To mark those small differences, and to make them plain, would require a volume, as well as a draughtsman. I would, therefore, recommend him, on the *score of economy*, either to employ the skilled labour of his vicinity in the plans in use there, or visit for a week or two some locality where different kilns and plans are in use, and observe accurately the forms and plans most approved of, taking particular care how he endeavours to improve them, unless he has money to lose. An apparently trifling change in forms I have known to produce a total failure.

I would recommend him to visit this neigh-

bourhood, where he can see, in their most perfected condition, more different kilns and modes of burning, in full practice, than anywhere else I know of. They are the result of long experience, talent and capital.

Yours respectfully,

JOHN D. EVANS.

N. B. Paoli is twenty miles west of Philadelphia, on the Pennsylvania Central Rail Road to Pittsburg.

For the "American Farmer."

Improvement of Poor Lands.

MR. EDITOR: In your October number, a correspondent from Dinwiddie county, asks for some advice in regard to making "*permanent* improvement of poor lands." You have probably answered his inquiry more fully and satisfactorily than I can do, in subsequent numbers which I have not seen. Be this as it may, I am willing to contribute my mite towards "making two blades of grass grow where but one grew before." I might further premise, that I have had some acquaintance with the worn-out lands of the South.

The first operation is to plow the ground *well;* subsoil it if convenient; if this cannot be done, plow deep, five or six inches at least; then put on about thirty-three bushels of lime to the acre. Sow with oats, not too thick, not over two bushels to the acre, cover with a spike harrow and sow clover seed *immediately after the drag*, about six quarts to the acre. Make a drag of light brush, and brush in the clover seed. The sowing of clover seed should follow that of the oats before there is any fall of rain to form a crust. Pass a roller over the ground if the soil be light. This is merely the starting point, and very much depends upon its being done well. I have seen plowing done in the South that I could not call plowing at all, it was only scratching; in fact, I have not seen a plow in the South that would cut and turn over a furrow slice as it ought to be done.

When the crop of oats is taken off, let the young clover grow on until fall, without any stock running on it, and it will start nicely the next spring. Let it grow on the next summer until about half the bloom has turned brown, then turn it under with a good plow. Give it another coat of lime, and let it lie until the following spring, then put it through the same course again with oats and clover, and after this crop of clover is plowed in you may seed it with wheat, or wait until next spring and plant it with corn.

Be careful not to sow the oats too thick so as to smother the clover. The object of sowing oats with the clover is merely to protect it from the scorching rays of the sun, but it will nevertheless help to pay expenses. When the land is worn out or naturally poor, the farmer must grow a few crops *first* for the good of the land, before he begins to grow any for profit to himself, and he will find no system so cheap and effective for the purpose, in my opinion, as the one here recommended.

In regard to the lawn, permit me to add a few words, for I delight to look at a well-kept lawn. The soil must be enriched by top-dressing—lime, guano, phosphate, poudrette, or any other kind of manure—it must have a plentiful supply, and that repeated. This is the first grand requisite. The next is, mow, mow, mow, from spring until autumn, whenever the grass is six inches high, and you will soon have nothing growing on it but what ought to grow there—grass of a lively green. A poor lawn is an unsightly thing.

WESTCHESTER, PA., Jan., 1867. A. M.

For the "American Farmer."

Hop Cultivation.

CLIFTON, FAIRFAX CO., VA.
January, 1867.

Editor American Farmer:

Looking over the different numbers of the "American Farmer," I noticed an article on "Hop Culture in England," in the November No. As I have not tried the method mentioned, I can neither advocate nor condemn it; but having planted hops some twenty years ago, in a country where the best hops were grown, (proved by obtaining the highest prices,) I cannot refrain from giving a description of the mode of culture followed there, particularly as it is in direct opposition, in every respect, to the method mentioned in the article referred to.

We considered it immaterial if the land selected was rich or poor; our main object being to select a field well sheltered from north and east winds, with a subsoil of light clay or marl. The field selected, the land was laid off in rows six feet apart, and crossed by other rows also six feet apart. At every crossing a hole was dug (in the fall) two feet square, and from five to six feet deep. In throwing out the dirt, the top soil was laid on one side of the hole, and the subsoil on the other. Early in the spring the holes were filled with fresh horse and cow manure, about one foot and six inches from the bottom. On top of the manures the top soil was thrown, and about two feet of the hole left open for planting. Three weeks after the manure had been deposited in the hole, the hops were planted

and surrounded by the *subsoil*, which, by exposure to the air, sun, frost, and rain, through the winter, had lost its offensiveness to vegetation. In every hole *only one* plant. The first year the vines were tied to small poles, to enable the laborers to clean properly around the plants. The next year, and so on for every year, early in the spring, the dirt was removed from the main root, and *all* side roots cut off close to the main root, and the dirt then put back. As many of the wiltings as required for next spring's planting, were put in ditches one foot deep, kept clean during the summer, and planted the next spring. On the head of the hop-root *only two* or *three* eyes were allowed to grow into vines, the balance nipped off, so that only one pole was required for every hill. These vines grew stronger, made more hops, and twice as large fruits, (I have had them four inches long,) than any other hopvines I ever have seen. As soon as the vines have reached the top of the poles, about twelve feet, their heads are cut off by a knife tied to a long handle. Between the hop-rows were planted potatoes to put the land in good order, and after the potatoes caraway seed, which will bear for three years without replanting, if kept clean and cultivated. By this method I have made as much as $200 per acre, besides the hops. Many may object to this mode of planting hops, as it requires a larger outlay of work in the beginning, but a field planted in this way will remain in full bearing for sixteen to twenty years.

The main object is to produce ample nourishments in the depth of the soil, the nature of this plant being to seek the depth. I have dug old hop plants whose roots extended nine feet in the ground. The object by planting the subsoil around the plant is, to prevent it from forming side roots, which, invariably is the case, if the soil around the plant is rich. It is a very bad practice to cover the roots in winter with horse manure, as it enriches the land. Either cover them with leaves or straw, and remove in spring, as soon as no more heavy frosts are anticipated.

L. A. Hansen.

Deodorizing Privies.—An occasional application of coal ashes and common soil, to the contents of privies, will do away with the offensive odor arising from them, while it will form a compost readily removed, and of great utility in the production of garden and farm crops.—*Working Farmer.*

☞Pounded glass mixed with dry corn meal and placed within reach of rats, it is said will banish them from the premises.

From Edinburgh Journal of Agriculture.

Effects of Temperature on the Feeding of Animals.

All who are acquainted wtth the habits of our domesticated animals, and who have been accustomed to minister to their wants, will readily know from their external appearance whether they be in the enjoyment of the ordinary comforts of life, and whether they are suffering from the privations of cold or hunger. And if such apply generally to domestic animals, it does so particularly to those that form the subject of this note—viz., our various breeds of cattle. Almost every one is familiar with the crouching position and strong coat of a cow or bullock exposed outside in a stormy day, and are very ready to remark that such exposure tends to waste the flesh off their bones, which is perfectly true; but few take the trouble to consider what portion of the animal's food, even in ordinary circumstances, goes towards the production and maintenance of animal heat within the system, far less to consider the increased quantity required when animals are exposed to extreme degrees of cold. This is, however, a matter of much importance, and far too little thought of. It is much to be regretted that farmers, more than any other class of men, are so backward in adopting principles which scientific men have satisfactorily proved to be of the greatest importance to them, and which might be applied to very many departments of their profession, but to none more directly than to the sheltering and comfortable housing of cattle.

Animals not only require food for nutrition, but also for combustion, or the production of heat within the system. The organized constituents of the animal system, such as blood, muscle, skin, all the cellular tissues, and a large proportion of bone, &c., are all nitrogenous; and hence the necessity of supplying the animal with nitrogenous food in sufficient quantities, in order to increase or maintain, as may be desired, its size and strength. Starch, gum, sugars, oils, &c., contain no nitrogen, and, supplied alone, would only support life for a short time. In respiration, however, much of this oil, sugar, starch, &c., is actually burned, and otherwise undergoes a nice chemical transformation, which, as understood and described by scientific men, is sufficient to account for the production of animal heat; and hence the animal frame has been viewed as an apparatus of combustion.

Although it is well known that oil, starch, sugar, gum, &c., are heat-producing constituents of the food of animals, they are also the chief elements in the production of fat, and by far the

most expensive and not least important portion of food. Were animals to be supplied with nitrogenous food only, they would be quite destitute of fat. They would have large bones and muscles, lean flesh, and, although possessed of plenty of hide and hair, could not exist in a cold climate. These facts ought to be fully understood by all who undertake the feeding of cattle. They have been much overlooked in almost all experiments as to the progress cattle will make upon different kinds of food. Stock ought to be kept, if possible, in a temperature sufficiently high to prevent a wasteful expenditure of animal heat by radiation into the atmosphere which surrounds them, otherwise an extra quantity of the most valuable portion of their food will be required to produce heat in lieu of that lost by radiation; for it has been satisfactorily proved that the amount of nourishment, or at least the amount of carbonaceous and hydrogenous elements, such as oil, sugar, and starch, required, are proportionate to the expenditure of heat generated within the system, whether that expenditure has been accelerated by breathing and increased perspiration by exercise, or of excessive radiation occasioned by the relatively low temperature of the atmosphere in which the animal lives and moves.

Want of attention to the power of external heat or to the effects of temperature on cattle—fattening animals in particular—have utterly vitiated multitudes of experiments respecting the feeding properties of different kinds of food, and occasions throughout the nation a stupendous amount of constant wastefulness of winter food. A farmer could have no more profitable or interesting study than the wonderful organization of the animals he is so desirous of bringing to the utmost value and perfection. The wonderful and intricate process of assimilation of the food by the harmonious arrangement of the whole animal structure is particularly instructive and important; and the careful study of it might be turned to profitable account. Were this carefully studied, we would no longer see cattle of all ages, of all classes, and in every condition of comfort, fed in that indiscriminate manner which so much prevails. Every farmer ought at least to know that there are two great classes of compounds of which the food of cattle must consist, viz., that containing the saccharine and oleaginous substances, which are necessary for the production of fat and animal heat, and the albuminous or protein compounds, which are necessary for the production of flesh and muscle, &c. He ought to know also to what extent these substances generally prevail in every plant cultivated as cattle-food. Such a knowledge would enable the farmer to see the propriety of supplying young and growing cattle with a different diet from that supplied to fattening stock and milk cows, and aged or matured animals, with one differing from those given to both the former classes. It will not do for a farmer to say that he supplies his cattle, young and old, with the same description of food, and that all are thriving alike, and quite to his mind; because if he give food in abundance, such may really be the case, but a great daily waste will at the same time be taking place, which might well be avoided. We know that cattle will, and do, consume large quantities of food not required for assimilation, and, of course, that portion not required will be rejected in the form of excrement; in proof of which numerous instances might be given.

It has long been known that the excrements, both solid and liquid, of young stock, are much less valuable than those of mature age, as the nitrogenous and phosphatic portion of the food of young and growing animals will be almost wholly taken up for the production of bone and muscle, &c., and their excrements will be found almost wholly destitute of such; while it is equally well known that these two valuable manurial ingredients will abound largely in the excrement of full-grown animals, and might have been dispensed with, in some measure, in their food, as they can be procured as a manure at a much cheaper rate. In like manner, cattle kept in a very low temperature will consume a very large quantity of food, which, if highly nitrogenous, will be almost wholly rejected in the excrement, being unsuitable in the production of heat; but even if oleaginous food was supplied, the quantity which would be consumed would be much greater than if the animal was kept comfortably warm; for says Professor Anderson, of Glasgow, "We know a certain quantity of food is capable, under certain circumstances, of producing a certain quantity of fat; but if the temparature falls, an additional quantity of fuel is required to sustain the animal heat. And science has shown that the elements so consumed or burned off are exactly those which, under any other circumstances, would go to the formation of fat. It is obvious, therefore, that if we keep the animal warm, we do what would otherwise be done by a portion of the food with which we supply it. And we might be inclined to say that the warmer it is kept the better; but, practically, there is a limit to this. There is a certain range of temperature which is natural to the animal, and though, in the process of fattening, we place it, to a certain extent, in an

unnatural condition, we cannot carry this too far without producing various derangements of the system, which would speedily end in positive disease and death." We have also in support of the same law the testimony of Liebig in stronger language than that of Professor Anderson. He says, of man, "If we were to go naked like certain savage tribes, or if, in hunting or fishing, we were exposed to the same degrees of cold as the Samoyedes, we would be able with ease to consume ten pounds of flesh daily, and perhaps a dozen of tallow candles to the bargain, as warmly-clad travellers have related with astonishment of these people; we should then be able to take the same quantity of brandy or train-oil without bad effects, because the carbon and hydrogen of these substances would only suffice to keep up the equilibrium between the external temperature and that of our own bodies." In some parts of North America the natives are so well aware of the importance of using fat largely in their food during the cold season, that they also, in extreme seasons of cold, mix fat broth largely with the vegetables they give to their cattle; and the Russian boors, as well as the natives of Iceland, Faroe Isles, Orkney, and Norway, have long known the advantage of using dried flesh and fish ground down and mixed with oats or other grains in the feeding of their horses, so as to render them capable of resisting the severity of the trying winter seasons which prevail in those regions. But our remarks are intended to apply chiefly to cattle. It may be noticed that the hardier breeds, such as the Kyloe or West Highlander, and the Galloway, will live and thrive in a climate where the softer breeds, such as the short-horn and Ayrshire, would pine and starve. But in the case of the most hardy breeds, warmth and shelter tell very forcibly upon their weight and early maturity. No practical or experienced man would recommend that young cattle during the winter season should be pampered or kept close and warm. Such stock should have a short run outside every dry day. Nothing can be more beneficial to young animals than a gallop upon a piece of suitable ground; it will excite the healthy action and full play of the lungs, and increase the growth and strength of the muscles, and in every way promote the vigour of the constitution. But on no account should stock be kept out in cold weather any longer than they seem to enjoy it, and keep moving about. And when housed, they should be kept in dry, well-ventilated, comfortable stalls or sheds. Fattening animals during the winter season, of course, require to be constantly tied up. Turning such stock out for exercise would certainly be injurious; as when they get into forward condition they lose much of their former activity, and could not take exercise sufficient to keep them in heat without risk of injury to themselves: and besides, they would become more unsettled in their stalls. The temperature of a feeding-byre ought to be carefully attended to, and maintained at as uniform a degree as possible That best adapted for short-horn and cross-bred cattle will be found to be about 55° Fahr.; but all who are acquainted with the care of cattle are quite aware of the difficulty of maintaining a proper temperature consistent with necessary and proper ventilation. And, however absurd the idea may at first appear, the day is not far distant when properly constructed feeding-byres will have the temperature maintained by artificial means. The cost would be but trifling, and ventilation could then be more perfectly carried out. These principles are receiving daily more and more attention from the most intelligent of farmers; and it is hoped that such will continue to be the case. There is no profession which can be compared in importance with that of agriculture, for to it belongs the production of food for man and animals. No other profession practised by man includes a greater variety of operations, or involves a greater amount of scientific and correct principles, than that of farming. Yet almost every other profession of any importance is regarded as much more of an art, much more technical and complex, and requiring far higher qualifications for its successful prosecution. Nothing could be more erroneous than such an idea; for from the moment the farmer casts the seeds into the ground until his crops are ready for ingathering, it is important that he should watch every progressive stage of the plant, and be prepared to aid and govern natural laws by the application of scientific principles. And this does certainly apply even more so to the breeding and management of stock, so that this country may continue to hold that advanced position it has attained amongst other nations in the production of prime beef; and we hesitate not to say that from the principles which ought to regulate the adaptation of breeding animals to one another, and those by which the feeding of young and growing animals throughout the various stages of their growth should be directed, to those which ought to regulate the cooking of the carcass, there are none of more importance than a proper regulation of ventilation and temperature in all the different modes of housing cattle; for there cannot be a doubt but that to the neglect of

these latter principles may be attributed the origin of all diseases of a typhoid character, and also the serious aggravation of many others. We are unwilling to admit that the *fell* disease which has recently menaced the whole cattle tribe in this country, has in this case broken out spontaneously within our shores; but notwithstanding its perplexing and subtle movements, passing by some of the most filthy and worst-ventilated cowhouses in crowded cities, and attacking healthy herds many miles isolated, we have only to look at the nature of those countries where rinderpest is the perpetual scourge of the stock-farmer, where the poisoned atmosphere arising from decomposing vegetation in those vast marshy plains is known to produce and foster the dreaded pestilence—to be convinced of the dangerous influence, imperfect drainage, and bad ventilation, has on all diseases of a typhoid or inflammatory character, and that such diseases will break out spontaneously when animals are confined continuously in a poisoned atmosphere.

SECURE THE LEAVES.—The woods are now full of leaves. Indeed they appear to be more abundant than ever, but farmers do not value them as highly as we think they should. For barn-yards especially they are profitable to haul in. They are obtainable too when there is little pressing work on hand. Gathered up in heaps they can be readily loaded in carts and wagons with close shelvings by using either a cloth some two or three yards square, or with a wooden rake and the arm. Hogs are very fond of them for litter, so are cows; and for compost they are excellent. As oat straw is now usually fed to cattle, and rye straw commands a high price in the market, there is nothing left for the purpose of littering except wheat straw. Hence forest leaves should be held in higher estimation than they commonly are.—*Germantown Telegraph.*

APPLES AS FOOD.—The importance of apples as food has not hitherto been sufficiently estimated or understood. Besides contributing a large proportion of sugar, mucilage, and other nutritive compounds in the form of food, they contain such a fine combination of vegetable acids, extractive substances, and aromatic principles, with the nutritive matter, as to act powerfully in the capacity of refrigerents, tonics, and antiseptics, and when freely used, at the season of ripeness, by rural laborers and others, they prevent debility, strengthen digestion, correct the putrefactive tendencies of nitrogenous food, avert scurvy and probably maintain and strengthen the power of productive labor.—*Liebig.*

Grape Culture.

BY A. S. FULLER, RIDGEWOOD, N. J.

Read before the Pennsylvania Horticultural Society, November 6th, 1866.

LOCATION OF VINEYARDS.

That the location of a vineyard is often the cause of success or failure, no one who has investigated the subject will deny; but that every location which is pronounced to be favorable, even by those who are supposed to be good judges, is so, in fact, is not equally true; for there are many things which cannot be learned, except from experience.

Elevated positions, with a free circulation of air, for warm climates, and elevated, protected ones for cold latitudes, are to be preferred. There is more danger from frosts in the latitude of Philadelphia than that of Albany. There is also more danger from mildew, sun-scald, and insects in the former than in the latter. But in one the late grapes may be successfully grown, while in the other none but the earliest are valuable.

Therefore, it is apparent to every observer that specific, experimental knowledge is required more than that which is speculative or theoretical. I do not wish by these remarks to convey the idea that grape culture must be confined to prescribed limits, nor that particular towns, counties or States, are the only locations where vine culture can be made profitable; but that there are certain locations in every section of the country, which are better adapted to it than others.

To determine these locations requires observation and some little experience.

I now refer only to sections where grape growing is to be made a specialty, and prosecuted on a large scale.

Declivities of hills and mountains have been, in all ages, chosen as the best sites for vineyards; and probably, all things considered, they are better adapted for the purpose than plains.

In such situations, a more perfect circulation of air is secured; besides, in sections where increased temperature is desirable, it can be obtained by planting on hill-sides inclining to the south.

In the Northern States such situations are preferable, but are not always absolutely necessary for success. We suspect that the time is not far distant when every one who owns a rod of ground will grow his own grapes, whether his location is favorable or unfavorable. If the soil is unsuited, he will remedy the defect, and overcome other obstacles by skill and perseverance.

The question of soil is another which is open

for debate, and is likely to be for some time to come; for all the theories and speculations of wise-acres are so often set at naught, that one often doubts if there be any really practical rules or facts which may be guides to the novice in selecting a soil for a vineyard.

In one section we find vineyards planted in a stiff clay, producing abundant crops; in other sections similar soils are found to be utterly worthless for grape growing. Just so it is with all other kinds of soils—sandy, gravelly, or loamy—in each of which we find vineyards that are successful, and others that are failures. We have, therefore, to judge from the majority, and this, I believe, is on the side of a calcareous, gravelly, or stony soil. The most successful vineyards in our country are in the limestone regions, although there are a few that do finely in soils of an opposite character.

The grape requires a firm soil, not too heavy or too light. Many sandy soils are so light, that too much air penetrates, and not sufficient resistance is offered to the growth of the roots to keep them healthy.

One ancient author says, that the vine-roots require labor to strengthen, and doubtless it is true.

If the soil is not deep, make it so by plowing or trenching, for there is no one operation that will add so much to the healthy growth of the vine as a deep and thoroughly pulverized soil.

There are but few locations where it will be necessary to trench the soil four feet deep, as is sometimes recommended; but there are few soils that do not require deepening to twelve or eighteen inches.

If the soil is not naturally rich, it should be made so before planting; for we cannot expect a growth of wood or fruit, unless the material to produce them is in the soil.

Over-manuring is nearly as great an abomination as the want of a proper amount.

The application of a large amount of fresh manure will often cause disease and feebleness in the vine to as great an extent as a poor and unfertile soil. To produce fine, healthy vines and fruit of good quality, a deep but only moderately rich soil is required.

I am quite certain that many vineyards have been ruined by a too liberal application of manure, while many others have failed for want of a proper amount.

When vines grow rapidly, say six to ten feet per year where they are allowed to grow unchecked, it is all that is necessary. I have often seen three year old Delawares making fifteen to twenty feet of growth in one season; but such wood is seldom, if ever, as well ripened or healthy as when one-half of this amount is produced.

It is, therefore, important that those who are new beginners in vine culture should use largely their own judgment, instead of following implicitly the directions of any one who is not on the ground to examine and ascertain by experience how much or how little manure is required.

One writer will tell you that five hundred or one thousand two-horse wagon-loads of compost are required per acre, and all this may be true with him and on his particular soil (if so, we pity him); but upon your own, one-half this amount might be ruinous.

Again, there must be discrimination made between varieties. One will require (in fact, demand) a very rich soil, while another would be almost uncontrollable under the same conditions. Delaware will starve where a Concord will thrive, and Taylor will take what the Concord rejects and flourish splendidly. Therefore, I have long since come to the conclusion that there was very little positive knowledge connected with grape culture, and what there is, was, and is obtained by local experience.

MANURES.

What kind of manure is the best? is the ever-recurring question. The only general answer which I am able to give is, the kind which you can get. I prefer, for general use, barn-yard manure, composted with two parts muck to one of manure. This compost, for sandy soils, is as good a manure as has ever been invented. For a heavy loam or clay soil, the order might be reversed, and two parts of manure to one of muck, always adding one to two quarts of bone-dust to each vine at the time of planting.

There are many kinds of concentrated manures that are good, and I have experimented with many of them, but, so far, with the single exception of bone, I prefer the barn-yard compost, ton for ton.

Others think differently, and practice accordingly, which only proves the truth of my previous remarks, that only local experience can be depended upon.

CULTIVATION OF VINEYARDS.

Clean cultivation, frequent stirring of the surface of the soil, or, in very light, sandy, or gravelly soils, applying a liberal mulch.

My personal experience or knowledge will not warrant me in advising anything additional, except as a warning, or what not to do. Do not grow any vegetables or fruit-bearing plants

among your vines, no matter who may advise you to do so. If you cannot afford to give up the soil to the vines, you had better not plant them.

To what Extent shall we Employ Artificial Manures?

Some recent inquiries in regard to artificial manures—where they may be obtained, what their qualities are, &c.—lead us to a careful consideration of the question which we have put at the head of this article.

It has been said that he is a *wise* man that profits by his own experience, while he who profits by the experience of others is a happy man—the fool alone refusing to profit by either. We therefore turned to the experience of some of our best agriculturists with a view to obtain by a cheaper method than actual experience the information desired.

Naturally we directed our attention to England. We thought that the best country in the world from which to find out what we wanted, would be that in which the greatest amount of money is spent per acre on the land. Nor were we disappointed. But what was our surprise to find that some of the best farmers in England buy very little artificial manure.* And it further occurred to us that those men, who as tenants commence farming with a capital of $75 to $125 per acre, and obtain by the most skillful management a return of only 10 per cent. on this investment, while a very slight deviation from a judicious system entails not only a loss of profit, but of capital, must be men whose practice, if not worthy of imitation, is at least worthy of consideration. Many of these men use no artificial manures. A Scotch writer in the "Agricultural Gazette," says that super-phosphate seems to have lost its power with him, and does not do well on his land, though a few years ago it produced marvellous results. And another gives his experience thus: "My bailiff says that guano does no good now—you cannot see where it goes, whilst fourteen years ago the smallest dusting of it showed a marked effect." He cannot be made to understand that the land was then undrained and full of poverty, (like too much now in our neighborhood) whereas now drainage, cultivation, and plenty of manure from stock, have filled it with an enduring fertility, which renders the action of guano comparatively inoperative.

He further says: "I know a farmer within a few miles of me, who always allows his 1,500 fattenning sheep one pound of beans per diem when feeding in the field; the consequence is a general and progressive enrichment of the soil, which almost compels him to take an extra crop to tame the land. In my own case I generally, on one field, annually, which has become *saucy*, take five or six quarters of Rivett wheat per acre after a similar crop of ordinary wheat."

Now, we know that Liebig offers a very plausible explanation of all this—an explanation which has been very generally accepted. It is this—that when we use guano or super-phosphate, the land is stimulated to take up all those other elements which are available as food, and until these elements are restored, a good crop is impossible, the want of any one of the inorganic food elements being fatal to success. That this is true to a certain extent, we have no doubt, but it does not apply to the case we have just mentioned. In these the implied proposition is that while on poor land the application of guano and super-phosphate produces most marked results, on rich land they do not produce a corresponding increase in the crop. There are two reasons for this. The first is that it is always more difficult to ascend from seventy bushels per acre to eighty, than it is to ascend from 50 to 60. It is something like the steamboat—if 100 horse-power will drive a boat five miles per hour, 400 horse-power will be required to drive it ten miles in the same time.

The second reason is that the artificial manure has very little influence over the physical condition of the soil. That this is true, there is no doubt, and so well is it understood in England, that at Earl Fortescue's the following plan is adopted: One man, having a dibbler of the ordinary form, about the size of half a large pine apple, presses his foot on it, and leaves a hole large enough to contain one pound or pint of animal excrement, (free from straw.) A woman follows with a box of manure and a half-circular trowel, which contains just a pint of manure, which she deposits in the hole made by the dibbler. Another woman, with a supply of super-phosphate of lime, mixed with fine mould or ashes, uses a large extinguisher,* with a

* This statement is not contradicted by the fact that the total amount of artificial manure annually used in Great Britain is steadily increasing year by year. It is unquestionably true that the use of these manures is yearly becoming more general, but at the same time some of the best British farmers, giving up the use of artificials, are depending more and more upon the home production of manure.

* As in these days of petroleum some of our readers may have forgotten the old *extinguisher*, we would say to our younger readers that it was a hollow tin cone, which was put over a candle to put it out. The "extinguisher mentioned in the text was doubtless a large hollow tin cone, somewhat like a cornucopia. A figure

handle, which she presses into the dung, and then empties its contents into the opening made. This extinguisher contains three drachms of super-phosphate of lime mixed with fine earth and ashes. A child then follows and deposits a pinch of seed in the seed-bed of the extinguisher, pressing it gently in, and if the adjoining earth is fine, pushing a little over it.

The combined operations, though tedious in description, are rapid and easy, as I can testify. The result is an unfailing plant of either mangold-wurzel or Swedes, without regard to the condition of the surrounding soil or weather. The seed-bed derives moisture from the manure, and the plant, having its food at immediate command, grows rapidly and luxuriantly.

But when applied alone, the artificial manures are not in sufficient quantity to have any great influence upon the physical character of the soil: that is its mechanical texture and its relations to heat and moisture. Hence to produce the best results, we must depend largely on barnyard manure, and this can only be obtained cheaply by manufacturing it upon the farm.

Of course, under ordinary circumstances, few farmers can afford to employ both to any very great extent, and in many cases the "artificials" have an obvious an important use. Thus where a farmer has not capital to obtain much stock, he may be compelled to procure guano, or the super-phosphates, in order to obtain results which will pay the cost of working the land. The market or truck gardener, too, the value of whose crop is proportionally very great, may use artificial manure either alone or in combination with barnyard manure, to an extent which would be imprudent in the mere producer of wheat, corn or pork. For ordinary farmers, barnyard manure must ever remain the great reliance.

An interesting experiment would consist in attempting to raise the largest possible crop by means of, first, guano; second, good barnyard manure; third, both combined—the amount of manure being in each case unlimited, and the culture in all cases the same. A careful note should be made of the character of the soil, as it is well known that concentrated manures, such as bone dust, are frequently much more efficient in light soils than in clays. This obviously depends upon the fact that in such soils the physical conditions are already suitable to the growth of plants, and all that is required is food, while in the case of the heavier clays, food is not so much wanted as tillage. We are aware that to the above, as to all other general propositions, are marked exceptions, but we believe that the great body of our agricultural experience coincides with the statements just made.—*Country Gentleman.* ARATOR.

of an extinguisher is to be found in the new illustrated edition of Webster under that word.

Action of Lime on Soil.

The distinguished chemist, Boussingault, has just read before the French Academy of Sciences a paper on the employment of lime in agriculture. It has not yet been published, but M. Barral gives the following as the substance of it, which we translate from the *Journal d'Agriculture Practique.*—*Ex.*

"Lime introduced in an arable soil very quickly sets at liberty a certain quantity of azote in the state of ammonia; the azote elements were before united in insoluble combinations, not assimilable to plants—the action of the lime sets them free, and permits a part of the capital buried in the soil to be utilized for the next crop. If this was the whole effect of lime, of which the experiments of Boussingault afforded evidence, small doses of it at once ought to be counseled, because the quantity of ammonia produced does not increase in proportion to the quantity of lime used. But as heavy limings produce incontestible effects in certain case, it must consequently be admitted that lime exerts an action of some other kind upon the elements of the mold. Boussingault thinks that certain mineral matters, such as potash and siliac, may be liberated in the soil by the lime; that other substances, injurious to plants are destroyed or modified by the same agent, and that to these effects is added moreover a physical action, changing the constitution of the land. The action of lime is thus excessively complex, and its good effects can only be explained by studying attentively the special circumstances under which they are produced. The grand fact proven by the present researches of this agricultural *savant* is that there exist in mold, as well in the form of organic matters, a host of substances completely inert for vegetation, until the moment when some proper agent renders them assimilable by plants. The continuance of experiments upon the method devised by Boussingault can alone clear up these excessively complex facts, and point out to our agriculturists the most effective processes. The discovery of methods which conduct to truth is often the greatest service that can be rendered to science and to art.

☞ The man who takes no pains to make or save manure, will not find farming a very profitable business.

On the Action of Salt on Peruvian Guano.

Dr. Voelcker, in a recent article in the *Royal Agricultural Society's Journal*, has the following:

"A distinct proof is here given that common salt has the power of liberating ammonia from soils that have been highly manured from rotten dung, Peruvian guano, and other ammoniacal manures, which, in sandy soils especially, exist in feeble combinations, that readily undergo decomposition when brought in contact with a solution of salt. In the case before us, a portion of chloride of sodium acted upon these feeble ammonia combinations, producing on the one hand soda, which became fixed in the soil, and on the other, chloride of ammonia, which passed into solution.

"This analytical result throws light on the function of salt in agriculture. It is well known that salt is most beneficially applied to light land after a good dressing with farmyard manure, alone or in conjunction with Peruvian guano, and that its application under these circumstances is particularly useful to wheat and grain crops in general. Practical experiments on a large scale have shown, indeed, that by salt alone a large increase of grain was produced on land in good heart—that is, that had been previously well manured. In this case the application of salt evidently has the effect of liberating ammonia, and rendering it available for the immediate use of our crops, which we know from experience are much benefited by it. On land out of condition, salt must not be expected to produce such a favorable effect, and as this manure no doubt is sometimes put upon land exhausted by previous cropping, in which therefore, it does not find ammoniacal compounds upon which it can act, one reason becomes evident why salt is inefficacious as a manure in some cases, whilst in other, its beneficial effects are unmistakable. Peruvian guano and salt is a favorite dressing with many farmers, and justly so. It has been supposed by agricultural writers that the benefits resulting from this mixture are due to the property of salt to fix ammonia. I have shown, however, elsewhere, that good Peruvian guano does not contain any appreciable quantity of free ammonia, and, moreover, that salt does not fix ammonia. Whilst theory has erred in ascribing to salt a power which it does not possess, the practice of mixing guano with salt is one which can be confidently recommended. So far from fixing ammonia, salt rather tends to liberate and disseminate through the soil the ammonia contained in the Peruvian guano applied to the land, which then becomes fixed by the soil."

Saving Manure, Subsoil Plowing, etc.

The manure and offal of the farm should be placed in a cemented inclosure; this inclosure should communicate with a cistern; the urine of the cattle should be collected in the cistern and from time to time pumped over the inclosure. In preparing the manure heap, to every twelve inches of dung cover with four inches of earth; the best earth is ditch scrapings; the earth should be aluminous. Continue until the inclosure is filled. The manure should be thrown out of the inclosure before using, and after being well turned over can be scattered over the field like poudrette, or the whole can be reduced to liquid and used in that form. Four or five bushels of lime per acre should be spread over the land every third year, the fall being best time. Early in spring sow two to three bushels salt over the limed field; this treatment alternated with plowing in clover, will keep the land in a condition of continual improvement will lessen weeds, worms, blight, rust, and increase and sweeten the productions of grain, hay, fruit, &c.

Underdraining and subsoiling a worn-out field will renovate the land, enabling oxygen, the life of all things, to find its way to the roots of the plants. Too much moisture is looked upon as injurious; where the oxygen of the water is absorbed by plants, that water is like air in a close room, the oxygen of which is converted into carbonic acid gas; the result of this change is death to the persons occupying such rooms. Water cannot be supplied in too great abundance to plants, provided it contains oxygen. A plant immersed in an air-tight jar, absorbs through its roots all the oxygen, if fresh oxygen is not admitted the plant languishes and dies.

The roots of plants absorb oxygen, the leaves carbonic acid gas; feed the roots, and the leaves will take care of themselves.—P. J. H.—*Working Farmer.*

PLASTER OF PARIS.—We have repeatedly suggested, of late, the importance of care and nicety in the bedding and carding of stock at this season of the year, and the use of sufficient absorbents in the shape of dry muck, loam or sand, not only to promote the comfort of animals, but also to add materially to the extent and value of the manure heap. We want now to add to the advice already given, the use of more or less plaster of Paris to be sprinkled over the floors and lean-tos where cattle are tied, as a means of purifying them and of absorbing and fixing the ammonia which might otherwise be lost. A few barrels of good fresh ground plaster will go a great way in keeping down the strong odor

which so often arises and escapes from the cattle stalls, and which is especially observable in the morning. This odor, or ammonia, is one of the most valuable products of the manure, when properly saved. Plaster not only purifies the atmosphere, but performs valuable services in saving manure. Use it freely under the hen-roosts also every few days.—*Mass. Ploughman.*

How to Make a Lawn.

The preparation of the soil for a lawn can hardly be too elaborate. It is cheapest to do the work thoroughly at the outset, to save disappointment and expense hereafter. If the ground is inclined to be wet we should say draining was essential. If it is gravelly or sandy, that is a soil that does not suffer from standing water, that expense might safely be omitted. Next we should say trenching would be very important, and if that amount of labor and expense seems too great, possibly the subsoil plow might be substituted, though trenching thoroughly would be most effectual. Before beginning either of these operations we would cart on a liberal supply, say not less than four cords of the best of manure per acre, spread it as it is dug or ploughed in, and at the same time put on plaster of Paris at the rate of five hundred pounds to the acre. We would trench fifteen to eighteen inches deep. To do this rightly a trench should be opened on one side of the proposed lawn, say two feet wide and a foot and half deep. Wheel the soil thrown out of this trench to the farther side and dump it along where the last trench will come; it will be needed to fill that up with when you get to it. Then open another trench alongside of the first of the same width and depth, throwing the earth into the first trench, and at the same time mixing it well with manure and plaster, and so continue with the whole lawn.

That is the true and lasting mode to go to work to make a permanent and satisfactory lawn, and it will leave the soil in a condition to withstand the effects of our terrible droughts, as no other mode will. Now you have a smooth and even surface, with your corn stumps all buried in the trenches, together with all sods and coarse lumps of earth; the stones, if any, having been left on the surface and removed. The manure which was trenched in may have been common barnyard or stable manure. If the soil is naturally stiff we would not be particular to get it into a finely rotted condition, as the coarseness of it would help the mechanical condition of the ground. If, on the other hand, the soil is light and open enough already, we should prefer to have fine and well rotted manure.

Now you want, also, some manure near the surface. You may use either Peruvian guano, spread on at the rate of 150 or 200 pounds per acre, and immediately harrowed in, or good super-phoshpate at the same rate, mixed with an equal amount of plaster. These manures may be spread and worked in with the grass seed, if preferred, though we would put them on first. The work might be done, and the manure applied, as soon as the ground is fit to work in the spring.

You are now ready for the seed, and it is important to get the right kinds. You want no coarse herbage, nothing that will not endure close and repeated cropping. The perfection of a lawn is to have a fine, velvety, close and soft turf, and the object is to attain that end as soon as possible, and have it last when you get it.

If it were August or September, when you were proposing to sow the seed, instead of spring, we should say use no grain with it. Success would be more sure without it. But with our annual liability to droughts, we should not venture to sow in spring without, at the same time, providing some protection which some grain crop affords. You may sow about three-fourths of a bushel of barley, or spring rye. Either would be better than oats, or you may sow millet at the rate of ten to fifteen quarts of seed to the acre along with the grass seed. You want to sow the grass seed a good deal thicker than you would for an ordinary seeding down.

Now as to the kinds and quantities. Get half a bushel of Kentucky Blue Grass, half a bushel of Sweet Scented Vernal, one bushel of Red Top or Fine Top, and about six pounds of White Clover. If you don't mind a little expense, you have time to send by your seedsman and get some crested Dog's-tail and some Sheep's Fescue or Hard Fescue; both are excellent. You will find various mixtures for Lawns recommended in *Flint's Grasses and Forage Plants*, the only trouble being to get some of the kinds best adapted to this purpose without ordering them from abroad. We would exclude Timothy because it does not endure close shaving, and is coarse. Common clover is coarse, and is annual.

Sow as evenly as possible, and rake in with a short toothed iron rake, and roll carefully, with a heavy roller, if the land is light. The grain will be thin, of course, and will not interfere much with the young grass. In about four or five weeks, or when the grain is a foot high, cut it not very close, or say three inches from the ground. It will start again and grow rapid-

ly, if you didn't let it stand too long before cutting the first time. In three or four weeks it should be cut again, and in August or September a third time.

After once fairly started it will be managed by top-dressing, rolling, and frequent cutting. The proper top-dressing for a lawn is old, finely rotted manure, spread on evenly and raked in with fine toothed iron rakes, working the rake back and forth, so as to get the fine manure down around the grass roots, and all the coarse parts of the manure taken off again directly and removed from the lawn. No coarse manure should remain on the lawn, and no manure should remain to make coarse and uneven patches. Finely rotted manure worked in as indicated, will give you a lawn soft as velvet in two or three years, and one that will be beautiful from the first. Then, after a turf is formed, shave it with a lawn-mower once a week, or ten days, during the summer.—*Mass. Ploughman.*

Dutch or Edam Cheese.

The *Scottish Farmer*, in the course of one or two recent article on this subject, remarks:

When our Scottish farmers read of the enormous sum annually expended by France in importing cheese from Holland, let them remember that, substituting Great Britian for France, the same folly is chargeable on us. In 1862 we imported 703,909 cwt. of cheese, of the computed real value of £1,550,094, and in the same year 1,037,371 cwt. of butter, of the computed real value of £4,923,100. If, fired with the ambition of provisioning the marines with Dutch cheese, the British farmer resolves on making it like the long-keeping cheese of *Edam*, there is nothing to hinder him.

The process is simply this: The milk is generally curdled by means of muriatic acid or spirits of salt, and great care is taken to extract the whole of the whey, and to prevent fermentation. The curd is repeatedly broken and pressed, and before being made up in the round shape in which it is usually sold, the broken curd is well soaked in a strong solution of common salt, in water, which effectually represses fermentation, and so insures that the cheese will keep long, even in warm climates. When the cheeses are finally pressed, all the remaining whey is washed out with the brine, they are rubbed with the salt over the outside, and set aside on shelves to dry in a cool place.

A late French writer is quoted, who contrasts the mode of cheese making in vogue in France, with that of the Hollanders, very much to the advantage of the latter. We condense the following:

The making of cheese has been carefully studied by the Dutch, as is evident from the processes employed; from the cleanliness of all the utensils, and the manipulation of the milk—from the precautions in regard to the temperatures of the curds and the atmoshpere—from the ways of preparing the curd, and the manner in which it is kneaded, placed in moulds, and so pressed as to be deprived of all its whey—from the mode in which the cheese is treated until presented for sale. Their operations are uniform, regularly carried out, following the corresponding season of each year: the effect of this considered procedure being the invariable production of the same results:

The Dutch cheese never weighs above 4½ lbs.; 15 litres milk (about 6½ gallons) gives a cheese of 2 kilogrammes (4 lbs. 6½ oz.) on its removal from the press. It is then laid upon spars in a well-lighted, well-ventilated dry room. In this room, which is a kind of drying room, the cheese loses part of its moisture, which, no doubt, helps to give it the propriety of being kept long for vitualing. We can every day make a Dutch cheese weighing not more than 2 kilogrammes (4½ lbs.,) though we should not have more than 15 or 16 litres of milk (about 6½ gallons.) This would be a great advantage to small farmers, who, being able to keep but a small number of cows, cannot possibly make cheeses of 110 lbs., according to the custom of the country.

PROFIT IN BEE-KEEPING.—As a proof that bee-keeping, as a business, pays as well as or better than any branch of horticulture, I would state that I am now offered for my bees, $1500 cash. It is not yet six years since I paid $20 for the four stands with which I commenced the business. I have never bought a hive since. So this is the increase of *my capital* in five seasons, saying nothing of the bees, honey and wax sold in the meantime, or the pleasure derived from the business.

Now that I have so many hives, I find the profit increasing every year, without requiring more time and labor than I bestowed on a few. So far from there being any danger of over stocking, I find that my bees have done better the two past poor seasons than many have done where there were but a few hives kept in one place, and I am convinced that where they are managed rightly, hundreds of colonies will do well where one will. To accomplish this, however, it is indispensable to have them strong and vigorous in spring, that they may take advantage of the whole honey harvest.—*Ellen S. Tupper in Iowa Agricultural Report.*

Latakia Tobacco.

This new variety of Tobacco may not come up to the full measure of the praise here given it, but it may be well worth while for our Tobacco growers to make a small trial of it. Our friends, Messrs. Evans & Co., at York, can furnish the seed in small packages.—EDS. FARMER.

Some months since an article appeared in the papers regarding the Latakia or Mount Lebanon tobacco seed, which had been brought from Palestine by Bayard Taylor. We were recently shown a letter from a gentleman in New Jersey, who had grown a small crop of it. He goes into ecstacies over its good qualities. He says it is entirely different from any other sort ever grown on this continent. It has a short, yellowish green blossom, borne in dense clusters. The leaves are not quite as long, but more than twice as broad as the Connecticut Seed Leaf, of an egg shape, and have petioles or stems which other varieties have not. The stalk is very thick, ridged, and viscid. The leaves are of a firm, velvety texture, a beautiful dark green color, and when they ripen assume a golden yellow tint, and fairly sparkle and glisten in the sun. At the same time they exhale a delicious odor, similar to that of the Marsh Magnolia, and when dried, very closely resemble in fragrance dried rose leaves.

"Of course," the writer says, "my little crop of leaves are not yet cured—indeed hardly dry—yet the flavor is so delicious when smoked, even in this state, and the effect so delightful—exhilarating without intoxicating or nauseating—that I am rapidly acquiring a distaste for other varieties. Competent judges who saw my plants while growing, told me that it would outyield all other varieties. It grows and comes to perfection in a little more than half the time required for other sorts. My seeds were planted about the last of June, were an inch high in two weeks, transplanted in August, and yet ripened their seeds perfectly. Every lover of the weed who has had a puff or a snuff of the smoke, commends it highly."

He thinks it incomparably better than the finest Yara or Cuba ever grown, and it does not, like the latter, deteriorate by being grown here, but retains all its delicious characteristics perfectly. He says, until Mr. Taylor procured the seed and raised a small garden crop last year, and published an account of it, it was almost entirely unknown in this country.

He thinks it will ripen two full crops of leaves in a year. After the first crop is ripe and cut the suckers will shoot up, and long before frost perfect another full crop of "fragrant golden leaves."

We are assured by good authority that there is no mistake about the quick maturity of this variety, and if half the account of its other good qualities be correct, it will prove a great acquisition. Our Western tobacco growers should make a trial of it.—*Farmer's Advertiser.*

☞ The *Richmond Examiner*, regarding manufactures in North Carolina, says: "The State is wide awake. Fayetteville has always been a manufacturing town, and before the war there were over a dozen cotton factories there, and in that vicinity. At Raleigh a factory is to be built for the manufacture of woolen and cotton goods of a fine quality. At Charlotte is the Rock Island Manufacturing Company, whose factory turns out the best cloths and cassimeres. The Raleigh Sentinel has seen samples of these, and declares that they are superior to imported. This mill runs 2,500 spindles, turns out 2,500 yards of cloth a week, consumes 3,000 pounds of wool weekly, or from 120,000 to 160,000 pounds a year. The old North State, too, has various factories scattered here and there throughout her territory."

COLONEL WILDER.—*A Merited Compliment.*—Gov. Bullock, in a speech, delivered by him at the Norfolk County Agricultural Fair, thus speaks of the labors of President Wilder, who has given for a long life, his wealth, influence and energies, to the dissemination of horticultural knowledge and horticultural acquisitions: "I meet here to-day the members of this youthful and prosperous society of Norfolk, sitting and rejoicing under the presidency of one, (the Hon Marshall P. Wilder,) who has applied the results of well-earned commercial fortune to the development of the capacities of the earth, so largely and so liberally that in every household and at every fireside in America, where the golden fruit of summer and autumn gladdens the side-board or the hearthstone, his name, his generosity, and his labors are known and honored."

PRESERVATION OF EGGS.—"Le Betier," a French paper, recommends the following method for the preservation of eggs: dissolve four ounces of beeswax in eight ounces of warm olive oil; in this put the tip of the finger and anoint the egg all round. The oil will be immediately absorbed by the shell, and the pores filled up with wax. If kept in a cool place, the eggs after two years will be as good as if fresh laid.

The American Farmer.

Baltimore, February 1, 1867.

TERMS OF THE AMERICAN FARMER.

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BALTIMORE.

PRESIDENT OF STATE AGRICULTURAL SOCIETY.—At a meeting of the Executive Committee of the Agricultural Society, held on Friday evening, 18th January, William H. Devries, Esq., of this city, was unanimously elected President. Mr. Devries is a merchant of Baltimore, but has a large landed property near the city, which he farms, and to which he gives much personal supervision. It is not doubted that his energy of character, personal influence, and other high qualifications, will make him a very efficient officer, and tend largely to the success of the Society.

COMMUNICATIONS.—The communication of T. S. P., on the cultivation of cotton in Southern Virginia, will be read with profit by those interested in the matter of which he treats. Our correspondent is a writer of great intelligence and experience, and we hope to hear often from him. The large amount of communicated matter this month, with which our friends favor us, and some of which we are obliged to postpone, excludes, to some extent, editorial and other matter on hand. We commend them all to the attention they deserve.

MARYLAND AGRICULTURAL COLLEGE.—Unavoidable circumstances have made it impossible to announce, with certainty, the day of reopening of the Agricultural College. It is supposed it will not be later than the first of Mrrch. Those who have business with the College, or inquiries to make, may address, in the meantime, N. B. Worthington, Register, at the office of *American Farmer*.

MODE OF USING FERTILIZERS.—J. M. S. says, "I wish you would publish an article on the mode of using the various fertilizers," &c. All the commercial fertilizers, except Peruvian guano, may be had in a finely prepared powder already prepared for use. For that a wire seive is needed, through which the finer part is sifted, leaving the lumps, which must be pounded on the barn floor to a powder. On all drilled crops, the practice is to sow in the drills, and broadcast on broadcast crops. The quantity used varies from two hundred to three hundred and fifty pounds, for most of the prepared fertilizers. To make it go evenly over the land, it is necessary that one not familiar with their use should lay off his land as for grain seeding, and make subdivisions of the quantity to be sown, putting so much by weight to each land.

DR. A. SNOWDEN PIGGOT, *Analytical and Consulting Chemist*.—In reply to occasional inquiries for an agricultural chemist, we take pleasure in referring our friends to this gentleman, to whom we are under obligations for frequent advice and assistance in the line of his profession. His laboratory is at 59 South Gay street, nearly opposite the *Farmer office*.

DESTROYING SASSAFRAS.—A friend in Delaware wants to know how to destroy sassafras bushes. We know nothing better than frequent cultivation, and close grazing with sheep, which will keep the foliage constantly cropped. If any one is better informed will he let us know?

BASKET WILLOW.—Any one having plants or cuttings of the basket willow for sale, will find it to his advantage to advertise them in our columns. We will furnish, next month, information as to the management of the crop.

BROOM CORN.—We shall give, next month, an article on *broom corn*. In the meantime, any of our readers familiar with its treatment, will oblige us by giving their views on the subject.

SORGO CONVENTION.—The Maryland Sorgo Association is announced to meet in Baltimore on Tuesday, 12th February, at 10 o'clock A. M., at Gilmour's hotel, 124 West Baltimore street.

ROTARY SPADE DIGGER.—This implement, we would say to a correspondent inquiring, has not yet been so perfected as to make it desirable for ordinary farm use.

Advertisements.

COMMISSION MERCHANTS.—We do not understand why commission merchants, among whom there is so active a competition, fail to see the advantage of keeping their names constantly in the eye of the producers, the men from whom they get all their business. We commend to their notice, as an example, and to our country friends, who want reliable and attentive agents, the advertisement of our friends, *Hewes* and *Warner*.

EXPRESS ACCOMMODATION.—The attention of parties interested is called to the advertisement of the Morris Express Company, (Europe, Havana, and California,) office, No. 50 Broadway, New York.

FERTILIZERS, IMPLEMENTS, &C.—Our advertisers speak for themselves in all these matters, and we hope our readers will read carefully what they have to say.

COTTON SEED FOR THE AMOOR RIVER.—Mr. Edwin A. Lewis, whose Business Agency is in the office of the *American Farmer*, has just shipped a barrel of cotton seed, the product of Accomac county, Va., to the agent in New York, of the Governor General of Siberia, for experiment in the Russian colonies upon the Amoor river.

FARM IMPLEMENTS FOR BUENOS AYRES.—The same gentleman has forwarded also in the past month, one of Bickford and Huffman's valuable grain drills, a sulky cultivator, and other implements, also, some choice seeds to Buenos Ayres.

MEADOWS.—TOP DRESSING.—On most farms there are portions of meadow land whose product of hay is very small compared with others in the vicinity. These sections can be much improved, without breaking up the sward, by a liberal top-dressing of lime and salt. These will invigorate the growth of the aftermath, and if repeated the ensuing spring, will render the poor spots equal in productiveness to those by which they are surrounded. The experiment is worth trying, unless it is deemed desirable to break up the whole meadow for the purpose of reseeding at a future day. Nearly the same results can be produced by the application of leached wood ashes as a top-dressing where the material is attainable for that purpose.

Book Notices.

LANDRETH'S RURAL REGISTER AND ALMANAC, 1867.—We are indebted to Messrs. Landreth for a copy of their very instructive annual. It contains a description of the seeds raised on their extensive grounds, or imported by them for sale, with a monthly calendar of useful hints and instructions, which will be found especially useful to the inexperienced gardener. It is distributed gratuitously, and the proprietors say that they sent out last year two hundred and fifty thousand copies.

Bloomsdale, the seed grounds of Messrs. Landreth, near Philadelphia, contains six hundred acres of land devoted to seed growing, and far exceeds, in extent, any other such establishment in the country, while its business is said to be conducted with great skill and admirable system. We copy from the Register the following:

ESTIMATE OF FARM SEEDS FOR AN ACRE.

Wheat, broadcast	1½ to 2 bushels.
" drilled	1½ "
Rye, broadcast	1½ "
" drilled	1½ "
Barley, broadcast	2 to 2½ "
" drilled	1½ to 2 "
Oats, broadcast	2 to 3 "
" drilled	2 "
Timothy, when sown with grain, in autumn, to be followed by clover in spring	1½ to 2 gallons.
Red clover, sown on grain in spring in connection with timothy, (without timothy, double quantity)	1½ to 2 "
Herds or Red Top	1 to 1½ bushels of 14 lbs.
Kentucky Blue Grass	1 to 1½ " " 14 "
Lucerne, drilled	10 "
Dutch White Clover, broadcast	8 "
" " " drilled	6 "
Lawn Grass	2 to 2½ bushels of 15 "

This is an approved admixture, designed to produce permanent lawns, growing richer with age, and uniting beauty with utility. It is alike adapted to the smallest town plat or extended lawn.

Millet	¾ to 1 bushel.
Corn, in hills	1 to 1½ gallons.
Sorghum, or Chinese Sugar Cane	2 to 3 quarts.
Buckwheat	1 bushel.
Beets and Mangold Wurtzel	4 to 6 lbs.
Carrots	2 to 3 "
Turnips and Ruta Baga	1 lb.
Parsnips	4 to 6 lbs.
Beans, in drills, 2½ feet apart	1½ bushels.
Potatoes	12 "

AMERICAN EDUCATIONAL MONTHLY, devoted to popular instruction and literature.—This is the title of a monthly of forty-eight pages, ably conducted, and should be in the hands of teachers especially, and all interested in the important work of education. It is published by J. W. Schermerhorn & Co, 430 Broome street, New York, at $1 50 per annum.

FARMERS' ADVERTISER, St. Louis, Mo.—Published by Plant & Bro. Sixteen pages, twice a month. Price $2.00, in advance. This is an ably edited Journal, adapted to the very important agricultural region in which it is published.

A FEW THINGS TO BE THOUGHT OF BEFORE PROCEEDING TO PLAN BUILDINGS FOR THE NATIONAL AGRICULTURAL COLLEGES, is the title of a pamphlet, published by Frederick Law Olmsted, Esq. of the firm of Olmsted, Vaux & Co., landscape architects, New York.

Being called in as adviser to the Board of Trustees of the Massachusetts Agricultural College, in planning and locating their buildings, and laying out the grounds, the division and disposition of lands, and adaptation of the constructions to be erected to the special ends of the institution, this report is the result of Mr. Olmsted's efforts to meet the views of the Board. It contains not only a special plan for the Massachusetts College, but discusses the whole subject in a manner that will prove interesting and instructive to all who may be concerned in such institutions. We are much indebted to the politeness of the author in forwarding to us several copies of the report.

TURF, FIELD, AND FARM.—We acknowledge our remissness in failing to make favorable notice sooner, of this able and valuable weekly. The department of the farm is edited by Mr. Fred'k G. Skinner, the only surviving member of the immediate family of John S. Skinner, Esq., so well known as the founder of the *American Farmer*, and as one of the most intelligent and earnest men of his day, in all that pertains to agricultural improvement. This *Old Farmer* feels especial interest, therefore, in the field department of the journal named, and, in all its departments, it will not fail to commend itself to the intelligent reader who may be interested in the matters, of which it chiefly treats. Published by Bruce & Millard, 37 Park Row, New York. Price $5.00.

THE PRACTICAL ENTOMOLOGIST. By E. T. Cresson, Philadelphia.—The fearful, and constantly increasing loss to the farmer, from the ravages of insects, should lead to more careful study of their habits, and to more effective preventives of their depredations. This paper is devoted especially to these objects, is furnished at the extremely low price of fifty cents a year, and deserves a very extensive circulation. A man may cultivate his land poorly, and thus keep himself poor without particularly injuring his neighbors, but one who makes his farm a breeding place for destructive insects, injures not only himself, but his fellow men. While all kinds of knowledge that will enable us to increase the productiveness of our fields are desirable, that which relates to the protection of what is produced is even more important.

AMERICAN BEE JOURNAL is a monthly octavo of twenty pages, edited by Samuel Wagner, Washington, D. C. Its specialty is bee culture, as the name indicates, and no one particularly interested in that branch of rural industry, should dispense with so useful a guide as it no doubt is. The subject of bee raising should command a great deal more of the attention of families in the country than it has done, and to this end it is necessary that we should be more familiar with it. Such a journal as this will keep its readers well posted in all that concerns it, and if well distributed, would tend greatly to the increase of a very important item in our rural interests.

THE RICHMOND ECLECTIC.—A monthly magazine of foreign literature. The selections for the January number are from *Blackwood*, *The Intellectual Repository*, *Sunday Magazine*, *Chamber's Journal*, *Saturday Review*, *The Argosy*, *Cornhill Magazine*, *Good Words*, *All The Year Round*, and *St. James Magazine*. The *Eclectic* is a most valuable addition to the literary resources of our Southern friends, giving them, in a home magazine, the range of all the best English publications at the very small cost of $4, in advance. Those who have known the value of *Littell's Living Age*, in this respect, and the Boston *Eclectic*, will appreciate the advantage of this new rival of those publications, under the direction of Rev. Messrs. Hoge and Brown, of Richmond.

SECOND ANNUAL REPORT OF FRUIT GROWERS' ASSOCIATION OF EASTERN PENNSYLVANIA.—J. Rutter, Esq., of West Chester, Pa., favours us with a copy of this report, containing, among the interesting proceedings of the association, several valuable papers, on subjects connected with fruit growing. That of Mr. Rutter, as chairman of the General Fruit Committee, discusses the question, Do varieties run out? He maintains the affirmative with much success, and hence argues the necessity of producing new varieties.

PRACTICAL FARMER OF THE MIDDLE STATES AND RURAL ADVERTISER, is the title of a monthly Journal, edited and published by Paschall Morris, Phila. This is an enlargement of *Morris's Rural Advertiser* heretofore published, and is one of our most valued exchanges. Price $1.

THE LADIES' HOME.—This is an able and elegant weekly, published at Atlanta, Ga. Devoted to the varied interests of Southern womanhood. $5.00 per annum, in advance. Thos. S. Powell, Proprietor; Mrs. L. Virginia French, Editress.

THE MASONIC REVIEW.—Is the title of a new weekly royal octavo paper just started in our city, the first number of which is illustrated by an excellent likeness of the Hon. Benjamin C. Howard, P. G. M.; also, engraved views of both the old and new Masonic Temples—the latter now being erected on Charles street. The general contents of this number are highly entertaining to the fraternity, and from the ability of the editorial corps engaged, as well as promised contributions from some of the most eminent talent belonging to the craft in Maryland, subscribers have a good augury for its continued interest. The publishers, Messrs. W. H. Richardson and J. B. Rose, evince a spirit of enterprise in the work that entitles them to the general patronage of the fraternity.

JOURNAL OF APPLIED CHEMISTRY.—Devoted to chemistry as applied to arts, manufactures, agriculture, &c. Published by Dexter & Co., No. 17 Spruce street, N. Y. $1.50 in advance. No one interested in the subject of chemistry, in any of its various applications, can well dispense with such a publication as this. We observe that Professor Erni, late Chief Chemist in the Agricultural Department at Washington, has become associate editor of this Journal.

NORTH BRITISH REVIEW AND BLACKWOOD.—We are in receipt of these valuable republications, for December, from the Leonard Scott Publishing Company. For terms, &c., see advertisement in January.

THE LAND WE LOVE.—We are in regular receipt of this able Southern Magazine, edited by General D. H. Hill, at Charlotte, N. C. We are much pleased to learn that it is very prosperous. Price $3.00 a year, in advance.

☞ Goats furnish a small supply of very rich milk, and as their food costs little, they have been found very profitable animals by families needing but little milk. Some of the best yield three quarts per day, but generally from three to four pints.

☞ Pea straw is richer in oil, albuminous or flesh-forming matter, than the straw of the cereals. The woody fibre is also more digestible. This fully accounts for the repute in which it is held as fodder for sheep and cattle.

☞ If sheep are in poor condition now, they must be gradually brought up: feed oats in the sheaf, a few daily, and some roots and good hay. Let all have the range of dry yards or fields, and warm sheds well ventilated.

Weed and Staple of the Cotton Plant.

A correspondent, writing from Joynes' Depot, N. C., says: "I would be pleased, as no doubt many others would be, if you would publish in the *Farmer* the analysis of the cotton plant, that we may see and know better, what kinds of manures are best adapted to the growth of the weed and likewise the staple. Some of our lands will produce 'weed' in abundance, but will not produce the lint to any amount worth mentioning. Again, some will produce abundance of lint, if we can only get the weed to grow high enough to bear the bolls in large numbers."

In reply, we would say that where the growth of the "weed" is deficient, and the bolls are still well-filled, the deficiency is probably in the organic matter of the soil. Any manure that furnishes abundance of nitrogen would be applicable to such a case. Peruvian guano, ground bones, fish guano, would all stimulate a growth on such land, but none of these fertilizers should be looked to for permanent improvement. If they facilitate the development of the crop, it is all can be expected of them.

In the other case, the cause of the deficiency is probably the absence of the mineral constituents of cotton seed and fibre. What these are may be seen by reference to the composition of these products as given by analysis. It is useless to consider the composition of the stalk; as that always is, or always ought to be, returned to the soil. What is taken off should be considered.

Now, the proportion of ash in the fibre is 1.25 per cent., and in the seed 4.03 per cent; and the composition of that ash is as follows:

	Fibre.	Seed.
Potash	35.26	34.75
Soda	5.11	1.10
Lime	16.73	6.00
Magnesia	9.47	13.73
Peroxide of Iron	2.07	0.55
Silicic Acid	0.26	Trace.
Phosphoric Acid	5.42	35.85
Sulphuric Acid	3.53	3.96
Chlorine	6.60	0.47
Carbonic Acid	15.55	3.59
	100.00	100.00

If now we consider what a crop of cotton removes from the land of the more important of these constituents, the following table will accurately represent in pounds the quantity carried off, allowing the product of the fibre to be 200, and those of the seed 600 pounds:

	By fibre.	By seeds.	In all.
Potash	0.881	8.403	9.284
Soda	0.128	0.266	0.394
Lime	0.418	1.451	1.867
Magnesia	0.237	3.320	3.557
Phosphoric Acid	0.136	8.669	8.805
Sulphuric Acid	0.088	0.958	1.046
Chlorine	0.166	0.113	0.279

It will not answer to return these substances

to the soil in the quantities above named. There must be a very much larger amount added, that the roots may find a supply in whatever direction they extend themselves. The ingredients themselves must, however, be furnished. Unleached wood ashes, with plaster and salt, would supply the potash, soda, lime and sulphuric acid, while a manure containing at once the soluble and bone phosphates of lime, with a sufficiency of ammonia to promote a vigorous growth, would supply the remaining constituents, except the magnesia, which is probably sufficiently abundant in most of our Southern soils.

The Sulky Cultivator.

In reply to inquiries we give below a description of the Sulky Cultivator. We learn from reliable sources that it has been sufficiently tested to determine its working value, in the hands of an ordinarily intelligent workman.

The driver, it will be observed, takes his ease in his sulky, and may whistle all day through his corn field. He drives two horses, one on each side of the corn row, and the working may be continued till the corn is shoulder high—which is long enough. The description here given is that of the manufacturer.

"Those who have used the Cultivator, will heartily agree with us, that the work is well and thoroughly done by the use of the adjustable shanks and reversible shovels, whereby any reasonable quantity of earth can be thrown either to or from the corn; that the shanks are so attached to the frame that the shovels can be arranged to run close together, or distant from each other; and that while the front shovels can be adjusted to throw the soil either to or from the corn, the rear shovels can be arranged to operate the reverse, plowing either deep or shallow, as may be desired.

"The driver can easily and readily guide and turn the Cultivator by the use of his feet, having both of his hands free to manage the team; by pressing on the stirrup with either the right or left foot, the machine will turn either to the right or left, as the case may be; and when neither foot is used, the Cultivator will follow the direction of the team.

"We fully appreciate the necessity of having agricultural implements strongly built and well proportioned, and have spared no pains to make the 'Stafford' simple, durable, and substantial, using nothing but the best material, and employing the best mechanics and workmen.

"The draft is as light as that of any cultivator built, in this respect excelling many now offered for sale. We have but to say that it is not hard work for two horses, as evidenced by the thousands that are in use, all of which have been operated with the ordinary farming teams of the country.

"By the use of this Cultivator much manual labor is saved, one person—riding on the plow—doing the work of two single shovel plows, or of four men with hoes, completing his labor with but little fatigue.

"The main frame rests on an axletree supported by high wheels, running four feet apart. The frame is about two and a half feet from the ground, and to it are attached four plows—two passing each side of the row to be cultivated. It requires but one man to operate the machine.

"The driver controls the direction of the Cultivator with his feet in a very simple and effective manner, having both hands free at all times to manage the team. The process is as follows: The tongue is pivoted to the front end of the frame work, and extends two feet back to the point where it is pivoted; on the rear end of the tongue there is a circular arm, which rests and slides on a corresponding circle attached to the frame work; four stirrups or projections are placed on this circular arm, on which the driver rests his feet; and thus, if he presses his right foot, he changes the line of the draft, and the machine turns at once to the right; if he presses his left foot, the machine turns to the left; if he presses neither foot, the machine follows the direction of the team. By this simple arrangement the machine is guided quite easily, while the team keeps on a straight course.

"Attached to the Cultivator is a fender, which effectually prevents the small corn from being covered. This is so constructed as to be readily put on or taken off, as the size and growth of the corn may demand. This fender is self-adjusting, accomodating itself to uneven ground, and to the direction the Cultivator may be guided.

"The application of 'self-adjusting plows,' to this Cultivator, is so novel, that it has excited the surprise and admiration of all who have seen or used it. All farmers are aware that if the common plow strike an unseen obstacle, such as a root or a rock, the obstacle must either give way or the team be brought suddenly to a stand, or the plow or harness or both must break; and the trouble and expense accruing from such accidents, are important considerations. In Stafford's Cultivator this objection is entirely overcome. The shanks to which the plows are attached are pivoted to the frame work, and to the front shank is attached a chain, which goes forward and passes around a pulley and then back to the

rear shank, the point of the plows being back of a perpendicular line from where the shanks are pivoted to the frame. Now when the front plow strikes an obstruction, it raises itself until it clears the obstruction, while the rear plow, remaining in the ground, brings it to its place again. The rear plow operates in the same manner, except that the front plow remains in the ground and brings it to its place immediately.

"Throwing the plows out of the ground, is done by means of a joint in the frame in front of the axletree. The driver, by rising partially from his seat, and throwing his weight on the front of the frame work, causes the joint to go down, and raises the rear plow entirely out of the ground, while the front plows fall back under the axletree. The plows should always be thrown out before turning round.

"The plows are made of the best cast steel, of an oblong shape, and can readily be so arranged as to make a wide or narrow furrow, or so as to throw the soil to or from the corn. The depth is easily gauged by lengthening or shortening the chain mentioned previously.

"A prominent feature is the ease with which the Cultivator is turned. *It can be turned around in one-fourth the space required for other wheeled cultivators, without cramping the team or straining the machine. It will also operate in all kinds of ground.*"

Ammonia from the Atmosphere.—We are indebted to the *Journal of Applied Chemistry* for the following item, which indicates a discovery in chemistry, the importance of which to agriculture can hardly be over estimated:

Production of a Valuable Manure from the Air.—The highly important agricultural problem of the fixation of the nitrogen of the air in the form of ammonia has been solved by MM. Marguerite and De Sourdeval. Their process is founded on the *cyanization of barium*, and the subsequent decomposition of the cyanide by steam. A mixture of carbonate of baryta, iron filings, refuse of coal tar, and saw dust, is first calcined through an earthen retort; through the porous mass thus obtained, a current of air is passed, the oxygen of which is converted into carbonic oxide, while its nitrogen is transformed in the presence of charcoal and barium into cyanogen, and produces considerable quantities of cyanide of barium. The calcined mixture is introduced into a strong iron cylinder, and a current of steam at a temperature less than 300° is passed through it. All the nitrogen in the cyanide is disengaged under the form of *ammonia*. It is impossible observe the authors, to foresee all the results of this discovery. Among other things it suggests the production of nitric acid from the air by oxidising ammonia.

Excelsior Wheat Cleaner.

Since our last issue, a machine under this name has been exhibited at the warehouse of Henry M. Warfield & Co., Spear's Wharf. On the only day, on which we had an opportunity of inspecting, being the first after its arrival, there was some accidental derangement which interfered with its operation. From what we saw of it, however, we can readily suppose that the following account from a contemporary, of its subsequent operation, is a correct one:

"Several samples of wheat were poured through the machine, and every particle of dirt, garlic, cockle and smut removed, leaving the grain clean and bright. It made no difference how the grain looked when it went into the hopper, it came out worth fully seventy-five cents per bushel more than before for the lower grades, and the best wheat tried was declared fully thirty per cent. better. This machine was invented in 1860, improved in 1866, and at the Agricultural Fairs at Auburn and Saratoga, New York, carried off the first premium over all competitors. The wheat, on being placed in the machine, is subjected to the action of a revolving wooden cylinder, garnished with rows of iron teeth, which promptly scour the wheat from smut and brighten it. It next passes on between a large sheet iron covered cylinder, (which occupies the centre of the machine) and a series of five wooden rollers, packed with felt and covered with coarse cloth, in which the cockles are caught and removed by a series of stout, bristly brushes, fixed at one end of the machine. The large central cylinder is turned by the friction of the smaller cylinders, which are pressed up to it by springs, which yield sufficiently to prevent the grain from being crushed or bruised.

"The wheat, after passing the lowest roller, (by which time every cockle has been separated from the grain,) comes in contact with the blast from the revolving fan, which blows away the chaff, cheat, garlic, and light, extraneous substances, the hinge-board being set in accordance with the weight of the wheat. Worked by hand-power, this machine will make forty revolutions per minute, and cleanse ten bushels of wheat per hour, to each set of rollers one foot in length—the capacity of the machine can, by lengthening the rollers, be increased to any extent—and where horse-power is applied double these results can be obtained.

"This is a matter which deeply interests every

wheat growing farmer in the country, as it will certainly so cleanse the wheat that the enhanced price which it will command in the market will far more than compensate in a single year for the cost of the machine."—*Balt. Gaz., Dec.* 7, 1866.

The machine was exhibited here by the *Excelsior Wheat Cleaning Company*, who propose to sell State and County Rights. Col. Frederick G. Skinner, who is one of the company, has the business in charge. The office of the company, 113 Broadway, New York.

For the "American Farmer."

Log Drains vs. Plank Drains.

WILTON, N. C., Jan. 8th, 1867.

Messrs. Editors:

Rusticus, page 208, January number, 1867, furnishes a correspondent with some very good "suggestions" on drains, under the caption of "plank drains;" but if economy and despatch be the object, as well as utility and durability, perhaps "suggestion" No. 2, might furnish correspondent, and Rusticus too, with a plan much cheaper, combining utility and durability, and, at the same time, economy, compared to Rusticus' plan. Therefore, to drain springy lands, and especially, if the subsoil is of a "hard-pan," which is rarely the case in springy places, or of a gravelly cast, and not subject *to cave* or "gully out" by much running, or concentration of a surplus of water in rainy seasons, I would suggest a much cheaper and more effectual plan than Rusticus, which, however, is very good, but for the additional labor and unnecessary expense attending it.

My plan—and I have had many drains cut on said plan—is to cut the ditch in the form of a V from the beginning, digging from two to four feet deep, according to soil, or depth of springs oozing from the hillsides. The ditch being finished, I have firm saplings, as nearly a size as possible, from eight to ten inches in diameter, cut from six to eight feet long, and split in two, having the pieces hauled and dropped along the ditch, end-and-end; take them and lay them in the ditch horizontally, levelling the pieces all along, and butting the ends as closely as possible, which, by-the-bye, should be sawed, and so continue to proceed till the work is finished, filling up the ditch at the same time, and breaking the joints if larger. To have this kind of drainage done well, the pieces should be ready and laid down as soon as the ditch is cut, for, in case of a heavy rain, or freezing, the sides would tumble in, or the water would cut ugly gashes, thereby rendering the work twice as difficult, and not half as effectual. In laying down the pieces, put the bark side downward, and they should be, if possible, perfectly straight, and split true, by which the work is expedited and better done, besides the oval sides fitting closely to the inward banks of the ditch, which should be cut true and even, prevent them from bulging inwardly when a glut of water settles at that point, as would be the case in all heavy rains. If pine is not convenient, any other tree that would split true will answer, and if none can be had that will split *true*, the round log is just as good, with the exception of double the timber, hauling, cutting, handling, &c. If correspondent, or Rusticus, wishes to know how long they will last, as they, no doubt, already know, provided they are always kept wet, so long will they last, or, at least, an indefinite time; and if there is descent enough, and their lead ditches are kept open and well cleaned out, so long will these *blind ditches* (as we in North Carolina call them) keep open, provided they are fed by spring. This plan, Rusticus, no doubt, will admit to be the cheapest, and I *know* it to be, by a thousand per cent. better, having tried and seen tried by my father his plan for twenty-five years; for, as incredible as it may seem, yet, to the contrary notwithstanding, they will fill up in a comparatively short time. I would advise all farmers having marshy lands to ditch, after cutting ditches to be left open, where their own good judgment prompts them, to use this plan in draining such lands. By this mode, they would greatly enhance the value of the land, besides avoid the trouble and expense of keeping their drains open, and the miring of turn in mucky or springy places (called *galls*) such as we meet with in all marshy places. To illustrate my point, Mr. Editor, if I am not already taxing your patience and time, I will give you my experience in low land and hillside drainage. My father had a very rich piece of low grounds, which he ditched, (so he said) and cleared, and and which, even with *his ditching*, (from one-and-a-half to two feet) did produce marvellously, yielding from forty to fifty bushels corn per acre; but, after a little, alas! alas! while it produced just as fine a growth as ever, by some hook, or crook, it was all more or less *do'y*. Here was a dilemma.—doty corn—heavy expense to raise it, (for, mark you, he had not plowed this land only with oxen, and then only in spots, and even then, sometimes, they and their driver and leader would all be floundering in the mire together.) What must be done? Very naturally, for the want of *thought*, he concluded to abandon it, and so he did. Fifteen years afterwards, then a perfect mire, all grown over in bullrush and flag,

a fit residence for foxes and serpents, it fell to my charge. I write this not with a view of blowing my own trumpet, but to show what can be affected by this mode of under-drainage, in the absence of a better.

Against the protestations of my father, I ditched it deep, deep, deep, going through the soil to the sand, in some places, five or six feet. These, of course, I left open, and then commenced this plan of under-drainage. What now is the result? Why, it is the only reliable piece of land, during a long, dry spell, such as we had last summer, I have on my premises, yielding from sixty to eighty bushels corn to the acre, and perfectly arable at any time with horse or mule, and never failing of a fair crop, and *sound*, alike indifferent to wet or drouth, not even rolling during a drouth of seven weeks last summer. Again, in this marsh was an awful *gall*, (springy place) some fourth of an acre, and yet there was no water visible, but to all appearances as dry for three or four inches, and as fertile as any other part of the marsh. On this spot corn would flourish, until it grew to the height of eight or ten inches, when it would begin to turn yellow in streaks, and thus continue till it had grown perhaps some two or three feet. The extremities of the blades, meanwhile, drying up, when it would suddenly fall and die, *mighty dead indeed*. In this spot I sunk a ditch on the above plan, some four feet deep, about midway of which was a subterranean slough, full of water and mire, locked up by the surrounding soil, which might be sliced up like cheese, impervious to light or air. In a few days this place began to shrink, (for this was the highest spot around) and continued to sink, until it became like the surrounding land, and now, wonderful to tell, produces as fine corn, and yields as well as any other part.

Apropos; plank drains, if Rusticus, or correspondent, has caving hillsides, which they wish to drain, the best plan is to cut ditches in the above mentioned form, and have plank, four or five ins. wide, nailed together in the shape of a V triangle, and laid in the bottom of the ditch, and not be too nice about the joints, but even leave wide joints, or bore inch holes every two or three feet apart along the box, on all sides. The water will naturally seek a passage, and percolating through the sand, will, as a matter of course, find vent through these holes or joints.

SUGGESTIONS, No. 2.

☞ The hop crop in England was more than ordinarily good and was saved in good order, as reported by the *Kentish Gazette*.

For the "American Farmer."

Storing Turnips—Roots for Stock.

Messrs. Editors:

In your last, January number, I notice an inquiry from Mr. Clark, of Newbern, N. C., relative to storing turnips, provender for stock, &c. I have had some practical experience relative to the subject under consideration, and will give him, as well others, my mite towards a solution of the difficulty. As the common white turnip, (owing to their moist nature, the most difficult to preserve in a solid state) I would not cultivate them, except for culinary purposes, sufficient for winter and spring use. They ought to be packed in a cool, dry cellar, (the thermometer ranging at 40 to 45 degrees) in bins or barrels, the turnips mixed and covered with dry sand or with a light dressing of airslacked lime on each layer of roots, exclude light, frost, heat and air. The cellar or a vegetable house should have an opening near the ceiling, or through the roof, for the escape of the gas arising from the vegetables.

For out door storage, draw the turnips during dry weather, and before frost sets in; top them close to the bulb: form pits on a declivity four inches deep, two feet wide, and any length required; lay down five inches of dry straw or corn stalks, throw in the turnips carefully, forming a roof-shaped pile; between each layer of roots mix sand or lime as previously described, then lay on six inches of straw, dry shucks, or inverted corn fodder, and on the straw place a small angular wooden spout, the open side down, the end of the spout jutting out at the east or south end of the pile, for the escape of dampness and the gas. Finish by a covering of about sixteen inches of dry earth, leaving a water drain six inches below the foot of the pit. The following are considered the most nutricious and profitable vegetables for feeding stock. They keep about equally well and may be stored in 2½ feet pits, and as directed for the white turnip, viz. yellow ruta baga, white sugar beet, mangold wurtzel, large white and orange carrot, parsnip and Irish potatoes. Cashaw pumpkins and what the lager beer brewers call "Grains and Dough" are excellent and cheap (seven cents per bushel) feed for horned cattle and swine.

Horses eat raw carrots with as much avidity as they will corn, also parsnips and beets. For cattle, sheep and swine, either of the roots named comes not amiss. For these however the roots should be sliced and mixed with cut fodder, corn chop; or crushed corn and cob. The parsnip should be fed sparingly to horses. Again, broad

cast Indian corn and sorghum for soiling, or they may be cut in the flower and cured; also rye, rape or German greens, sunflower and waste vegetable leaves for soiling. The white field bean and cow pea may be cooked for cattle and swine. Sheep will consume the pea and bean hulls and vines. Now, presuming Mr. Clark grows all or half the crops named, he can afford to cure the grass he alludes to for winter and spring use. Stock, like ourselves, (human beings) require a change of food. They must have some grain, dry fodder and salt, in addition to roots and green fodder. If corn commands too high a price, invest a small amount in the purchase of farm machinery, crush the corn and cob into chop, thus saving 33 per cent. of corn, and making more nutricious food than corn alone. There is a diversity of opinion relative to the value of corn cobs. Granting they contain no nourishment, do they not serve to extend the bowels and correct acidity? A horse will eat his manger, a cow pine shavings, if deprived of dry fodder. Without seriously deviating from the subject, I will add that the Irish potato planted at the south should be mulched, which will tend to keep the crop cool, moist, and insure a fair yield. The sun flower will yield eight tons of green fodder per acre. Horses and mules eat the entire plant and seed with as much avidity as the best hay.

Turnips left in the field after frost sets in will perish—not caused by frost so much as by alternate freezing and thawing.

If sheep are turned on the crop it should be done previous to severe weather. I will add, speculatively, that roots stored in pits north of Mason and Dixon's line can be preserved with less covering than south of it. In this latitude we have alternate light snows, severe frosts and thaws, consequently have to guard against frost, heat and wet. Were I a Northern or Canadian farmer, I would not hesitate (with straw surroundings) to cover roots under a snow drift, or a Southern planter, in a grotto. We find in this (Baltimore) county some difficulty in preserving the sweet potato through the winter. Will Mr. Clark enlighten us on the subject?

During the summer or fall months, a heap of dry sand ought to be put under shelter for vegetable storage. Cut straw, chaff and saw dust are good substitutes, especially for transportation in barrels.

Again, for swine, plant a lot in Jerusalem artichoke, and the ground pea or pea nut either will stand frost and wet uninjured. Swine turned on either crop will thrive without other feed.

R. S.

For the "American Farmer."

The Division of Farms.

QUEENSTOWN, Queen Anne's co., Md.
January 9, 1867.

Editors of American Farmer:

I salute you with the compliments of the season, and wish you many happy returns! Your old friends, with one accord, greet your reappearance as another harbinger of the hope that, in reality,

"Grim-visaged war has smoothed his wrinkled front."

At no period was there ever a greater need of agricultural journals, as a means of communicating and exchanging views in regard to the altered condition of affairs, and of suggesting modes of adaptation to meet the changes that have occurred. It may almost be said that the whole system of agriculture in the late slaveholding States, has been entirely changed. A free interchange of opinions and suggestions may enable us the more readily and profitably to meet this changed condition of affairs.

There is a very prevalent idea that the great remedy for our present embarassments lies in the subdivision of estates, and complaints of the difficulties of the times in regard to the want and unreliability of labor, are most apt to be met with the friendly advice, to "cut up your farms." This, in my view, is an heroic remedy of relieving one, of both his means and his miseries by the same short process, and as of rather better adaptation to the philanthropic idea of "conferring the greatest good upon the greatest numbers," than of especial benefit to the individual landholder. Just now, onerous taxation upon all you make, and all you sell, stands much in the way of such broad philanthrophy. We will suppose a farm of six hundred acres, divided into four or five fields, and yielding, under present disadvantages, fifteen bushels of wheat, and forty of corn, per acre, will the owner be compensated for the outlay in meeting the buildings, fences, &c., necessary to subdivide it into three farms? By the advocates of the doctrine of *homœpathic farms*, it is generally asserted that they should not *exceed* this number of acres in size. (In fact there has been a mania for "ten acres enough.") In my opinion, unless these products are more than trebled, he will not. It must be recollected that to each subdivision a proportionate quantity of grazing land is necessary. There will, therefore, be a much smaller portion of the whole area under grain cultivation, and it is upon this species of product that the landlord's revenues are usually based. It is argued that the land will be much more readily

improved. This may be the case if you are fortunate enough to get a tenant who does not think his only business is "to get *his* living out of the lands," and leaves but little *life in it*. Tenants are frequently as sorely put to it for want of labor as the proprietors. It must also be remembered that for these so-called improvements you are apt to be severely taxed. What then is the remedy for the present difficulties? Is it better to sell off a portion, or to attempt a system of grazing? To follow this successfully a certain portion, at least, of your land, must be in condition to produce good crops of hay. I will remark that this clamor for small farms is, in my view, one of those erroneous notions propagated by our proximity to Yankee land, and not at all adapted to our situation. In New England and the Northern States, it is rare to find the owner of several hundred acres of land, exclusively engaged in attending to its cultivation. Perhaps he has his finger in a half dozen other pies. He may be interested in a manufactory, a tannery, a hotel, or during the winter months be engaged in shoe making, patent medicines, clock cleaning, or perhaps as a member of Congress. Now we are not yet up to these facilities of helping along the farm. What then is best for us to do?

I have hastily thrown together these views, in the hope of eliciting suggestions from others, who, perhaps, as well as myself, may have experienced the difficulties of the times. I hope the subject will, in the cant phrase of the day, be "thoroughly ventilated." D. E. C.

For the "American Farmer."

Cotton Culture in Virginia.

Your excellent journal for January contains an interesting letter from the late Dr. Hinkley, on the profits of cotton culture in Greene county, Alabama. With your permission, I propose to compare the profits attending the cultivation of this plant in Virginia, with those of the boasted cane-brake lands of the former States. Your correspondent furnishes the requisite data in the one case, and you will have to depend on the veracity of the writer of this for the necessary details in the other.

Cotton has been grown in the counties bordering on North Carolina for many years—say in Southampton, Sussex, Greensville, and Brunswick. Wherever the soil suits, it is one of the staple crops. To what extent it is cultivated in the counties farther east, whose commercial relations are with Norfolk, I am not particularly informed, but the soil and climate are equally favorable to its production. Last year it was extensively planted in Dinwiddie and Prince George, and, in fact, up to the very banks of the Appomattox river. Within a mile or two of the city there was one field of a hundred and thirty acres, and more or less on almost every farm.

Our lands being poor in comparison with those of Alabama, it is necessary to make free use of guano, or some other active fertilizer. From 250 to 300 pounds is a liberal application; less will do when the land is in good heart. With such a dressing, the planter may count with reasonable certainty on a bale of 400 or 450 pounds from two acres. Under less favorable circumstances, a bale from three acres is about a fair yield.

This is precisely the product, according to Dr. Hinkley, of the Alabama lands, only that the Southern bale is fifty or seventy-five pounds heavier than ours. But there this product is from the natural soil, while here it is from the improved soil; and improved at a cost, say of twelve to fifteen dollars. But, on the other hand, the capital necessary for the purchase and stocking of a cotton plantation in Alabama is very great. Indeed, Dr. Hinkley expressly states, that good land is worth ten dollars per acre rent. Here, on the contrary, land is so cheap and abundant, that the rent in the one case, and the preparation in the other, may fairly be put in opposite scales without a material preponderance on either side.

Dr. Hinkley furthermore states—what indeed every intelligent man knows—that in Alabama, cotton is the most precarious crop grown. It has enemies to contend with every year, as the boll-worm and the caterpillar; and it is liable to a formidable disease known by the name of rust. Some seasons are much worse than others, but the plant is seldom wholly exempt from attack by one or the other.

In Virginia, on the other hand, these drawbacks are unknown, and cotton is as certain a crop as corn, wheat, or tobacco. Even in the last very peculiar season, which was excessively wet in spring, followed by a long-continued drought in summer, the product was very little below the usual average. The staple was a little shorter, and the grade not quite so high, but there was no other difference.

These comparative results may be quite unexpected to a stranger, but they are nevertheless reliable. If the cotton plant here does not attain the large proportions it does in Alabama, the difference is made up by the increased number of plants—just as the small Northern corn, by reason of the greater number of stalks, is fully as

productive, indeed more so, than the gigantic growth of the South.

The culture of cotton in the Southern States attracted last year many adventurers from the North, the most of whom, it is believed, sunk money. Such persons will doubtless be shy of engaging in the business again. Should any of your readers, however, be disposed to make a trial, it might be to their interest to acquaint themselves with the advantages which are offered in Virginia.

The soils best adapted to cotton in this section, are of a light and sandy structure. The same field will produce good crops many years in succession, with an annual application of fertilizing materials. Some planters follow this plan; others plant the same ground in alternate years. The peparation and cultivation should be very careful. In the early stages of growth, the plant is liable to be drowned by wet, or choked by grass. Good draining, and the free use of the hoe should be diligently practised.

Petersburg has long been a cotton market, and is one of the best in the South. Owing to the large demand, both here and in Richmond, for the consumption of the factories, the price is always within a very narrow margin of New York quotations.

When the great advantages of tide-water Virginia come to be better known, we may reasonably expect it will be an object of attraction to strangers. It has capacities of soil and climate which will render it, at some future time, the garden spot of the Atlantic coast. Penetrated by numerous fine streams, every portion is accessible, and navigation is carried within a few miles of every man's door. The people are proverbially kind and hospitable, and will extend a cordial welcome to emigrants, notwithstanding all that has been said to the contrary.

Petersburg, Va. T. S. P.

The White Willow for Fences.

I have seen the white willow growing in many places in this State and the West, and wish to say something regarding its value for fencing. Those who pronounce it a humbug are generally of that class of men who expect nearly all kinds of shrubbery and fruit trees to grow vigorously and do well with a little or no culture or pruning. Such men should not plant the willow, or even any kind of hedge plant, expecting to make a good fence. I speak advisedly and positively when I say the white willow is *not* a humbug.

It is suited to making stockades or tree fences, but is unfit for hedges. But very few of those who try it succeed in making a good fence—perhaps not more than one in twenty.

Want of *care* is the great trouble. It is often neglected for want of knowledge as to its management and not getting it started rightly.

I will give a few simple directions for making a fence or stokade with the white willow.

Plant your cuttings in nursery rows and cultivate them as well as you would so many rows of cabbage. After one season's growth take them up and plant them on the fence line, where they are to remain, taking particular care to have them stand *perfectly upright* or perpendicular, leaning neither to the right or left. In nearly all cases where the cuttings are planted on the fence line, at first the young shoots diverge in many ways from a perpendicular, and it is very difficult to make them grow straight up as they should. Hence they should be set in nursery rows one season, and then when replanted on the permanent fence line they can be set so as to avoid thus diverging, in various ways, from the proper upright position so necessary to make a decent looking tree fence. They should be well cultivated with a horse on both sides of the row for two years at least after being set on the fence line—as much care as a farmer would give to a row of corn. All the lower limbs should be carefully trimmed off twice during the season and the young plants encouraged to run up tall and straight, and no browsing from cattle or horses. In this way good durable fence can be made, which will, in a few years, be quite a screen or shelter from the wintry winds.

To make a fancy or ornamental tree fence and windbreak—set evergreens; Norway spruce, red cedar, white pine, are among the best, and white willow. Set about three evergreens, then a white willow, and so on alternating. Keep the willows trimmed up high so as not to interfere with the evergreens, and they will fill the entire space below, while the willows will shoot up much higher, their trunks being but little in the way of the evergreens. This style of fence if well cared for would, in a few years, be an ornament to any plantation.—*Ex.*

Near Syracuse, N. Y. A. BABCOCK.

☞ On the great grain growing region of the Campagna, near Rome, where the extensive plains afford the finest field in the world for the use of the reaping machine, the old sickle is still used, and the horse "that treadeth out the corn" is the only threshing machine known or believed in.

A Short Sermon on Stables.

The recent improvements in American architecture have not reached the stables, to the extent that could be desired. Brown stone fronts, high ceilings, marble mantle-pieces, costly furnaces for warming and ventilating the dwelling, may please the eye and promote the health and comfort of the occupants, while the valuable horses of the proprietor are suffering from a poorly constructed and poorly ventilated stable.

The fault often lies in two directions. The stable may be too tight, or too open. A horse needs light, as well as air and suitable warmth and food—the vegetable structure hardly needs light more than he does. Pure air is essential. His blood cannot become purified, while the air which inflates his lungs is full of foul gases from fermenting manures. Nor is it enough to keep the stalls clean, if they are so tight that the horse is obliged to breathe his own breath over and over again. Digestion is interfered with, and all the functions of life are impeded. Lazy grooms declare that a close, warm stable, helps to make a horse's coat fine and glossy in winter as well as in summer. But, in winter, such a coat is not to be desired. Nature provides the animal with longer hair and more of it, to defend him from the cold. If the horse is well groomed and blanketed, his hair will be smooth and glossy enough all the year round. The indolent groom ought himself to be shut up for twenty-four hours in the hot, steaming air in which he would confine his master's horse, and see how he would like it. Open the doors of such a stable in the morning, where several horses are kept, and the hot air and the hartshorn are almost sufficient to knock a man down. What wonder, then, that horses so used should suffer from inflamed eyes, cough, glanders, and other ailments! The wonder is that they bear the abuse so long and so well.

Now the "*improvement*" to our sermon is simply this: *ventilate the stables*. Ventilate, both in winter and summer. The outer air should be brought in at certain places near the floor, but not in the immediate neighborhood of the horse, so as to cause hurtful drafts of wind directly upon him. Impure air must be ejected, as well as pure air brought in. This can be done in summer very well by leaving several windows open in different parts of the barn. But a better way is to insert ventilators in the highest part of the buildings, into which ventilators (square wooden tubes) shall lead from the stalls, and which can be opened or closed at pleasure. These ventilators should be covered with a cap, to prevent downward currents and the beating in of rain. By this plan, the foul air is carried off directly from the stall without mixing with the hay in the loft.—*Lower Canada Agriculturist.*

Poultry Yard.

Poultry Paragraphs.—It is a fact that most old women who live in cottages know better how to rear chickens than any other persons; they are more successful, and this may be traced to the fact that they keep but few fowls, and these fowls are allowed to run freely in the house, to roll in the ashes, to approach the fire, and to pick up any crumbs or eatable morsels they may find on the ground, and are nursed with the greatest care and indulgence.

The aim of every one who keeps fowls should be the possession of first-rate stock, whatsoever the breed may be. Every breed has its standard of excellence, and it is desirable to have that standard raised as high as the most approved system will carry it.

Every one should be made acquainted with the fact that some hens are more prolific in eggs, and that in some kinds the flesh is much superior in richness than in others; and that some are large in size and more hardy than others.

By warmth and judicious feeding a hen may be made to lay as many eggs in two years as she would under ordinary circumstances in three: and every one knows, or ought to know, that a fowl fatted at two years old, is much more tender and palatable than one that is older.—*C. N. Bement, in Country Gentleman.*

Large Poultry Establishments.—At a recent meeting of the New York Farmer's Club, several members stated that every attempt that had been made in this country to keep fowls in large numbers had failed. One gentleman made the following statement:

I have probably spent five thousand dollars in persevering attempts to raise poultry upon a large scale. I have tried it in Westchester, Orange, and Columbia counties, N. Y., where I could procure cheap food from the city. In one case, the cost of keeping a thousand fowls was $1100, and the net results $950. I changed my location twice, hoping for better success. Then I concluded to go to Illinois, where grain was cheap. The result was the same. I have spent my time and money, and made a "lamentable failure." I have come to the conclusion that raising poultry upon a large scale in this country is not profitable. If others think it is, they can easily try it.

How to Make Hens Lay.—Many persons feed hens too much for laying. To keep twenty hens through the winter, give them three pints of corn and two quarts of oats or buckwheat per day; also, about twice a week, give them shorts or bran wet with warm sour milk, of which they seem very fond; make it quite wet, and put in a large spoonful of ground black pepper. Give them all the green stuff that can be had, such as cabbage leaves, parings of apples, cores and all, etc. So fed, with comfortable quarters, they will lay all winter. Keep only early spring pullets. Change cocks every spring. In proof of the above, we will merely observe that a neighbor had, among a lot of hens, one that would *not* lay under any circumstances; and as such hens are not profitable to keep, she was considered a fit subject for the pot. On dressing she was literally filled with fat, instead of egg *ovaries*.—*Country Gentleman*.

Keeping Fowls.—Mr. Albert C. Vose, near Manville, pursues what seems to us a reasonable and profitable course in keeping fowls. He has enclosed an acre and a quarter of land with a high fence; and in the enclosure he keeps about a hundred and fifty hens. He informs us that during nine months of the year these fowls gave a net profit of two dollars per day, or say five hundred dollars per year. Is not this keeping fowls to some purpose? In Mr. Vose's enclosure is a running stream and fruit trees. The trees afford shade, while their fruit-bearing is improved by the fowls.— *Woonsocket Patriot*.

Who Says Hens are not Profitable?—A neighbor of ours has one hen (a native) who has in eight months, commencing January 20, 1866, and to the 29th of September laid nine dozen of eggs, brought up two broods of chickens, the last litter, ten in number, being now two months old, are weaned, and the hen is now laying her tenth dozen of eggs. The first brood, four in number, were marketed when four months old, and averaged one dollar and twenty-seven cents a piece.—*Portsmouth (N. H.) Chronicle, Sept.* 4, 1866.

Waterproof Composition for Boots and Shoes.—Take boiled oil, one pint; oil of turpentine, black rosin and beeswax, of each three ounces. Melt the wax and rosin, then stir in the oil, remove the pot from the fire, and when it has cooled a little, add the turpentine.

The Profits of a Crop of Trees.

We find in Fuller's "Forest Tree Culture," much new and interesting matter, both of a practical and somewhat speculative character. Few, he says, have ever calculated the value of an acre of oak, chestnut, hickory, or white ash. Growing as they do, in their native forests, they are generally mixed with other trees that are often of little worth, except for fuel; but assuming that an acre could be planted exclusively with some of the above varieties, one would almost be astonished at the amount and value of the yield. Taking hickory—which is always in demand for hoop-poles, (for our latitude the same calculation could be made with white ash,) Mr. Fuller proceeds to figure up the profits of an acre of land as follows. His calculations are at least interesting, and we doubt not reliable:

"Now the young one or two year old plants, or even the nuts, may be put in rows four feet apart, and the plants one foot apart in the row; this will give 10.890 to the acre. At this distance they should reach this size in five to eight years, according to the soil and the care they receive. Then they should be thinned, by taking out every alternate tree; this should be done by cutting them off near the ground. We therefore take out 5445 trees suitable for hoop-poles. Their value will of course depend upon the market, but we will say four cents, or $40 per 1000, which would be a low price in New York; this would give $217 80 (two hundred and seventeen dollars and eighty cents) as the return for the acre's first crop. In three or four years they will need thinning again, and we take out, as before, one-half, or 2722; these will, of course, be much larger; and if they will reach ten feet, and are of good thickness, they will readily bring ten cents each, or $272.22 for the second crop. In a few years more they will require thinning again, and each time, the trees being larger, will bring an increased price. But we are not by this means exhausting our stock—far from it, for those we cut off at first have been producing sprouts which have grown much more rapidly than the originals; and if a little care has been given them so that they shall not grow so thickly as to be injured thereby, we can begin to cut small hoop-poles from the sprouts of the first cuttings before we have cut our third or fourth thinnings of the first crop; consequently we have a perpetual crop, which requires no cultivation after the first few years. As soon as the leaves become numerous enough to shade the ground, no weeds will grow among them, and the annual crop of leaves that fall will keep the soil rich and moist."

Sunday Reading.

It is truly a most christian exercise to extract a sentiment of piety from the works and appearances of nature. Our Saviour expatiates on a flower, and draws from it the delightful argument of confidence in God. He gives us to see that taste may be combined with piety, and that the same heart may be occupied with all that is serious in the contemplations of religion, and be, at the same time, alive to the charms and loveliness of nature.

A perpetual calm would hinder the fructification of flowers. Let this console us under suffering. By doing the proper duty in the proper place, a man may make the world his debtor. The results of "patient continuance in well-doing" are never to be measured by the weakness of the instrument, but by the omnipotence of Him who blesseth the sincere efforts of obedient faith alike in the prince as in the cottager.

There will come a time when three words uttered with charity and meekness, shall receive a far more blessed reward, than three thousand volumes written with disdainful sharpness of wit. But the manner of men's writing must not alienate our hearts from the truth, if it appear they have the truth.

What is thy profession, or thy place, office, trade, or occupation? Art thou priest, or prophet, captain, or counsellor, publican, physician, tentmaker, purple-seller, fisherman, carpenter? What need I reckon more? The Gospel hath examples of some saved of all these.

What sculpture is to a block of marble, education is to a human soul. The philosopher, the saint and hero, the wise, the good and the great man very often lie hid in the plebeian, which a proper education might have disinterred, and brought to light.

Men should know, that the noble power of *suffering bravely*, is as far above that of *enterprising greatly*, as an unblemished conscience, inflexible resolution, are above an accidental flow of spirits, or a sudden rush of blood.

Next to the devout exercises of religion, perhaps nothing will more completely remove sadness and disquietude than the silent eloquence of flowers, and the vocal music of birds.

Mortification and prayer must ever go together, or prayer will degenerate into formality.

I do not mean to affirm generally, that reason is not a judge in matters of religion; but I do maintain, that there are certain points concerning the nature of the Deity, and the schemes of Providence, upon which reason is dumb, and Revelation is explicit; and that, in these points, there is no certain guide but the plain obvious meaning of the written Word. The question concerning the eternal duration of the torments of the wicked, is one of these.

Learn, O my soul, to confess a truth, though never so much to thine own diminution. Learn to advance the honor of God, though to thy own disparagement. Learn to decline the applause of men, and banish from thy thoughts all conceits of thine own worth. Learn to speak lowly of thyself, and to mean, as thou sayest; and seek not thy praise from men but God.

If Christ will cast those men into hell, that did not visit His people, when they were in prison, into what a hell will Christ cast those men, that cast his people into *prison?* If want of mercy will condemn men at the day of judgment, what will acts of cruelty and unmercifulness do?

The law of God was not to be written on the doors of the temple, but upon the posts of thine own doors, and thou to meditate upon it, not only in going to the church, but in the field; in thine house, with thy children, in all the turnings of thy life and calling.

The vine, olive, and fig tree, in Jotham's parable, will not leave their wine, fatness, and sweetness to gain a kingdom; Herod his Herodias to save his soul; nor of corrupt minds the corruption of their manners, for a blessed reformation.

Many men take a great deal more pains for this world than heaven would cost them; and when they have it, do not know how to live to enjoy it.

The glitter of riches often serves to draw attention to the worthlessness of the possessor, as the light emitted by the glow-worm reveals the insect.

Whatever God himself has pleased to think worthy of His making, its fellow-creature, man, should not think unworthy of his knowing.

Nature has perfections, in order to show that she is the image of God; and defects, in order to show that she is only His image.

SWISS FARMING.—"We meet a woman with a great basket strapped upon her back filled with faggots; another one passes us on her way to mill, her "grist" in a bag lying on her shoulders, and a strap from the bag crossing her forehead. In the field opposite a third woman is mowing. She stops to sharpen her scythe, and we have an opportunity to inspect the implement. No bushwacker in the United States—no farmer's boy in all the Union—swings so heavy a scythe—sixteen inches long, four wide, and thick enough for the track of the Metropolitan horse railroad! A man with a three-tined wooden fork tosses up the grass to the sun which the "weaker vessel" is mowing! While watching the operation in the field, a damsel passes us with a wash-tub on her head. No grenadier of the grand army of France ever stood more erect. She is busy with her knitting work the while."

Baltimore Markets, Jan. 20, 1867.

COFFEE.—Rio, 18¾a19¾c. gold, according to quality. Laguayra ——, and Java —— cts. gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	27	—
Good do	29	—
Low Middling	31	—
Middling	35	—

FERTILIZERS.—Peruvian Guano, $83; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $50; G. Ober's (Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkaline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56; Andrew Coe's Super-Phosphate of Lime, $60;—all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a$14.00 per ton. Shell Lime, slacked, 6c., unslacked, 10c. per bushel.

FISH.—*Mackerel.*—No. 1, $19a20; No. 2, $16a18; large, No. 3, $14a15. *Herrings*—Labrador, $6a7; Potomac and Susquehna, $8.50a9; Codfish, 6a7 cts. per lb.

FLOUR.—Howard Street Super and Cut Extra, $11a $11 55; Family, $15.50a16.00; City Mills Super, $10.50a 12; Baltimore Family, $17.50.

Rye Flour and Corn Meal.—Rye Flour, new, $6.25a 6.50; Corn Meal, $5a6.00.

GRAIN.—*Wheat.*—Good to prime Red, $3.00a3.10; White, no sales—nominal.

Rye.—$1.25 per bushel.

Oats—Heavy to light—ranging as to character from 58 a62c. per bushel.

Corn.—White, $1.05a$1,10; Yellow, $1.02a$1.05 per bushel.

HAY AND STRAW.—Timothy $27a28, and Rye Straw $28 per ton.

BEANS.—$3.00a3.25 as to quality.

POTATOES.—$1.00 per bushel.

PROVISIONS.—*Bacon.*—Shoulders, 11a12 cts.; Sides, 12a13; Hams, plain bagged, 16 cts.; sugar cured, 17 cts. per lb.

SALT.—Liverpool Ground Alum, $2.10a2.15; Fine, $3.10 a$3.25; Turk's Island, 58c. per bushel.

SEEDS.—Clover, held at $8.50a9.00; Timothy, $3.50a 3.75; Flaxseed, $2.50.

TOBACCO.—We give the range of prices as follows:

Maryland.	
Frosted to common	$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10 00a15.00
Fancy	17.00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00
Ohio.	
Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.30a2.35 per gallon, in barrels.

WOOL.—We quote: Unwashed, 25a27 cts. per lb.; Tub-washed, 45a57 cts.; Fleece, commen, 40a48 cts.; Pulled, No. 1, 28a33 cts.; Merino, 37a40 cts.

CATTLE MARKET.—Common, $5 50a$6.25; Good, $7a $7.25. Prime Beeves, $7.50a8 00 per 100 lbs.

Sheep—5a6¾ cents per lb. gross.

Hogs—$8.25a9.00 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Jan. 22, 1867.

BUTTER.—Ohio, in brls. and kegs, 20 to 25 cts; Roll, 30 to 33; Virginia and Pennsylvania in kegs and tubs, 20 to 25; Glades, 25 to 40; Goshen, 45 to 50.

BEESWAX—43 cts.

CHEESE.—Eastern, 20; Western, 18.

DRIED FRUIT.—Apples, 10; Peaches, 17.

EGGS—In barrels, 40 cents per dozen.

FEATHERS—80 cents for good Southern

LARD.—Brls. 13, kegs 13½, jars and other country packages 14 cents.

TALLOW.—11¼ cents.

CONTENTS OF THE FEBRUARY NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, MARCH, 1867. Vol. I.—No. 9.

MARCH.

"Who was it that so lately said,
All pulses in thy heart were dead—
Old Earth, that now in festal robes
Appearest, as a bride new wed?
Oh, wrapped so late in winding sheet,
Thy winding sheet, oh! where is fled?
Lo! 'tis an emerald carpet now
Where the young Monarch, Spring, may tread.
He comes, and a defeated King,
Old Winter, to the hills is fled."

Farm Work for the Month.

With the opening of spring, as the wintry weather clears up, and March winds dry off the ground, everything must be put in motion, and nothing omitted from the necessary preparations to make a fair start, and keep pace with the movements of the season. The first great work of the year's operations is

PLOUGHING.

This embraces the proper breaking up of all sod-land, and all such as may be prepared for seeding down to grass for two or more years. It is to be borne in mind, constantly, that it is not mere cropping and its results that we are aiming at, but progressive and lasting improvement, and that of this, the very foundation is good ploughing—a thorough breaking up, of that which we cultivate, and breaking from such a depth as will continually increase the bulk of fertilized soil. Below the very deepest we have yet reached, there is a lower depth which we need not fear to invade one or two inches farther. This for the permanent improvement of the land. For the present crop, and as a point of mere labor-saving, one good, thorough ploughing is equal to three, imperfectly and indifferently executed.

In any ordinary soil, we should not be content with less than seven inches, and the nearer we can approach twelve the better. The subsoil plough will readily break to the depth of fifteen inches. There may be soils that form an exception to the rule of deep ploughing, and which, from some hurtful property of the subsoil, need to be deepened gradually, but they are so rare, we think, as not to give any concern in our ordinary operations. Where there is risk of harm, the ground should be deepened in the fall.

A deep soil is the very first requisite for the successful cultivation of almost every crop. Summer crops, so very uncertain in a shallow soil, are, in a deep one, almost insured against the vicissitudes of the season. Planted in a bed of twelve inches, our all-important corn crop, would not fail of a good yield, one year in twenty.

Except on the lightest lands, three horses to a plough are necessary to break sod-land properly. As ample strength of team, as well in number as condition, is most necessary to the success of farm operations, see to it now, that any deficiency is promptly supplied.

The master should bestow the most careful supervision, to ensure that the plough, the gearing, and every other requisite be in proper order, and that his work be not slighted by the ploughman.

On a tobacco plantation, the land devoted to that crop should be the first sod broken, and broken so deeply, that the turf shall not come again to the surface, during the after working.

OATS AND BARLEY.

These crops are usually sown upon such lands as have been cultivated the previous year in corn and other hard crop, and not thought suitable for wheat. As clover seed is usually sown with them, or should be, unless under the system which makes wheat to follow oats, at least a hundred weight of some good super-phosphate should be sown on the surface in immediate contact with the clover seeds. Sow at the very earliest time that the ground may be in order, ploughing in the seed with a light furrow. Then sow immediately, clover and grass seeds and the fertilizer, and follow with a heavy roller.

CLOVER SEED ON WHEAT FIELDS.

If clover seed has not yet been sown on wheat fields, wait till the frost is out of the ground, leaving it cracked and open. Then sow and follow with roller. This implement will cover the seed sufficiently, and be very beneficial to the wheat. Six quarts of seed to the acre is not at all too much. It is a wasteful practice to put this costly seed upon land not properly prepared for it, but otherwise no price would justify its omission from an ordinary rotation of crops.

ORCHARD GRASS.

Sow seeds of this valuable grass at the same time that clover seed is sown, and put it in by the same operation; this is the best of the grasses adapted to our soil and climate, when a strong and permanent sod is wanted for grazing, as well as for a crop of hay. It makes good hay, little inferior to timothy if not allowed to get too ripe. It starts very early in spring, endures drought well, grows late in fall, makes a large aftermath, and bears close grazing, indeed, makes the better pasturage by it. It is fit for the scythe at the same time that clover is, and the two should be sown together. A bushel of seed to the acre is the usual quantity, sown with other seeds, but two bushels is not too much to ensure a thick sod. It is too expensive, however, for seeding in an ordinary rotation; but where hay and pasturage is needed for a succession of seasons, it is indispensible.

TOBACCO BEDS.

If tobacco seed be not yet sown, let there be no delay in getting the ground ready, and putting in the seed as heretofore suggested.

HANDLING TOBACCO.

The stripping should be finished as early as possible. That in the bulks will now require careful looking after. It is liable to heat and mould, and acquire a bad smell, which it will not get rid of by any after care. Examine the bulks frequently, and whenever there is the least warmth, and, indeed, whenever it is found to be getting very soft, it should be, at once, well shaken out, and hung up for a thorough drying, or laid lightly in another bulk. The most expeditious and effective way of getting the crop into "condition," that is, fit for packing, is to hang it up and suffer it to be well dried; and then to take the first opportunity when it softens sufficiently for safe handling, but before the heads get soft, to put it into a large bulk and cover with tobacco sticks and heavy weights to exclude the air, till ready to pack.

STOCK.

Give stock of every sort especial attention in accordance with suggestions of last month.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARBER Maryland Agricultural College.

MARCH.

We hope soon to have arrived at the most favorable time of the season for seed sowing, and upon the right use of it will depend, in a great measure, the success of keeping up a plentiful supply of vegetables for summer, fall and winter use. Those who have not yet commenced to make hot beds for the sowing tomatoes, peppers, &c., should lose no time in doing so, and whenever the weather is favorable, and the ground in good condition, preparation should be made for the planting, sowing, &c., of the main crops of early spring and summer vegetables; much has been said of artificial manures, of unfavorable seasons, blight, mildew, &c. But we incline to think the grand secret lies in the proper preparation of the soil, more particularly in sub-soiling and effective drainage. Manures of whatever kind applied to land in an ill-drained condition, we think, is very frequently the cause of disease, and the crops become the prey of insects.

ASPARAGUS BEDS should be lightly forked over and dressed with salt, at the rate of about one pound to the square yard—sow seeds for new beds.

CABBAGE.—Crops of all kinds, unless previously removed, will now begin to cumber the ground, and should be removed at once, if there is any fear of the supply running short until spinach and kale come in. Plant the best of the old stalks in a border by themselves, and they

will produce a few good dishes of tender greens. Sow seed of Brussel's sprouts, Scotch kale, and savoy, for fall use. Sow, also, early york and Winingstad cabbage on a slight hot-bed or warm border. Soon as the ground is in good condition plant out cabbage from the fall sown beds.

Cauliflowers, under glass, will be growing now that the weather is milder. Remove the lights in warm weather, and give them the benefits of warm showers, but cover up at night when there is any danger of frost. Towards the end of the month prepare to make plantations of those which have been kept under glass during the winter—transplant those raised in heat in January and February under glass. Sow as directed for cabbage; the early Paris for an early crop has succeeded best with us.

Celery.—Transplant the early sown into boxes, or on a slight hot-bed, and sow for succession; the early white and red solid we can recommend for the "Farmer."

Lettuce.—Towards the end of the month, some of the best plants that have been wintered in covered frames may be planted out upon a warm border, and others upon a more exposed situation; sow for succession. The only kind we cultivate is the true "Paris Silesian."

Onions.—Sow the main crops as early as the ground is in good condition; for very large ones we plant the small bulbs of last year, or the fall sown plants in very rich ground. The "yellow Danvers" and large red we are well satisfied with.

Potatoes.—Do not neglect to plant for the principal crop early as the ground is in good working order. We prefer that the sets should be hard, dark green; and the sprouts (should any have made there appearance) a dark purple; we cover about four inches, so that the hoeing and ploughing between will add to the depth about eight inches of soil.

Rhubarb may now be forwarded by placing hand-glasses, or boxes over it, with a little manure round the bottom to prevent the ingress of cold winds. This plant is greatly benefited by copious waterings of liquid manure during dry weather; it delights in plenty of moisture and good living; now is the time to make new plantations; choose deep, rich soil, trench deep, manure heavily, and plant good roots of good varieties, such as Myatt's Linnæns, or Salt's crimson perfection. We have on trial upon the college grounds, some twenty varieties, which we hope to report upon in due time.

Radish.—Sow upon a warm border the early short top, and red turnip varieties.

Peas.—For the first crop, sow the Daniel O'Rourke, or Carter's "first crop." If there is any fear of the seed being attacked by the wire worm, it is an excellent plan after they are sown, and previous to covering them up, to water them well with a solution of spirits of tar, in the proportion of one pint to six gallons of water.

Parsnips.—Sow for the main crop on good, deep, rich soil, early as the ground is in good working order; we believe the old hollow-crowned, or Guernsey, to be the best yet.

Parsley.—A sowing of the double curled should now be made; clean and cultivate the ground well between the rows planted last summer.

Spinach.—Sow on rich soil for succession the round-leaved; cultivate frequently between the rows to prevent the growth of weeds, and the plants running to seed.

The Fruit Garden.

See that all fall planted fruit trees are securely staked and well protected against high winds; take advantage of a dry day to draw away the soil from the stems of goose-berry and currant bushes to the depth of three inches, and about three feet in diameter; sprinkle over the space cleared, soot, quick-lime, and wood-ashes, returning the soil; this has a material effect upon the vitality of the gooseberry-caterpillar, and we find prevention better than cure, and it also acts as a stimulating manure.

Any old trees intended to be headed down for grafting should be done at once, and all young stalks should be grafted as early as circumstances will admit. All operations in this department should be finished as soon as the state of the ground permits; should the weather prove dry towards the end of the month, see that recently planted fruit trees are not suffering for want of moisture, as is sometimes the case in early spring; a circumstance which will rarely happen except in dry porous soils; and in such cases the ground should be mulched with decayed manure, to preserve it in a uniformly moist state; give the strawberry beds a top dressing of rotten dung if not done in the fall, and as soon as dry weather sets in, give the beds a good watering of liquid manure. Fruit trees, as far as we have been able to examine them, appear to be well supplied with fruit buds, so that with favorable weather, we may expect a bountiful supply of fruit.

Strawberries, under glass, will now require frequent and liberal supplies of water at the

roots, and sprinkliug over the foliage: they will also be greatly benefited by occasional applications of manure water at the root, particularly while swelling their fruits: strawberry beds should be uncovered soon as danger of frost is past, and a sowing of guano applied, which we have found to have great influence upon the crop of fruit.

Plant a good supply of strawberries, raspberries, blackberries and currants, and by no means neglect the grape vine, which succeeds almost everywhere; in planting the raspberry, cut the canes down nearly to the ground, by which means you will obtain good strong canes for next year; old grape vines may be renewed by laying some good, well-ripened shoots two or three feet from the stem of the parent plant.

Pruning of all kinds should be completed early as practicable. Set out in a partially shaded border of well prepared ground, cuttings of grapes, currants and gooseberries, of about three eyes each; set about four inches apart in the row, and one foot from row to row; press the earth well to them and keep free from weeds. See that fruit in cellars do not spoil by rotting.

The Flower Garden.

Mowing and dressing lawns will soon require attention. Lawns having a hungry, sandy soil, and liable in the summer to burn, should have a dressing of manure every fall. We have found a dressing of well pulverized clay obviate in a great measure the tendency to burn. Where the soil has become compact in flower beds, dig it up for the beneficial admission of air: finish the planting and alterations in ground work as early as possible; also, the pruniug of shrubs.

During the present and next month is the best time to plant roses from pots; young plants of China, Tea, Bourbon, and hybrid perpetuals, will bloom finely in the fall if planted now in good rich soil.

Box edging planted now will do much better than when planted in the fall. If the weather prove dry after planting, keep newly planted beds well watered, as if a few plants die, the edging will appear very unsightly during the summer.

Divide and plant herbaceous plants, as many of the Astors, Phloxis, Veronicas, and many other strong growing kinds throw up too many flower shoots, it is best to thin them out when about three inches high not only to obtain fine heads of blooms, but also to increase the strength of the remaining shoots. Plant out wallflowers, Sweet Williams, Canterberry bells, &c., not forgetting Delphinium formosum, one of the most showy of herbaceous plants. The early blooming kinds will soon be coming into flower, and, if choice kinds, may be propagated from cuttings as soon as the bloom is over.

Sow the seeds of early annuals in patches: a slight covering will be sufficient. Mark the places with small sticks, which will be a guide to prevent any other things being planted too near them.

Pansies in beds should be spread out, and their long stems covered with rich earth to within two inches of the ends, these will root and flower finely. Sow seed in boxes filled with light rich earth. Plant out those in pots.

BEDDING PLANTS, such as verbenas, geraneums, salvias, cupheas, fuchsias, heliotrope, &c., cuttings of all may be put in pots, or boxes filled with light sandy soil, and placed under glass upon a slight hot bed. Tender annuals for early blooming, such as ten-week stalks, mignonette, balsams, cockscomb, amaranthus, German and French asters, phlox, &c., should be sown on a slight hot-bed, and brought forward in pots, &c. To pass in review all the annuals worthy a place in the Flower Garden, would take up more space than could be spared for the purpose. I will therefore only name those which we consider most worthy of a place in the gardeu of the "Farmer."

SELECT LIST OF HARDY ANNUALS.

Ageratum Mexicanum, Alyssum sweet, Amranthus Hypocondriacus, Amaranthus Melancholicus Rubra, Amblyolepis Letgera, Artemesia Annua, Bartonia Aurea, Calliopsis Coronata, Callishoe Pedata, Canary Bird Flower, Candytuft, sweet scented; Candytuft, new Rocket: Canna in variety, Chrysanthemum Burridgeanum, Clarkia Elegan, Clarkia Pulchella Grandiflora, Dianthus Heddewiji, Eternal, or Everlasting Flowers, Godetia Lindreyana, Helichrysum in variety, Larkspur, Dwarf Rocket, Limnanthus Douglassii, Marvel of Peru, Minonette, Nasturtium Tom Thumb, in variety; Nemophila in variety, Anothera Drummondii, Phlox Drummondii, in variety; Portulaca, in variety; Tagetus Signata Pumila, Zinnea, the fine double varieties.

FOOD FOR HOGS.—A writer for the Western Rural argues in favor of concentrated food for hogs. He says he never knew a slop-fed hog to grow and keep healthy and make as rapid growth, as one allowed the range of good pasture, and given dry feed, such as corn, or oats and corn, or barley meal.

For the "American Farmer."

Inflammation of the Spleen—Carbuncle of the Spleen—Spleen Disease of Cattle.

This disease has often been taken for Pleuro-pneumonia, and I therefore take the liberty to furnish some explanations in regard to it.

It attacks all kinds of domestic animals, and amongst them even poultry; is highly dangerous, and destroys the majority of them in so short a time, that often death ensues before anything can be undertaken to prevent it. Inflammation of the spleen mostly appears with cattle, swine, and sheep, but not so frequently with horses. The disease is more prevalent in warm regions than in cold, and appears more generally in summer than in winter. It was known in the most remote times, and in nearly every country. Thus we find in the Iliad a narrative of the devastations caused by this disease among the cattle herd of the Greeks.

The progress of the disease is extremely rapid and destructive, requiring the speediest help of an energetic and careful surgeon perfectly acquainted with the nature of the symptoms. After these general remarks, I beg leave to offer the following special information in regard to

I. *Spleen Disease in Cattle.*—Spleen fever, which often makes very rapid progress, the animal, which hitherto appeared perfectly healthy and sound, is suddenly taken sick during its work or at the trough, and even while eating; it drops down as if stricken by lightning, and death from convulsions ensues in a few minutes. Sometimes the attack is of a longer duration, twelve to sixteen hours. In such cases the animals appear to be weak and sullen; ceases to eat; staggers and reals; is either stupefied or excited and wild, and runs from place to place, roaring and bellowing in great agitation. From mouth and nose there flows a slimy froth, often mixed with blood; the eyes are red and covered with tears, standing wide open and emerging from the sockets; upon different parts of the body convulsions are perceptible, and the animal at last expires under these convulsions. Shortly after decease a black, tar colored blood is often seen to emerge from the mouth, nose and rectum; the genitale curl up and show a dark, red or bluish color, and the carcass is rapidly destroyed by putrefaction.

But it is not always that inflammation of the spleen is attended with such rapid progress as this; in some cases death does not ensue until a lapse of from eighteen to thirty-six hours.

In such cases the disorder begins with trepidation and convulsive fits, perceptible on different parts of the skin. The diseased animal retires from the crib or trough, or slowly and hesitatingly follows the herd in open air; it keeps the head down, is sullen and lazy, pays no attention to others, and moves its feet in an irregular manner; appetite and rumination generally disappear entirely.

Milch cows cease to give milk, the animal shows very little or no desire to drink; it is fearful, and looks wildly around; the surface of the body, the ears, horns and mouth repeatedly change from warm to cold; the eyes, at the beginning red and fiery, become dull, and often blood flows from the nose and rectum, the mouth is filled with foam and froth, the respiration difficult, forcible and wheezy, accompanied with gnashing of the teeth; the pulse rises from seventy to one hundred in a minute, and a strong and vehement palpitation of the heart is perceptible. During the last stages the surface of the body becomes cool and the animal dies under convulsions. During my practice, I have witnessed a case where the disease, after a duration of five days, resulted in death; but this is only to be considered as an exception, and to be ascribed to a very powerful bodily constitution.

II. *Carbuncle of the Spleen.*—In many, if not in most cases, there appears in the beginning, or during the progress of the inflammation of the spleen, swellings or protuberances, called carbuncles, on different parts of the body, especially upon the head, neck and shoulders, the flanks or buttock, and even the shanks become covered with carbuncles.

These carbuncles mature very rapidly, feeling hot in the beginning, extending perceptibly in height and width, and becoming, in most cases, cold and hard. Upon incision, a yellow, gelatinous matter shows itself under the skin.

The carbuncle has been considered a beneficial and natural formation, but it increases the danger when it appears upon the head and neck, rendering respiration more difficult or even impossible. Another danger arises from the fact that they change into inflammed ulcers of the most malignant character. If these ulcers recede, it is in most cases an indication of death, because other parts, especially the lungs, then become infected. In many cases inflammation of the spleen, an accumulation of thickened, tar colored blood takes place in the rectum, which is commonly called loin or marrow blood. These symptoms have been erroneously regarded as a special disease, whereas they are only incidental to the inflammation. This inflammation of the spleen being generally a most dangerous disease, which destroys most of the infected animals, it

is important not to confound it with other disease.

When it happens that one or more cattle suddenly die, especially in summer, without any previous visible indications of disease, the prevalence of inflammation of the spleen is always strongly to be suspected, although it may be mistaken for another disease called "blowing up," which is always the consequence of over feeding, especially on clover.

As soon as the spleen disease makes it appearance among a herd, the healthy animals should be separated from the sick, and the cattle confined to spacious, cool, shady and well ventilated sheds. Sultry heat, as well as fetid or corrupted stable air, must be carefully avoided.

The best and most reliable remedy, as I have found by numerous trials in my practice, consists in pouring cold water upon the animal until it shows a violent trembling. This can be done by pouring the water, in a bucket, from a moderate height, upon the back of the animal, and every two hours one-half ounce of sulphuric acid, in a half pint of water, must be given to the animal to swallow. A still better inward remedy consists of chloride of lime, of which I give one-half ounce mixed with flour and water every half hour, until improvement is observed. The carbuncles have to be opened and cleansed with water or a solution of vitrol of zinc, by means of a syringe, after which butter of antimony is to be applied, with a small brush. This operation requires the greatest care on the part of an experienced person, and it is therefore better to entrust it to a skilful veterinary surgeon. In case of constipation, two ounces of saltpetre and three quarters of a pound of glauber salts should be given inwardly, and salt, soap and warm water applied outwardly. Upon the breast lappels, a fontanel of thirty grains of hellebore must be applied. If improvement appear to be felt after twenty-four or thirty hours, the following powder is to be given twice a day with bran fodder—two ounces gentian, one ounce saltpetre, one-half ounce powdered calamus, eight drachms of gold sulph. antimon.

It is very dangerous to eat the flesh of an infected animal, and although this effect has not been felt in some cases, there are numerous instances where the eating of such meat, or even the juice or gravy, has been followed with death or the most alarming symptoms. The milk of the affected animal is likewise dangerous, although not to such an extreme degree.

Persons who are entrusted with the treatment or care of diseased animals, should be very cautious not to touch or handle any of the blood or raw flesh, without first covering the hand.

When a blister or fontanel is to be applied, or medicines to be put in the mouth of the animal, the hands of the person ought to be veiled or covered with gloves, and immediately afterwards every soiled spot of the skin carefully cleaned with soap, water or a solution of chloride of lime. Contagion follows very rapidly, and instances are recorded where the blood of an infected animal, even when received into the human system from the sting of a fly, has proved most deadly in its effects.

The disease caused in the human body, if not the result of eating the flesh of animals affected with inflammation of the spleen, is called "black pox," which appears upon the affected spot, producing an itching or burning, and in a short time a small bunch arises, containing a liquid fluid; this spot becomes of a red, brown, and at last of a dark purple color, and changes into a hardened knob.

Several days afterward a general and painful swelling, accompanied by disease of the whole body, takes place. The affected person complains of headache and nausea, fever and ague appears, with extreme and burning thirst, and dry, itching tongue; the mind of the patient becomes disturbed, and after repeated attacks of fainting, he dies in the greatest agony.

I have witnessed two cases of this horrible disease, one in the dominions of Count Dolgrow, in Russia, during 1846; and the other upon the farms of Count Pontales, in Prussia, near Berlin, during 1849. Both these cases resulted in death, although the most renowned physicians were consulted.

DR. HENRY CLOK,
Late Chief Vitrinary Surgeon U. S. A.,
312 Crown street, Phila.

GREASE THE WHEELS.—Oil and black lead is supposed to be the best substance, but we have always found lard and flour apparently as good. If the wheels are kept well lubricated, very little difference will be found between the case of running wooden and iron axles in ordinary farm-work. The smaller the axle, the less will always be the friction, other beings being equal; but because the spokes have a greater purchase, the friction being the resisting force, and being nearer the end of the lever when the axle is small.

AMOUNT PRODUCED.—The aggregate production of wool in the whole globe is estimated as 1,616,000,000 pounds, or a pound and a quarter to each inhabitant, reckoned at 1,200,000,000 people.

For the "American Farmer."

Trees.

It may appear absurd to the owners of large tracts of woodland, that the trees of small gardens should be admired and thought worthy of as much care as we often find bestowed upon them; and, perhaps, there may be those who consider the leafy giants altogether out of place in such situations, and feel no regret at having them laid low, to make way for some cramped up flower bed, or may be for a potato or cabbage patch. We have been grieved in passing through the country, to see the want of taste and feeling shown on this very important subject by almost all classes concerned in the building of residences. To judge by the unsparing use of the "woodman's axe," by those who are selecting sites for building houses, be they mansions or cottages, one would think that the noble trees of our woods and forests were a nuisance, to be put out of sight as quickly as possible; and that no piece of ground, whether of one hundred acres or only one, could be ready for building upon, or laying out as a garden, lawn, &c., until every tree had been rooted out and the ground made bare as a blasted pasture.

Then the pathways, where we have walked under the shady maple and the spreading elm; alas, for their shadowy branches now! Poor comfort for those who admire those noble monarchs of the forest, to be told that the pathway will be much drier, and the roads may be kept in much better condition; that now the sun and wind will dry up all mud, and that there will be no accumulation of leaves and litter. It is sad to recall the rural beauty of some of those wild woodland scenes, where we have wandered with loved ones "now gone," in search of the wildlings of the wood. We remember one old by-road, with its avenues of wide, spreading American Elms, (*Ulmis Americana.*) which we think one of the most graceful and beautiful of all our native forest trees, on each side, and bounded on the south by a beautiful natural grove of the lovely Hemlock (*Abies Canidensis*). Beyond were the sweet, green meadows, gay with wild flowers, while every here and there upon its undulating surface were natural clumps of the same beautiful evergreen; and the scarlet maple, (*Acer Rubrum.*) where one might sit and rest, notwithstanding it was within one mile of the limits of a flourishing and populous city. But the beautiful spot, not unlike many others of a similar kind, was doomed—first came the ring of the woodman's axe, in laying low that beautiful grove of hemlocks; still the branches waved overhead in the beautiful meadow beyond, and the green resting places remained; but, ere long, again the woodman's axe was doing its work, and all the trees, young and old, were laid low; field and meadow "broken up," and the park-like (and what a beautiful site it was for a public park!) grounds surrounded by a Virginia "snake fence." The surface of that beautiful spot is now covered over with blackened stumps, and the prospect over the whole is one of desolation; and the old by-road is turned into as dull and uninteresting a highway as ever contractor rejoiced in. There may be situations where fine trees are in the wrong places, and must be removed. If too close to a dwelling, or where they shut out distant and desirable views, or where crowding upon other more valuable trees, but, in general, the enjoyment, as well as the beauty of a small place, is very greatly enhanced by the surroundings of fine and noble trees. Few in number, we believe them to be, and often in the way, it may be thought of flower beds, walks, &c.; but for such things, who, with any taste for the beautiful, has either eye or heart to sacrifice a noble elm, oak, or maple, or a horse chesnut, with its magnificent snowy spikes of flowers, a beech, with its foliage alike beautiful in the greenness of early spring, or in the rich, deep, red and yellow, glory of the fall; a wild cherry, with its racimes of beautiful flowers, and its carmine brightness in decay, or the "queen of the wood," the graceful, silvery birch, trembling to every passing breeze, and its leaves of golden hue covering the ground, when the winter winds have stript the branches, leaving them almost as beautiful in their winter barrenness as when clothed in their fragrant summer foliage.

"Woodman spare that tree."

In the sultry days of summer, who does not value a tree for its grateful shade, as well as for its beauty? But it is in the fall when the latter quality is in its glory. In the gloriousness and diversity of coloring, we have never witnessed (in our wanderings) anything to equal the autumnal foliage of the American forests. To the real lover of trees, the interest is not departed even when the winter winds have swept the beauty out of the landscape, in the eyes of the ordinary observer; for not only is the form but the tree characteristic of each tree then seen. Then it is we witness the sheltering spread of the beech, the light playfulness of the birch with the strength and grace of the ash, &c., &c.; each and all have a claim on our admiration. We then find enough in the color of the bark, varied as it is from purple hues to silvery gray, and

marbled from root to branch with many interesting kinds of moss and lichens, which, even to an unartistic eye, can but appear beautiful. Nor does the snow storm deprive the landscape of its beauties, as is clearly evinced from the window of the room in which we write, the prospect from which is varied, rich, and beautiful. The trees are now bending beneath or bearing up their feathery burdens; a contrast which renders them more clearly defined—the evergreens more especially. The pine and cedars, with their heavy loads of snow, (January 12,) standing out so noble here and there among the bare stems and branches, and now, frequently, when a sudden frost comes on during the night, and the gates of the morning are again being opened, when, lo! all the trees are sparkling as with diamonds, the dripping moisture changed to brilliant jewels, beautiful emblems of the depressing trials of the true Christian—meekly and nobly borne, not unfrequently changed to blessings, and the garment of praise given for the spirit of heaviness. Well may Ruskin say that no one can be far wrong in the way of life, or right temper of mind, if he loves the trees enough; if human life be cast among trees at all, the love borne to them is a sure test of its purity. Each individual that loves trees at all, has, most probably, some one special favorite, the preference not unfrequently determined by early associations, but whether it is the noble oak, or the graceful birch, it matters not, the longer we know and study our favorite, the more do we value it, and the playfellow of childhood becomes the friend of riper years. It has been suggested, that some of the trees in the immediate front of our college should be cut down, and perhaps it may be done to advantage; but few things are more perplexing to the lover of trees than the decision as to which shall fall, either in a wood or upon the lawn, or where a view may be opened or light and air admitted to the dwelling. No one who merely looks upon trees to be cut down, can understand the hesitation and alternate change of plan between summer thought and winter thought of our cherished trees: and is it not wise to ponder and look at the question on all sides, and remember that cutting down a tree is an irretrievable step? But when a tree is doomed to fall, it is best to make its removal a source of pleasure instead of indulging in vain regrets, as it must be admitted that by the timely and judicious removal of some, *even noble trees*, additional enjoyment is gained. But we would spare and cherish every tree whenever and wherever practicable, whether it be upon the farm, garden or lawn, &c. Many of our beautiful trees are fast disappearing in the same way as they have done in other countries. France, says M. Thuan, will disappear, as many flourishing countries have, if she does not follow the example of Cyrus, who planted forests in Asia Minor. It is only the abundance of forests and water that enables China to support her 300,000,000 of inhabitants, because in this empire there are more trees planted than destroyed. Spain, so densely populated, and so highly cultivated, at the time of the Romans, the Moors, and Charles V, owes her desolate aspect at present to this waste of wood. So it will be in this country, unless we plant trees to supply the place of those we cut down.

DANIEL BARKER, *Md. Ag. College.*

For the "American Farmer"

Estimating Corn in Crib.

I frequently see in agricultural and other papers rules for estimating the quantity of shelled corn in cribs on the ear, without making any difference in the division for large or small cob corn. The presumption is that the seller means only to give five bushels shelled corn to the barrel in ears. The buyer of course cannot demand more than measure. I have bought and sold corn by the following measurement, which has given satisfaction. If the studding or framing is inside the crib or house, and the cob of the corn is of fair size, divide by eleven. If no framing but flush sides and ends, and the corn be deep grained with small cob, divide by ten. After leveling the corn, multiply the length, breadth and depth together, and divide by eleven or ten, as before stated.

EXAMPLES.

12 feet long.
11 feet broad.

132
6 feet deep.

11)792 cubic feet.

72 barrels shelled corn.
5 bushels in a barrel.

360 bushels shelled corn.

12 feet long.
11 feet broad.

132
6 feet deep.

10)792

$79\frac{2}{10}$ barrels and one bushel shelled corn.

Yours, very respectfully,
D. H. LONG.

Princess Anne Co., Va., Jan. 17th, 1867.

For the "American Farmer."

Drainage of Flat Lands.

CHAPTICO, ST. MARY'S CO., MD.
January 16, 1867.

GENTLEMEN: "I am *satis nivis*," says Horace, and so say I—"cribbed, cabined, and confined," as at present I am, by the silent falling of the silver flakes, until it seems that shortly, "Pelion upon Ossa," must be the result; and, were it not that I fished out, from under the garret and rubbish of the former proprietor of these acres, a whole lot of "old Farmers," running away back into the classic times of Edmund Ruffin, Horace Capron, Ed. Stabler," "*it id omne genus*"—I say, were it not for this fortunate "raid," I should probably, on such a day as this, find myself "whistling for the want of thought;" for my select library, a cherished institution, which sprang into being with my boyhood, and grew with my growth, away down in the Palmetto State, was most barbarously "Shermanized," and, for the first time in my life, I find myself both without books and without money to buy. Think of my choice Roman engravings, and volumes, printed and purchased in the very land of the Dantes, Petrarchs and Tassos—Michael Angelos, Raphaels and Titians—all sacrificed to make "a Yankee Holiday." We may forgive—'tis more than mortal to forget. Please excuse this digression, but it is difficult to avoid "harping on my daughter," and I must now face the music, and tell you why I have had the presumption to address you at all.

Coming from the rice regions, where ditching is the "rule," and having located myself here, if not again in the swamp, still upon very wide flat land, lying immediately upon the banks of the Wycomico, I suddenly found myself, after the first heavy fall of rain, surrounded by water—yea, "water, water everywhere, and, (many) a drop to drink"—and, in the total absence of drains, there it stood, freezing and thawing, and thawing and freezing, alternately, to my most perfect disgust, and a fatal premonitor that no crop could live under such circumstances.

Thinking of the perfect drainage of my old rice fields, made me determine to introduce the "system" here, and lay off the fields after "that fashion." Accordingly, as soon as I could put a plow into the ground, I struck off my flat fields into beds, thirty feet wide, and with Minor & Horton's No. 22 plows, and very large horses, threw the furrows to the centre; which immediately raised the crowns about twelve inches, and depressed the sides down to the bottom of the water furrows proportionately. A second plowing, in last autumn, for wheat, on the same principle, has now raised these beds about eighteen inches on the crowns over the fall of the water furrows; and the late heavy rains of October so thoroughly put my system to the test, that I could exclaim with impunity, "*Fiat justitia ruat coelum.*"

But, imagine my satisfaction when, upon rummaging over those old mutilated "Farmers," I came upon an article from the pen of the immortal Ruffin, entitled: "Various Essays on Practical Farming." Among these, I found one devoted precisely to my system of *wide beds*. But, unfortunately, both of the numbers are so mutilated, that more than half of the article is lost. I think, gentlemen, if you can lay your hands on those numbers, "July and August 1851," and, also, the "Farmer's Register, volume vi., page 185," and insert them in the Farmer, you will be doing not only me, but many more of your valuable readers, an important service. Perhaps, if desirable to you, I may send you a diagram illustrating how the drainage is effectually performed.

What do you think of barley—would there be much certainty of making a crop in this region, the soil being a sandy loam? It was broken up last spring eight inches deep for oats—will be broken again the same depth for barley, and receive about 150 pounds Peruvian guano per acre. May it be threshed in the ordinary wheat thresher? Is Baltimore a certain market for it, or must it be shipped elsewhere? Let us have an article on "Barley." In these days of expensive labour, on the "New England idea" plan, I am casting about for something to grow on the old pasture fields, instead of keeping up that old style "rotation;" and I would like to know how it would answer to bring on "Flax" as a rotation: say after corn or oats. If not demanding too much, I would like to see an article on "Flax Culture." My own idea is this: If, as I am informed, there are mills which will buy the *straw*, after it is threshed, *without rotting*, to raise it, and ship it to market in *that condition*, will the wheat thresher again answer for threshing out the seed, and a hay press for the straw?

With many apologies for intruding so many things upon your attention, I remain,

Your most obedient servant,

"PALMETTO."

☞ The editor of the Mobile (Ala.) *Register* thinks the principal advantage possessed by the Northern farmers over those in the South is in the better implements used by the former.

Artificial Manures.

BY W. WALLACE FYFE.

[A Lecture delivered to the students of the Royal Agricultural College, Circencester.]

From the contrast of value presented in our last lecture between animal and mineral manures, excellent as some of the latter can be rendered by comminution and chemical solution, you must have felt the infinite superiority of the former as a resource of fertilization. The truth is, that the value of animal manures consists less in the amount or quality of their inorganic constituents, than in their ammoniacal contributions to the nitrogenised principles of plants. The gluten in wheat, being its principal nitrogenised constituent, may unquestionably be increased or diminished in quantity according to the quality of the manure. Thus Hermbstaedt gives a table showing that

WHEAT YIELDED—

	Gluten.	Starch.	Produce.
Without manure	9 2	66 7	threefold.
With vegetable matter	9 6	65.9	fivefold
" cow dung	12 0	62 3	sevenfold.
" pigeon dung	12 2	63.2	ninefold.
" horse dung	13 7	61 6	tenfold.
" goat dung	32 9	42 4	twelvefold.
" sheep dung	32 9	42 8	twelvefold.
" dried night-soil	33 1	41 4	fourteenfold.
" dried ox blood	34 2	41.3	fourteenfold.
" human urine	35 1	39 3	twelvefold.

Theoretically, vegetable manuring, or the antique practice of "green manuring," extensively practiced by the ancient Romans, who grew many crops for no other purpose, ought to prove more beneficial than it is ever found in practice. It is, however, frequently resorted to by the skilful farmer when he perceives it necessary to augment the organic constituents of the soil. Mr. Campbell, of Craigie, found no better way of manuring for wheat, after turnips, than by ploughing in the tops while yet green, and indeed as soon as the turnips could be moved from the land. Sea-weed is the only thing, in the shape of a plant, excepting, possibly, rape-cake, that is attended with great success in manuring, and being of marine vegetation, it furnishes most valuable ingredients to the land, such as carbonates, phosphates, sulphate of lime, and common salt. Mr. Wilson has well illustrated the result of applying various substances experimentally on pasture land near Largo, in Fifeshire. Sown and reaped together.

A CROP OF HAY TURNED OUT—

	Per Acre.
Unmanured	3360 lbs.
2½ barrels fresh quicklime	4816 "
2½ cwt. lime from gasworks	5208 "
4½ cwt. wood charcoal	5320 "
2 bushels bone dust	5544 "
18 lbs. nitrate of potash	5936 "
20 lbs nitrate of soda	6272 "
2½ bales of soot	6552 "
28 lbs. sulphate of ammonia	6776 "
— gallons of liquor from gasworks	7560 "

This is as fair a trial as could possibly be of the contrast betwixt the stimulating powers of specifics, as applied to one particular crop; and I select the example because it perfectly accords with the theoretic value of the manures applied, and does not exhibit that sort of miscarriage in experiment, from whatever cause arising, in which we see the unmanured plot equaling or exceeding, in some instances, those supplied with known fertilizers. When such is the result, we may rest assured that there has been some mismanagement somewhere. Although we do not, in our practice, manure the plant, but the soil, Mr. Lawes and others have so far indicated the approaches of science towards rendering crops of different kinds its patients as to have laid down the following rules for treating plants with manures, according to the specific objects of their cultivation. Liebig has distributed plants into three classes—silica, lime, and potash plants—according to the predominance of these items in their ash, including, under the first, the ordinary cereals, wheat, barley, oats and rye: under the second, the leguminous, as peas and clover; and under the third, tubers, as turnips, potatoes, beet root, and the Jerusalem artichoke. Liebig commences his rotation under the potash plant, say with turnips, because, immediately after manuring with farm-yard dung, such plants would absorb the soluble active alkaline matters, and prevent their being dissipated by rains, and because these matters, being less required by other crops, would have to remain in the soil, unless first used up. Potash plants, moreover, should commence the rotations, because they would admit of portions of silicic acid, which other plants require, being separated and rendered soluble in time for the silica plants—wheat, for instance—which would come next in the rotation. Very well, as neither the potash plant, in the first place, nor the silica plant, in the next, will be found to demand much lime, the lime plant—clover, for example—will come in admirably as the third rotation; and the land, during the growth of this plant, will, in a great measure, obtain rest after the exhausting action of the wheat or silica crop. Besides, although the silica plant may have required phosphates in addition to the silicic acid, it will be found that the lime plant, coming in succession to it, will benefit likewise by the phosphates, and yet leave enough, and no more, in the ground to mature the seeds of a fourth crop—oats or rye. Thus, therefore, we have the four-shift rotation, founded on the purest principles of science. Regarding the application of artificials in the promotion of specific crops, the following may be recommended;

1. That for plants cultivated for their primary organs, leaf and stem—meadow grass, clover, cinque-foil, tares, cabbages, and other fodder plants—the manure should be substances yielding ammonia rapidly, such as Peruvian guano, sulphate and muriate of ammonia, nitrate of soda, dung from stall fed cattle, salts of lime, with phosphate of ammonia, soot, &c.

2. For plants cultivated for their intermediate organs, that is bulb or tuber, as turnips, mangold-wurzel, &c., the proper manures are phosphatic guanos, of which the best is Phospho guano, as it contains sufficient ammonia to give the plant a good start, super-phosphate of lime, and well rotted dung.

3. For plants cultivated for their ultimate organs, i.e., their seeds, as wheat, barley, oats, peas, beans, tares, clover seed, &c., the phosphatic manures are the best, or any organic matter slowly yielding ammonia, as, for instance, residuum from highly manured green crops, rape-cake, dung from stall fed cattle.

Johnston, who tested some of these last applications, found the returns

FROM ONE BUSHEL OF—

	Wheat.	Barley.	Oats.	Rye.
Blood	14	16	12½	14
Nightsoil	13	14½	13½	
Sheep dung	12	16	14	13
Horse dung	10	13	14	11
Pigeon dung		10	12	9
Cow dung	7	11	16	9
Vegetable manure	3	7	13	6
Without manure		4	5	4

A variety of circumstances, some of them the failures and some the improvements in agriculture—clover sickness on the one hand, and deepening-cultivation on the other—are, however, driving out our rotations from four to six-shift intervals. We shall therefore consider what might be the ordinary application of manures in a six shift rotation. Suppose that a crop of oats were the first in the rotation. This would require very little manuring, if coming after previously manured green crop, lea, or, as frequently happens with this crop, after the breaking up of old pastures, which have been known to yield, invariably, the largest oat crops. Mangold and potatoes might follow next—the last would require to be manured with vegetable and animal manure from the previously prepared dung heap, at the rate of from twenty to thirty tons per acre, according to the quality and condition of the soil; the former with a mixture of animal and vegetable matter, which should be applied at the same rate per acre, in a well decomposed condition. The culture of wheat, after these fallow crops, is a simple process, and for manure, it would be chiefly dependent on the residue from these, with additions of substances slowly yielding ammonia. For turnips, carrots, &c., the land is to be limed at the rate of thirty bags of shells per acre, after removal of the wheat crops. Lime, although, as we shall see presently, an important agent in promoting the fertility of the soil, by calling into action its nutritive principles, and greatly improving the quality of produce, must be employed, however, in moderation, because over-doses too often inevitably occasion scourging crops, and ultimately barrenness. In the six-shift rotation, the quantity mentioned can be applied only once, and in this manner: The lime shells are carted to the farm during the summer, and there mixed with an equal bulk of earthy matter, couch-grass, and other weeds, for decomposition—road scrapings, ditch scourings, the earth and root fibres of old headlands and old hedgerows that may have been levelled—everything adds to the variety, and for this purpose there is good in every thing. This mixture is of far easier application to the land than mere earth mixture, and the lime more easily managed in windy weather. This application of lime is not, however, manuring for turnips—it is a mere amelioration of the land for the ensuing rotation. The turnips are to be manured from previously prepared and well decomposed dung heap, at the rate of twenty-five tons per acre for Swedish, and twenty tons for other descriptions, laid in heaps in the hollow of every fifth drill, at nine feet intervals, then spread out equally in the hollows of all the five drills, with light three-pronged forks, so as to be immediately covered in by the double mould board plough, splitting the drills down the centre. By harrowing across the former drills of root crops a rich soil for barley is diffused over the undunged intervals, and assists materially its production as fifth in the rotation, since its success, like that of the grasses generally, depends more on pulverization than on fresh manuring. Grass for soiling and hay, having been sown down with the barley, may be depastured whilst young with one of the most enriching things known, the sheep, whose "golden feet" will do it no injury, whilst those of cattle would poach and destroy the young plants. Nor must sheep be suffered to crop the herbage to bare, since, if stinted of food, they would eat the crown spikes of the young plants, and destroy their vitality. This is the common and natural mode of applying manures, but few are the farmers who can now-a-days afford to stop here. They must apply in addition and in aid of these old-world manures, the artificials of the day, or lag behind in the race of production. In addition to the imported substances treated of in our last lecture

we have the nitrate of soda, a white saline substance, found in Peru, applicable as a top-dressing to grass lands and young corn. It is frequently adulterated with common salt, which, however, will crackle, whilst nitrate of soda, as well as nitrate of potash, (saltpetre,) will simply flare up, if a pinch be thrown into a hot fire, so that the adulteration can readily be detected. Nitrate of soda ought to be composed of nitric acid and soda in the proportions of fifty-four to thirty-one. It is therefore valuable in affording a supply of nitrogen and soda to growing crops, when applied in spring as a top-dressing, at the rate of one to one and a half cwt. per acre.

Sulphate of ammonia is now better understood and more highly esteemed by the farmer, as a top-dressing for cereal and grass crops, and as a mixture with phosphatic manures for root crops. Many, indeed, prefer it to nitrate of soda as a top-dressing, being considered less injurious to the young plant whilst in a tender state.

But, next to farm yard manure and guano, bones are the grand resource of the enterprising British farmer, as their yearly increasing consumption, whether in a raw or manufactured state, completely proves. At present, the largest portion of our supplies are drawn from South America, the Mediterraneau, and the Baltic ports, and, although the Baltic bones are most in demand, because they bulk largely when ground, owing to the barbarous habit of selling bones by measure, and their consequently producing more bushels to the ton, the bones from other quarters are found fully as rich in manurial value. In purchasing by weight instead of by measure, farmers could thus secure a manure, as good in all respects, at from 5s. to 10s. less per ton.

Bones may be rendered more immediately active by boiling, to remove the fat; and we have in the College Museum a specimen of steamed bones, but nothing is equal to their conversion into super-phosphate.

With reference to this subject, I cannot help citing the passage from Baron Liebig, to which I referred in a former lecture. It is incredibly fierce:

"England," he exclaims, "is robbing all other countries of the conditions of their fertility Already, in her eagerness for bones, she has turned up the battle fields of Liepzic, of Waterloo, and of the Crimea; already from the catacombs of Sicily she has carried away the skeletons of many successive generations. Annually she removes from the shores of other countries to her own the manurial equivalent of three millions and a half of men, whom she takes from us the means of supporting, and squanders down her sewers to the sea. Like a vampire she hangs on the neck of Europe, nay, of the entire world, and sucks the heart blood from nations, without a thought of justice towards them, without a shadow of lasting advantage to herself.

"It is impossible," he proceeds to say "that such iniquitous interference with the Divine order of the world should escape its rightful punishment; and this may, perhaps, overtake England even sooner than the countries she robs. Most assuredly a time awaits her, when all her riches of gold, iron, and coal will be inadequate to buy back a thousandth part of the conditions of life which for centuries she has wantonly squandered away."

No more extensive manuring practice, apart from the ordinary routine of fertilization, is known in agriculture than the application of lime; and no wonder, its effects are marked, and indeed marvellous. So great a stimulant is lime, that an overdose of it, as it is called, is a well known method of raising scourging crops, and producing exhaustion and sterility in the soil. I mentioned that Liebig designates one class of plants as "lime plants." They are represented by lucerne, clover, beans, peas, and even potatoes; but lime is found only in the leaves of the potato; very small traces occurring in the tubers, which belong, under Liebig's classification, to the potash plants. The clover sickness, to which we have so frequently referred, is sometimes occasioned by deficiency of lime in the soil; so also is anbury or finger-and-toe in turnips—a disease which rends and rots the parenchyma of the root, in consequence of its being obliged to send out shoots and tap roots in search of lime for its skin. A crop of two tons of clover removes one hundred and thirty pounds of lime from the soil; and the best application in clover sickness has frequently been found to be superphosphate of lime. Gypsum or sulphate of lime is also found highly beneficial. Lime absorbs moisture from the atmosphere with incredible rapidity, and a ton of quicklime, when slaked, acquires three times its original bulk, and weighs twenty-five cwt. The only advantage, however, gained by slaking lime, is its reduction to a fine powder, which enables it to be more evenly spread. But slaked lime very soon attracts carbonic acid from the atmosphere, and becomes once more carbonate of lime, the condition in which it usually exists, and whence the most abundant supplies are obtained by driving off the carbon in burning the carbonate of lime or mountain limestone in kilns, as one hundred pounds of this, when pure, contains forty-four pounds of carbonic acid and fifty-one pounds

of lime. Lime, therefore, by the process of burning, loses the whole of its carbonic acid, and a ton weight is reduced to eleven and a quarter cwt. The general opinion regarding the presence of lime in the soil, is that an arable soil ought not to possess less than one per cent. of lime, and that eight tons of burnt lime per acre would impart this proportion to six inches of soil. After a heavy liming no farther addition will however be requisite for six or eight years. A crop, at the utmost, removes only from one to two bushels per acre of lime; and the land, at this rate, gradually reverts to the condition in which more lime is required—faster—for the lime, by its own specific gravity, uniformly descends below the active soil, and there, upon digging a section, layer upon layer of each successive liming the land may have undergone will be found deposited. Lime not only enables crops of superior quality and bulk to be produced, it enhances the effect of undecomposed manure, by calling into action that which may have been lying dormant. Manure, however, ought never to be laid upon the land immediately after liming, because quicklime will drive off all its ready formed ammonia. Lime destroys marsh and heath plants, such as moss, heath, bent, and sour grasses, brings up sweet herbage with natural clover, and completely renovates the herbage. All fodder is found more nutritious when grown upon land sufficiently limed. The quantity of lime required varies in proportion to the dryness of the soil, its stiffness, and the amount of vegetable matter it contains. Poor arable lands are soon worn out by repeated liming and cropping. To exterminate moss, sour grass, &c., the lime must be applied in a live state. Generally speaking, the more completely and immediately quicklime is incorporated with the soil, the more effectually the slaking is accomplished in connection with the soil, the better. In overspreading grass, however, where there is no intention of destroying the herbage, it is better first to slake the lime in the open air, reducing it to a powdery condition and applying it in the form of mild lime. In this state the quantity of quicklime still contained in it should, however, be sufficient to effect the necessary chemical changes in the soil; from this its ultimate efficacy depends. Quicklime should never be applied to light or thin soils, sands or gravels. Magnesian limestone has an effect similar to that of the mountain limestone. It is a carbonate of magnesia, in combination with carbonate of lime, and becomes caustic in burning, but must be used more sparingly than lime destitute of magnesia, since it re-absorbs carbonic acid more slowly and remains longer caustic. Its application is more properly made to arable than to grass land, as wheat, barley, and all cereals require magnesia for the perfect development both of their straw and corn. Chemically supplying to the plant both lime and carbonic acid, lime, as an alkaline earth, neutralizes the humic and other acids naturally formed in soils, converts inert vegetable matter into stimulating food for plants, and aids the mineral decomposition of iron, maganese, alumina, potash, soda, ammonia, and silica in oils. To its perhaps over-stimulating effects, in fact, may be traced the origin of the adage, "lime enriches the fathers but impoverishes the sons." Lime, however, does not necessarily exhaust the soil, unless applied with unsparing prodigality. The apparent exhaustion it produces is only perceptible in cases where the sole application to the land has consisted in laying on successive doses of lime, and where the supplies of other manure have been too scanty. It is where lime alone has been applied that abundant crops are followed by exhaustion. The presence of mild lime in the soil assists in the formation of nitrates; and the production of nitre or saltpetre is dependent upon those properties of lime whereby nitric acid is engendered from vegetable matter. That invaluable salt, nitrate of lime, is always to be found in compost heaps. "Under ordinary circumstances," says Professor Way, (Royal Agricultural Society's Journal) "and with the presence of moisture, lime is capable of liberating one-half the ammonia contained in a soil. In the case of ammonia locked up in the soil, lime may be the remedy at the command of the farmer, his means of rendering immediately available stores of wealth, which can otherwise only slowly be brought into use. In this view, lime would well deserve the somewhat vague name that has been given it—namely, that of a stimulant—for its application would, in some sort, be an application of ammonia, whilst its excessive application, by driving off ammonia, would lead to all the disastrous effects which are so justly attributable to it. I do not wish to push this assumption too far, but if there be any truth in it, it points out the importance of employing lime, in small quantities, at short intervals, rather than in large doses once in many years."

[TO BE CONTINUED]

☞The State Horticultural Society of Iowa passed unanimously a resolution approving the decision of the Committee in New York, who awarded the "Greeley Prize" to the Concord Grape.

Home-Made Super-Phosphates.

Seeing the extent to which adulteration is practiced by super-phosphate makers, in common with many other artificial manure dealers, the farmer may perhaps feel inclined to manufacture his own super-phosphate; and this he may do both easily and profitably by attending to the following directions. The most economical way is to begin some months before it is wanted; for though bones may be rapidly dissolved by means of sulphuric acid, that is both a somewhat dangerous and expensive process. Bones, though not readily dissolved by water, yield rapidly to the action of common salt, when mixed with urine, gas liquor, or any of the salts of ammonia.

Let us suppose a farmer to require bones for his turnip crop early in the spring: let him lay in his stock of bone dust, say 2 cwt. per acre, in the December previous. Let him mix these in a shed, or any covered place, with the same weight of salt, and to this add 20 bushels of finely sifted coal ashes, and water them with gas liquor, or liquid manure from his tank, if he have one, and turn them over every week or ten days: the quantity of liquor to use should be as much as they will absorb. This process, repeated for three months, will reduce them to a proper state, and, by the time they are required for use, he will have, at least, so far as bones are concerned, a sufficient supply to procure him an excellent crop. And now let us see the cost per acre:

	£	s.	d.
2 cwt. bone dust, at 6s 6d	0	13	0
2 cwt. salt, at 1s	0	2	0
20 bushels coal ashes, at 1d	0	1	8
40 gallons gas liquor, at 1d	0	3	4
	£1	0	0
Labor, say		3	0
	£1	3	0

Here, it will be seen, at a cost of £1 3s., a farmer may supply himself with a sufficient quantity of super-phosphate for an acre of swedes, turnips, or mangels, and if he only take care that his bone dust is genuine, he has no occasion to fear adulteration.

If, however, as is too frequently the case, the farmer will not "take time by the forelock," and look out ahead, but prefers waiting till the last moment, even then I would recommend him to dissolve the bones he may require, sooner than trust to the uncertain compound he often purchases, as before mentioned. For this purpose, time being short, he will be obliged to have recourse to sulphuric acid. And here again he is likely enough to be imposed upon; and as no article varies more in point of strength, it will be necessary for him to be very particular in making his purchase. He should, therefore, be careful in ascertaining its specific gravity. If under 1.720, it is not worth ¾d per lb.; if 1.840, he may give 1½d. per lb. for it, that being about the market price for acid of that strength. Having procured his materials, he should proceed as follows: In a large, square tub, say 5 ft. wide by 2 ft. 6 in. broad, and 2 ft. deep, (lined with lead,) the bones should be spread evenly, and upon them should be poured half their weight of water; if hot, all the better; after steeping for twenty-four hours, then pour out the same quantity of acid; viz., half the weight of the bones.

These should now remain thirty-six hours at least, and be stirred at intervals during the time, when they should be taken out and mixed with ashes to such an extent as will make them sufficiently dry for drilling. The more they are stirred while under the acid the better, and the more thoroughly they are mixed with the ashes the better also; as, by so doing, the whole mass becomes more thoroughly incorporated. Although this method of preparing super-phosphate is more expensive than the former, I am inclined to think that it is, for the generality of soils, preferable, seeing that the sulphuric acid added is in itself valuable, as it forms an important constituent in all crops, but is often very deficient in soils, particularly in chalk lands, where, by setting free the carbonic acid, it enables plants to absorb it for their own benefit especially; and it also acts beneficially by dissolving other substances in the soil necessary to vegetable nutrition.—*Farming, by Thos. C. Fletcher.*

The Use of Lime.

To a correspondent in a distant State, who wishes to know about liming land, and when and how to use it, we have to remark that in the few counties around Philadelphia, within a circle of fifty or sixty miles, so long as we have had any knowledge of farming, the occasional use of lime has been considered indispensable. On limestone soils it has been applied with good results to the extent of even one hundred bushels to the acre in a single season, such soils both bearing and requiring more than other soils not limestone. Fifty bushels, however, is the more usual quantity on good land, and on thin soils about thirty. This is renewed once in about eight or ten years. There are various *opinions*, but not much difference in *practice*, as to the condition in which lime should be applied. Newly burnt lime is generally hauled out to the fields at the most leisure season for the teams, and deposited in heaps of fifty to one hundred bushels, there to lay till it becomes slacked.

When thus hauled in the fall or early winter, it is spread early in the following spring, but we have known it to lay for many months. The inside of the heap, under the outer crust, is then found to be in a good state of pulverization, so as to spread pretty evenly.

This is the *common mode* of using lime in this section, but some farmers consider it very important to slack the lime with water while fresh from the kiln, and spread it while in the caustic state. This has been done the past fall by two of our neighbors—one of whom professes to have tried both plans. We know of one person who went to the trouble of slacking his lime with water, and then hauling it in heaps for future use. This was obviously useless, as there could be no intrinsic difference in the quality of the lime, whether converted into a carbonate by a slow or speedy process, if not immediately spread.

It is usually conceded that lime is not a manure, as this word is generally understood, there being very small quantities of it in the plants and crops for which it is mostly used. Its value may consist in its effecting new chemical combinations in the soil, and in its action on inert organized matter, promoting decomposition and neutralizing acids. Like many other phenomena in the farm and garden, its mode of operation is uncertain, and there is as much difference of opinion now as there was many years ago, when we first began to use it. It is well known that it *does* act beneficially, and this seems sufficient for our farmers, who have a saying that the main thing is to *get it on*, without caring much about its condition or the time of year it is applied. We have never known powdered limestone to be applied to the soil; and yet, in this condition, previous to the carbonic acid being disengaged by burning, it is chemically the same as after long exposure to the air. Caustic, or freshly-slacked lime, is in a finely pulverized state, admitting of a very even distribution and incorporation with the soil, and it would seem probable, that in this condition, it might more readily act in the decomposition of vegetable matter. But, if this is the chief effect of caustic lime, how are the extraordinary benefits to be explained, of a perfectly effete carbonate of lime, which has become so by a year's exposure to the atmosphere before being spread? We have frequently used it thus as a top-dressing, on old green grass fields, with great advantage, and this is a very common practice when they are well set with grass, and it is undesirable to plow them up. White clover often sets in as a result; the green grass has a stronger growth and a darker color, and both cows and feeding stock eat it with a greater relish, and improve on it faster. Pastures, by being thus top-dressed occasionally with lime, become *permanent pastures*.

Lime, where we reside, cost twenty-four cents per bushel, delivered on or near the farm, and used in any form, or at any season, is considered to *pay*. A very popular time of applying is to ground newly set with grass after the wheat is removed. It is then washed down by rains into an open soil, in which it becomes thoroughly incorporated, and the grass receives the whole benefit for many years till it is again plowed up in the regular rotation of the farm. In regard to the inquiry about how it is spread, we reply it is usually spread from the cart in shovels, and a skillful hand soon acquires sufficient dexterity to cast it evenly. A machine invented in Lancaster county for spreading lime, distributes it faster and more regularly, but it is not in general use. —*Practical Farmer.*

Value of Manures.

The subject of manures, underlying as it does all successful agriculture, has not received from the American farmer that attention it deserves. Many of our farmers can scarcely be made to appreciate the moneyed value of fertilizers in the same way as do the farmers of Europe. To one traveling abroad this feature presents itself with marked force—the saving and husbanding manures, and the investment of what we would consider large sums in the purchase of fertilizers adapted to special crops. We have seen farms in England upon which the rents and poor rates alone were nearly equal to the value of the whole product turned off from some of our New York farms of the same number of acres—farms, too, accounted good with us and well managed—and if we should inquire how these expenses can be met, and a fair living profit realized, it will be found that among the secrets of management the question of manures is better understood and their value more duly appreciated than with us.

From an examination of farms through the dairy region, we find the proportion comparatively small that is able to carry more stock now than ten years or more ago. It is generally claimed that our dairy lands are improving year by year. But can they or do they carry more stock? Every farmer should ask himself the question, since if his acres are made to yield a larger product annually, some progress is being made in his management.

We suppose there is no better or cheaper way of bringing up a farm to a high state of fertility than through the agency of cattle. Let the products of the farm be consumed upon the farm,

and all the manure carefully husbanded and judiciously applied, and there is good reason to hope that the land is being bettered in condition. But if three parts out of four of the manures be suffered to go to waste and are never returned to the land, progress will not be found to be of that rapid character which could be desired.—*Working Farmer.*

Soil and Manures for Hops.

Lawe's experiments with the hop have shown that to ensure success with this plant it is necessary to manure liberally with bulky animal and vegetable manures. During the past summer, in an examination of the hop gardens in the county of Kent, and the manner in which the crop is cultivated in that noted hop district, we found woolen rags, shoddy, skin clippings and fur waste, in extensive use in addition to farm-yard manure. Mr. Lawe remarks that in farm-yard dung the proportion of mineral matter, and of organic matter yielding carbonic acid and some other organic compounds in the soil, are comparatively large; but the amount of nitrogen or ammonia yielding matter is small. With this manure there should therefore be employed woolen rags or skin clippings, which are rich in ammonia yielding substance, but poor in mineral matter. Rape cake he says is always an exceeding good manure for hops, and Peruvian guano may also be used with advantage, in addition to, but not as a substitute for the more bulky manures.

The idea prevailed among hop growers in England, that soils made up of those constituents particularly favorable to the production of fruit, especially the culture of grapes, are the soils best adapted to hops, and this suggestion would seem to have some foundation, since the best hop regions in England are also the best for fruit. In conversation with the English hop merchants of London, they claim that the American hop is far inferior in flavor to those grown at home. That it has a peculiar rankness in smell easily detected, and which carries with it an unpleasant flavor in brewing—that this had a damaging influence on prices, and they expressed the hope that means should be taken to obviate the difficulty. There would then be a large demand for American hops of choice quality, and at top prices. If it be true that the American hop lacks delicacy of flavor as compared with that grown abroad, it may be well to inquire whether it results from the peculiar nature of the soil on which it is grown, the manner of cultivation, the inferiority of the plant, or some other cause.—*Utica Herald.*

Food for Plants.

Mr. R. Warmington, Jr., of Cirencester College, in a lecture to the Newbury Farmer's Club on this subject, states:

A crop of wheat yielding thirty bushels of corn will contain, besides water, about 1727 lb. of carbon, 1800 lb. of oxygen, 242 lb. of hydrogen, 49 lb. of nitrogen, and 98 lb. of incombustible matter, containing 11 lb. of lime, 6½ lb. of magnesia, 33 lb. of potash, 19 lb. of phosphoric acid, and 98 lb. of silica, with small quantities of other substances. Now, from what sources did the wheat plant obtain these ingredients? We know that all carbon (charcoal) was derived from gas (carbonic acid) contained in the atmosphere and soil: that the oxygen and hydrogen were obtained from water: the nitrogen from either ammonia or nitric acid—substances to a very small extent in both soil and atmosphere: the lime, potash, silica, and other incombustible ingredients, we knew to be derived from the soil. These plant-food were the same for crops: with these in abundance, and suitable conditions of climate, &c., any crop could be grown. Plants had thus the wonderful power of producing such substances as starch, sugar, woody fibre, gluten, from a few simple gases, water, and the ingredients of rocks. The food of plants was, in this respect, a simple subject: when practically considered, however, it was not so. The farmer wanted to know what supply of food is afforded by nature, and whether this was sufficient for his crops, and consequently what substances he should apply as manures. As there was always sufficient water to supply abundance of oxygen and hydrogen, we had only to consider what was the amount of nitrogen, and ash constituents furnished by nature, and whether this supply is sufficient for the different crops. The quantity of carbon required by different crops was pretty uniform, amounting in most cases, for crops of tolerable luxuriance, to nearly one ton per acre. The supply of carbonic acid in the atmosphere was, however, amply sufficient for this demand, excepting, perhaps, in the case of turnips, and other root crops, which seemed peculiarly benefited by measures yielding carbonic acid to the soil. The lecturer in concluding his address, said that each kind of crop had its peculiar strength and weakness—that it is much more able to supply itself with some parts of its necessary food than with others. In this truth, rightly understood, lay the whole theory of special manuring. The farmer by special manures sought to supply the particular substances that his crop would have most difficulty in procuring. To proceed successfully the farmer must know: 1st,

what food constituents his crop will require; 2d, what is the previous history of the field; 3d, what is the composition of his manures.

What is "One Horse Power?"

The use of the term "horse power" is very common; yet few, except good mechanics and engineers, attach a definite meaning to it, but regard it as indicating, loosely, about the power which one horse could exert. It is, however, when used in the sense under consideration, as definite as possible, and means the power required to lift 33.000 pounds avoirdupois one foot high in one minute.

A horse hitched to the end of a rope over a pulley one foot in diameter, placed over a deep well, traveling at the rate of about 2½ miles per hour, or 220 feet per minute, will draw up 150 lbs. the same distance he travels. The force thus exerted is called, in mechanics, "horse-power," it being an approximation to the average amount of continuous power it is fair to demand of a strong horse. If we multiply the weight raised (150 pounds) by the number of feet it was moved per minute, (220,) the product will be the number of pounds which the same power would raise one foot high in the same length of time, (33.000 pounds)

The dynamometer is an instrument made for measuring power particularly that exerted in drawing. Those used for testing the draft of agricultural implements are simply very strong spring-balances, or spring steelyards, graduated to indicate the power required to raise any weight, within reasonable limit, at the rate of 2½ miles per hour. When we apply the dynamometer in ascertaining the draught of machines, if the index indicates 150 pounds it is shown that the horse is required to draw just as hard as he would do if raising 150 pounds out of a well with a rope over a pulley one foot in diameter at the rate of 2½ miles per hour, and so for other weights.

The velocity at which a team moves is to be considered, as well as the weight to be raised, or the load to be drawn. If the horse travels faster than 2½ miles per hour, while raising 150 pounds out of a well, he exerts more than one-horse power. If he walks slower than this he does not exert a force equal to one-horse power.

In ascertaining the draught of a plough or mower and reaper, by drawing faster than 2½ miles per hour, the dynamometer would indicate more than the correct draught; and by driving slower, the draught would appear to be less than it really is. In testing the draft of machines a team should always move at the rate of 2½ miles per hour, or 220 feet per minute, which is the universally accepted rate with reference to which dynamometers are graduated, and an easy one to which to approximate in driving with almost any kind of team.—*Portland Price Current.*

Flowers and Vines in the House.

There are many beautiful botanical experiments which can be conducted in the parlor during winter, which are not embraced generally in the list of flowers and vines to be found in our parlors and windows.

How many of the fair readers of the *Telegraph* have the beautiful vine of the *sweet potato* running over their mantleshelf? This pretty sight can be enjoyed by placing a sweet potato in a tumbler or other glass vessel, filled with water, passing a pin through the tuber so as to keep the lower end from one to two inches from the bottom of the vessel. Keep on the mantleshelf, in a warm room, and every day give it sun for an hour or two, and in a few days rootlings will begin to appear, aiming for the bottom of the vessel, and in two or three weeks the eye will begin to shoot and rapidly grow and run upon suspended twine or any little trellis work prepared for it. The *dioscorea batatus* is the prettiest for this purpose, when it can be obtained.

The "Morning Glory" can be propagated in parlor windows, where there is some sun, to perfection during winter; it flowers with its natural colors, and the delicate little vine can be made to run over the window. A hanging vase is the prettiest for this.

Suspend an acorn by a cotton thread so as nearly to touch the water in a glass vessel, (a hyacinth glass is perhaps the best,) set upon the window and mantel, and let it remain there for eight or ten weeks, more or less, without being interfered with, except to supply the evaporation of the water, and the acorn will burst, and as it throws a root down into the water, a sprout or stem will be sent upward, throwing out beautiful little green leaves; thus giving you an oak tree, in full life and health within your parlor!

There are many of the mosses which can be very successfully grown in the house through the winter, and with the foregoing form an interesting and refined enjoyment for the feminines of a family and real pleasure to all who have a taste for the beautiful to witness. We trust to see a greater inclination on the part of the ladies to introduce into their houses this most agreeable addition to their domestic pleasures.—*Germantown Telegraph.*

The American Farmer.

Baltimore, March 1, 1867.

TERMS OF THE AMERICAN FARMER.

SUBSCRIPTION TWO DOLLARS PER ANNUM.

RATES OF ADVERTISING:

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One Square.....	$2.00	$5.00	$10.00	$15.00
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Half Page.....	15.00	35.00	60.00	110.00
One Page.....	25.00	60.00	110.00	200.00

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Near Exchange Place.

BALTIMORE.

ERRATUM.—At the very beginning of the communication of "Palmetto," on page 271, the quotation "Jam satis nivis" is made very ridiculous by changing the first word into the two English words "I am;" as if Old Horace, who didn't profess to know a word of English, had undertaken to express himself in that language, and broken down. And some lines below, instead of "*et* id, &c.," the types have "*it* id, &c."

We take especial care to guard our correspondents against the annoyance of such errors, and are generally, we think, successful. In this case the editor examined two "proofs," and made careful correction of the very mistakes here noted, only to find them appearing again when too late for correction.

APPRECIATION OF THE OLD FARMER.—"Long absence from the country prevented the reception of your esteemed favor, until a short time ago, when I received also the July, August and September numbers of your admirable *American Farmer*. It the ablest and best journal of its kind published in the United States, beautifully printed, and on nice paper. The South ought to sustain you well for publishing so excellent a paper." A. M. G., Opelika, Ala., Jan. 27, 1867.

NOVEMBER NUMBERS OF FARMER WANTED.—Exchanges, or subscribers who may have November numbers of *The Farmer* that they do not mean to preserve, will confer a favor upon us by sending them to us by mail—our issue of that month having run short of the demand for them.

Payment of Subscriptions.

We find that some of our readers, who have failed to remit for current issue of the *Farmer*, have been under the impression that there were balances due on former payments, which the numbers sent were intended to cover. We would say to them that the cases of this sort are very few, and all who stand thus, are duly credited and notified of the fact. Those who have not remitted since our reissue in July, may be quite sure that their subscriptions are now due, and we beg they will give them prompt attention. We know they need no argument on the propriety of the matter, and we mean to make none. We know they intend to pay in some short time, but the trouble to us is, that on these short dates, they take too many "renewals."

In connection with this, we ask attention to the following from a gentlemen, who, in the past, was a Representative of Virginia in the National Councils, and is one of her first citizens. We have taken pleasure in this case, and very many others, in asking the writer to accept the paper without charge, and, in order that we may be able to continue to do so in like cases, and to enlarge this list, we only ask our friends, who have the ability, to pay us promptly, and whenever they can, to send us a new, paying subscriber. We have reason to believe that the *Farmer* has never been so highly valued by its readers as now, and we are sure there was never so much need of its services. We ask the help of all in widening the sphere of its usefulness, and in giving us the ability to increase its value.

———, Va., February 4, 1867.

GENTLEMEN—I have been for many years, and up to the time of the war, a subscriber to your valuable periodical, the *American Farmer*, but the loss of all of my negroes, and much other property, all worth at least $75,000, has driven me to the village, and rendered me unable to take your paper, even at its very low price. You have, notwithstanding, sent me several copies lately to this postoffice, and I directed the postmaster to inform you that I could not subscribe now, and desired him to have the paper discontinued. I take great pleasure in recommending it to the farmers in the neighborhood, and wish that I could advance its circulation.

With best wishes for your success, I am, gentlemen, with great respect, your obedient servant, &c., &c.

☞Attention is called to the new and varied advertisements in this month's number.

Our Correspondence as published in this number will be found of unusual variety and interest. We invite a free discussion of such topics as our friends have introduced, and hope that they, and many others who we know to be most capable, will aid us in disseminating good thoughts, and good words, among those who are struggling to build up again the homes and the fortunes, which have been stricken down by the rude hand of war.

The suggestion of H. H., who writes from Augusta, Ga., under the heading of "Large Farms and Associated Capital," will command attention. The points he makes are well taken, and we hope the topic will be further discussed by himself and others. There can be no doubt that large bodies of land may be more economically worked than small, and in the present want of capital in the Southern States, his plan will, we think, prove in a great many cases, both "practicable and practical"—that is, it can be carried out, and will prove very suitable to the exigencies and circumstances of a great many Southern land-holders. It will enable them to do what should be first in their thoughts,—hold their lands until time shall, in a measure, work its remedies for present evils.

This article, Mr. Hansen's on reducing the limits of cultivation, Mr. Gilmer's on the same, and on the application of small quantities of lime on wheat in the spring, F., near Richmond, on the Improvement of Poor Land, "Palmetto" on Draining and other topics, all aim at the solution of the great Southern Problem, "What shall we do with our lands?" It is a problem which commands the hearty interest of every true man, and on which there should be the freest interchange of opinion.

For the many other articles of direct practical use, as that on Diseases of the Spleen in Cattle, Trees, cultivation of Basket Willow, Speculations on Potato Planting and others, the authors have our thanks.

The Michigan State Agricultural College.—We are indebted to President T. C. Abbot for a copy of his very satisfactory and interesting report of the condition of this Institution. The number of students during the year past was 108, filling all the rooms, and 38 were sent away for want of accommodation.

☞ A cargo of 6,600 bushels of wheat from California, arrived at Philadelphia on 26th December, in good order, and said to be of excellent quality.

State Agricultural Society.—A bill has been reported to the Maryland Senate by Oden Bowie, Esq., of Prince George's county, to incorporate the Maryland State Agricultural Society, and to appropriate $25,000 for the purchase of a permanent location for its annual exhibitions.

We cannot doubt that the Legislature will pass, without serious opposition, a measure intended to foster and encourage the agricultural interests of the State. The advantages arising from such an association of the farmers of Maryland are too palpable to need enumeration, and its failure for want of requisite support by the State Government, would be a reproach upon the public spirit and intelligence of our legislators, that we will not anticipate for them. We look confidently for the passage of the bill.

Copperas.—A. C. S., Joyner's Depot, N. C., inquires "whether or not copperas injures manures of any kind, by being dissolved or mixed with them; or does it add or not add anything to their value for crops of any kind?"

Copperas is sulphate of iron, and when applied as mentioned, acts upon the manure as gypsum would, which is sulphate of lime, as a fixer of the volatile gases. It has this good effect, therefore, besides adding sulphuric acid. It can do no harm, and is an excellent deodorizer.

Application of Ashes.—A correspondent, at Charlestown, Va., says "I have a large pile of leached and unleached ashes. Would it be advisable to sow it heavily, broadcast, on wheat, or scatter it with a shovel."

They can be more evenly distributed by hand, but ashes absorb moisture rapidly, and when damp, soon make the hands sore. It is better to throw them, broadcast, from the cart, with a shovel.

Col. H. T. Guion's Address.—A friend in North Carolina favours us with a copy of this able address, delivered before the Agricultural and Wine-growing Association of Craven county, N. C. We had hoped to make use of a portion of it, but the press of other matter on our columns has made it impossible. The author is very sanguine in his opinion of the profits of wine making in the old North State.

☞ On the pine lands of Georgia, which possess a quick, warm soil, two crops are frequently obtained. A wheat harvest is gathered in June, a corn crop is then planted which ripens by the last of October.

GAS HOUSE LIME.—A correspondent, at Charlottesville, Va., inquires as to the value of gas house lime. We should be glad to hear from those who have used this lime, as to their experience, and how they have treated it. The gases absorbed by it in the course of purification, are hurtful to vegetation, and it should not, when fresh, be brought into contact with a growing crop. After exposure for some time, it loses these deleterious properties, and its effect upon the soil is like that of other air-slaked lime, not very active in its effects, but of lasting benefit.

We should consider it well worth six cents a bushel, where the hauling did not exceed a mile or two, but would apply it on sod land some months in advance of ploughing, at the rate of fifty bushels to the acre.

Our correspondent will conclude, too, from what we have said, that the longer the time after having been used, the better, provided it be not lumpy, and is in good condition for spreading.

"THE CONFEDERATE BEAN.—The most valuable variety in existence. Plant in very deep, rich soil, in checks four feet each way, one (1) stalk in a hill. Support with poles four (4) inches in diameter, with strong cross pieces. This bean will bear not only freely but wonderfully, from spring until frost. Please give it a thorough trial in the grounds of the Agricultural College. Brought to notice first in Shelby county, Tenn., by Rev. Mr. Holman, M. E. Church South. Named by George W. Gift."

We are indebted for the above to a valued friend of the *American Farmer*, at Memphis, Tenn. We shall hand over the *Confederate Bean* to Mr. Barker, at the College, and do not doubt he will give it a fair trial, and make report in due time.

Mr. Edwin A. Lewis hands us a package of Chilian beans, reported to be valuable, to which we shall give the same direction.

SCUPPERNONG GRAPE.—A correspondent at Upper Marlborough, Md., informs us, that he brought with him some years ago, from Alabama, plants of the Scuppernong, which he planted. They died to the ground the first winter, but in the spring following put up thrifty shoots from the roots, and have not since been damaged, but have bloomed and fruited regularly.

This grape has great value for wine in the South, and if found hardy enough for this latitude, will make a desirable addition to our list of wine grapes.

Book Notices.

THE SOUTHERN REVIEW.—We are in receipt of the first number of this Review, published in Baltimore, by Professors Albert Taylor Bledsoe and William Hand Browne.

It is designed—to use the words of the editors—"to supply a need long felt in the South; the need of an organ for Southern men of letters, and of a high class of periodical literature for Southern readers."

The number now issued answers fully the expectations of those, who looked for a publication of the highest order of its class, and we commend it to the good offices of such as appreciate a work of its character.

The contents are: I. The Education of the World. II. The American Viri Romæ. III. The Legal Status of the Southern States. IV. Craftsmen's Associations in France. V. The Daughters of De Nesle. VI. Mental Physiology. VII. Earl Stanhope's Life of Pitt. VIII. The Imprisonment of Davis. IX. Book Notices

It is published in quarterly numbers of 250 pages at $5 per annum in advance.

BLACKWOOD FOR JANUARY.—We have this number from the Leonard Scott Publishing House, with its usual variety of most readable matter. The contents are—Our Naval Defences. Nina Balatka, concluded. Sir William Parker, the Admiral of the Fleet. Conington's Translation of the Æneid. Cornelius O'Dowd. The Campaign in Western Germany. Women and Children in America. Brownlows Part I. Who are the Reformers, and What do they Want?

THE SOUTHERN FARMER.—This is a new candidate for favor with the Southern Agricultural community, and we anticipate for it great success. The first number gives assurance of its quality, and it is under the guidance of one of the most experienced and intelligent agricultural writers in the country, Dr. M. W. Philips. The *Farmer* is in quarto form of sixteen pages. Published at Memphis, Tennesee, at $2 per annum. Address M. W. Philips & Co.

RURAL JOURNAL AND FIELD AND FIRESIDE.—We are in regular receipt of these valuable journals, the one a literary weekly, and the other an agricultural monthly, published by the enterprising firm of Wm. B. Smith & Co., Raleigh, N. C. We are glad to believe that publications of so much value are duly fostered by our Southern friends. The Field and Fireside, $3, The Rural Journal $1 per annum.

Southern Planter and New England Farmer. Two old friends and co-workers have simultaneously "renewed their youth," and come into the field again after years of rest. We heartily welcome both.

The *Planter*, at Richmond, edited by Charles B. Williams, Esq., bids fair for improvement on even its former excellence. It is well filled with good matter, suitable for Southern readers, and useful everywhere. Published in Monthly numbers of 64 pages, at $3 per annum.

The New England Farmer, published at Boston, is one of the best of the Northern Agricultural Monthlies. It is published by R. P. Eaton & Co.

The Home Monthly.—Edited by Prof. A. B. Stark and Rev. Phelix R. Hill, and beautifully printed at the Southern Methodist Publishing House, Nashville, Tennessee, is one of the handsomest and best family Magazines in the country. We take great pleasure in the success with which our Southern friends are getting up a home supply of good reading. Price $3. Stark & Hill, Nashville.

Turnips. Wyandotte and Peabody Corn.—The following is an extract of a letter from a correspondent, at Waterford, Loudon county, Va:

"I will give a suggestion to your Newbern correspondent with regard to turnips. The cold snap having caught a portion of my turnip crop in the ground where they grew—the turnips being sown in drills thirty inches apart—I used a single horse and plough, throwing ground up and on to the turnips in drills. The ground being somewhat frozen prevented the work from being as well done as it otherwise could have been: but I am satisfied that if done when the ground is in proper order, turnips can, in this manner, be secured through winter, and with half the labor of gathering and removing and securing in any other way.

"I would be glad to get information in regard to the Peabody, Wyandotte, and other prolific corn mentioned by the *Farmer* of March, 1858. It is surprising that corn so remarkably prolific should not have become more generally known by this time, unless forgotten amid the civil and political revolutions occupying the public mind so many years. If not known to be a failure, can you give information where such corn can be obtained in small quantity for seed?"

Respectfully, &c.

☞ The Detroit Tribune estimates the wheat crop of Michigan, for 1866, at 12,000,000 bushels.

Barley.

Information is asked by a correspondent on the cultivation and management of this crop. It has been so little grown in Maryland, that it is to be presumed there is some good reason for its neglect, but what it is we are not prepared to say. We should judge, from what we have an opportunity of knowing, that it would be found more profitable than spring wheat or oats.

The seed should be sown as early in spring as the ground can be got ready, and upon fresh ploughed land. Two to three bushels is the proper quantity of seed per acre, varying the quantity with the strength of the soil.

A light, rich, loam is the best soil for it, but it will do well on light soil, fertilized with guano or super-phosphate. To make a full crop, the land should be as rich as we would make it for a good crop of wheat. It has the peculiarity of yielding well on very highly manured soils, where wheat and oats would fall, and fail to give a return of grain

The preparation of the ground is the same that would be made for a crop of wheat or oats, and it may properly take the place of oats in any ordinary rotation. It follows corn advantageously, and may be followed by wheat.

It affords a much better cover for grass seeds than oats, and is a very suitable crop when the ground is to be laid to grass

It is harvested like other grain crops, and may be threshed and taken care of in the same way.

There is ready sale for it in the Baltimore market, at a fair price. For feeding stock it is said to stand about midway between oats and corn, being well relished by stock of every kind, and making pork of as good quality as corn. The straw is softer than other kinds, and preferred by cattle. The yield per acre should vary from twenty-five to sixty bushels, according to the suitableness and fertility of soil.

With the present labor difficulties, it will be found necessary that a portion of the land we would devote to grain be cultivated in some crop less expensive than corn, and while we do not, as at present informed, advise too large a resort to barley, we think it may be tried, with the prospect of proving a more profitable crop than our other spring grains.

We hope our correspondent, and others, will find in the brief remarks we have here given, sufficient information to guide them.

☞ Attention is called to the opportunity offered to obtain goats of finest quality, in exchange for other stock. See advertisement.

Alkaline Phosphate.

We have been repeatedly asked for an opinion upon this class of manures. This can be best given by making a few statements of what we believe to be ascertained facts in reference to manures in general.

The active capital of the soil is the available quantity of plant food it contains. We say *available* quantity, because there is in every soil a very considerable amount of plant food which is not available. For example, the alumina, which used to be considered a totally inert substance chemically, and to be valuable only as conferring certain physical qualities upon the soil, is now conceded to be a very energetic chemical agent. It stores up in the arable crust of the earth the important ingredients, ammonia, potash and phosphoric acid. It withdraws them from circulation, to borrow a phrase from the bankers, and locks them up as an investment. Consequently, every soil, in process of time, becomes more or less charged with these comparatively inert combinations of materials essentially necessary to the growth of plants. They are thus carried back to a condition analogous to that insoluble mineral state from which they emerged by the aid of the decomposing force of air and atmospheric water. Upon these forces they must again depend for their restoration to activity.

How rapidly this locking up is accomplished, we know from Way's admirable researches upon drainage water. That distinguished agricultural chemist discovered that the water drained off from land heavily manured, season after season, with salts of ammonia and super-phosphate of lime, contained mere traces of ammonia and phosphoric acid. It appears, therefore, that much of our manure is thus invested year after year. Now, such combinations as these are not available for the support of vegetable life; thus, in the process of tillage, combinations of comparative insolubility are in constant process of formation. It is true that these are not lost, but may be rendered available by merely increasing the facilities for decomposition; for example, by deep ploughing or finely pulverizing the soil.

It plainly then is necessary, if we would maintain our lands in a uniform condition of fertility, that we must steadily manure them year after year. Every year a portion of the active capital is thus withdrawn and transmuted into a reserve fund. Hence we are obliged to keep adding to our stock of active capital in the way of manure, even although we take off each year less than we put on.

It is very evident that we must add the three substances which alumina withdraws, viz., ammonia, potash and phosphoric acid. But *a fortiori*, we should also add those materials which alumina does not retain, and which, therefore, pass away with the drainage water or sink into the subsoil below the roots of the growing plants, such as soda, sulphuric acid, chlorine, &c. Every one of these substances has its use in the economy of vegetation, and cannot be dispensed with. It is idle to say that one element of fertility is more important than another. They are all, in their relative proportions, of equal value. A chain is only as strong as its weakest link. If, for example, a soil has nitrogen enough, available for the purposes of the growing crop, to furnish forty bushels of wheat to the acre, but has only potash enough for ten bushels, ten bushels will be the limit of its production, although everything else may be present in sufficient quantity for the larger yield.

It is plain, then, that no man can manure judiciously who confines himself to two or three ingredients, and trusts to nature to furnish the rest. He must put back at least as much as he sends away, or his soil will grow steadily poorer. For this reason we are glad to see some attention paid, by the manufacturers of concentrated fertilizers, to other substances besides ammonia and phosphoric acid. When alkalies are introduced, in connexion with ammonia and phosphoric acid, a twofold advantage is obtained. In the first place, there is given to the soil a supply of indispensable plant food to furnish the growing crop, and to substitute that portion of the available capital of the soil which has been retired during the past season. Secondly, there is added to the re-agents already present in all fertile land, another promoter of that decomposition which brings out the constituents of the rocky fragments that form the basis of soils, and which renders them fit to play their part in the development of vegetable organization. It cannot be too strongly impressed upon the minds of farmers, that every ingredient of a soil is, in its relative proportion, equally indispensable, and that if they confine themselves to a few, under an impression that they are of paramount importance, they are pursuing a ruinous policy. It may be true that the soil contains large quantities of those neglected elements of fertility; but even if it does, it is manifest that the removal of them in the crop, without sedulously returning them, is surely and steadily, though it may be slowly, impoverishing the land.

☞ Losses by cattle disease in England are summed up at $17,865,000 in gold.

For the "American Farmer."

Large Farms and Associated Capital.

Messrs. Editors: Will you allow me, in response to an article on the "Division of Farms" in your February number, to make a suggestion. If it should not seem to your readers to be what is commonly called a "practical" one, I think it might be shown to be practicable at least.

The fact being, that, the impoverished people of the South find great difficulty in obtaining sufficient capital to work their lands, any inducement that may be offered to capitalists to invest in our undertakings becomes a matter for consideration. I propose in the place of dividing estates, to combine them. Let planters occupying a district of several square miles have their lands appraised, and offer them at a fair valuation as so much stock, to any parties able and willing to form a joint stock company, and furnish capital for their cultivation and improvement. Why would not the advantages of an intelligent direction, furnishing skilled superintendents and overseers, and supplying the requisite capital, be as great in planting operations as in the management of railroads and factories? I believe it would be much greater, and that a larger dividend, on a smaller capital, would be paid by an association for agricultural purposes than for almost any other industrial pursuit. The outlay would be less, and the return more immediate and certain. Let me enumerate some of the advantages.

Boundary lines would no longer put a stop to such improvements as are made by dams and ditches.

Poor land would not be worked from want of any other; and fertile lands would not be unproductive for want of capital, enterprize or skill.

Larger capital would not only procure greater skill, but more improved methods of machinery, a division of labor would be practicable, and skilled employees could be obtained in the various departments of mechanics, chemistry, engineering, &c., that combine to make the perfect planter.

The amount of fencing would be much diminished, (an immense * saving in itself.)

The various crops would be dove-tailed together under one direction with advantage, and grazing on unimproved lands made possible and profitable.

Villages might be located at suitable points to contain reservoirs of labor. Negroes would flock to such villages; and an enlightened administration would make of them what they once were, the easiest managed, and best class of laborers on earth. In this way the whole difficulty of an uncertain supply of unreliable labor might be removed.

Immense saving in the purchase of all the necessary supplies. But I trespass on your space. Let me ask, have not such associations been formed elsewhere? Has not much been done by them of late years for the improvement of Ireland and in effecting the drainage of lands in England, and in Europe? Is not the superiority of English agriculture due to the large farms, and the large means of English agriculturalists? Has not the small farm system in France proved a draw-back to agricultural prosperity and improvement?

In conclusion, let me say that I feel sure that properly organized companies could obtain lands here for a low rate of interest on a very moderate valuation.

AUGUSTA, GA., Feb. 8, 1867. H. H.

For the "American Farmer."

SPRING BANK, NEAR ALEXANDRIA, VA., February 6, 1867.

Messrs. Editors:

In the February number, just out, I have noticed that your correspondent, R. S., states that "the sunflower will yield eight tons of green fodder per acre," and that "horses and mules eat the entire plant and seed with as much avidity as the best hay." Now this is a matter of great interest to all persons in this part of the country, where labor is so scarce and high. Will you, or R. S., or some other correspondent, give us an account, through the pages of the *Farmer*, of the mode of cultivating the sunflower, when to cut, and how to cure the same. These particulars will be of great interest to, and will much oblige A SUBSCRIBER.

"A "NO-FENCE" LAW.—The Alabama Legislature passed a "no-fence" law for Montgomery county. The act makes it unlawful for the owner of any horse, mule, cow, hog, sheep or goat voluntarily to permit such animal to go at large, and provides for a penalty for doing so."

We wonder that this matter of fencing has not received more attention. Do our Southern people mean, in their present circumstances, to tax themselves with the enormous cost of renewing all the fences that have been destroyed? Is there any necessity for it? Should not every one be required to keep his own stock within his own enclosure?—[ED. FARM.

* Mr. Biddle estimated the cost of farms in Pennsylvania at $100,000,000, and their annual expenses at $10,000,000. (The Plough, the Loom, and the Anvil.)

For the "American Farmer."

Labor Question Again—Change of System.

CLIFTON, FAIRFAX COUNTY, VA.
February 8, 1867.

Editors of American Farmer:

The war has left us a comparatively small number of hands, and I regret to say, this small number is *mostly* very unreliable. The consequence is, that we, more *now* than ever, will have to pay our *strictest* attention to obtain the *highest possible* products from a *smaller* area. To effect this result it becomes necessary to adopt a proper rotation. Without such, our manure, produced on the farm, would never reach to keep our land in a proper state of production. I know it will require a good deal of self-command to throw out, perhaps half or more of the open land, and be content to work only a comparatively small portion of the farm. But, believe me, if the system, which I am going to propose, is fairly and strictly adopted, not *one* of my followers will regret it. Of course, the system cannot be *jumped* into, but has to be adopted *gradually*, to prevent any sudden drawback in the income.

Let us suppose you have been farming 250 acres, as follows:

80 acres with corn at 20 bushels = 1600 bushels, at $1 =	$1,600
80 acres with wheat at 15 bushels = 1200 bushels, at $3 =	3,600
90 acres with clover and timothy at 1500 bushels = 62 tons at $15 =	930
	$6,130

EXPENSES.

8 horses at 30c. per day =	$876	
6 hands at $20, (wages and board) per month =	1,440	
Wheat for seed, 160 bus. at $3 =	480	
Corn for seed, 10 bus at $1 =	10	
Mowing and curing 90 acres at $2 per acre =	180	
4 tons of guano at $80 =	320	
		3,306
Profits		$2,824

You determine to reduce your farming to 96 acres. This 96 acres would be divided into six fields, and the following, or a similar rotation, according to soil, might be adopted, 1, wheat in clover stubbles; 2, potatoes, (manured:) 3, corn, rye and turnips, (white stubble), sowed with the last ploughing for pasture for sheep; 4, oats with clover and timothy: 5, clover and timothy for hay; 6, pasture, or if the land is rich, again cut for hay.

16 acres wheat at 20 bushels = 320 bushels, at $3 =	$960
16 acres potatoes at 130 bushels (besides planters) = 2400 bus. at 75c. =	1,800
16 acres corn at 25 bus. = 400 bus. at $1 =	400
16 acres oats at 25 bus. = 400 bus. at 50c. =	200
32 acres hay at 2000 bus. = 32 tons at $15 =	480
	$3,840

EXPENSES.

4 horses	$438	
3 hands	720	
32 bushels wheat for seed at $3	96	
2 bushels corn	2	
Mowing and curing 32 acres hay	62	
		1,318
96 acres = Profits =		$2,522

Besides, you have left 150 acres for permanent pasture, part of it perhaps, able to be converted into meadow. This 150 acres will fatten your 400 sheep at a profit of $1.50 per head... $600
Profits of 96 acres... 2,522

Total profits	3,122
By the old system—Profits	2,824
Profits in favor of six fields	$298

By the six field system your investment in horses and implements is only half against the old way of farming, consequently your risk and interest on money invested, only half. By the six field system your land is enriched every year, whereas by the old system your land degenerates. But, in my opinion, one of the greatest advantages of the farming of a smaller area, is the *reduction* of hands. You may certainly more easily obtain three good hands, than six. It relieves you of half the trouble in regard to hands, and this I consider fully as great an item as any other advantage. Let us *study* agriculture, for it is *verily* a *science*, let us try to combine the great theories advanced by men like Liebig and others, with practice, first *cautiously*, and if proved successful, *boldly*, so they may become *blessings* to our fellow men.

L. A. HANSEN.

☞ The Utica Herald quotes Messrs. Corderoy's Annual Circular, London, January 1st, as saying that American cheese "where the description is really choice, is as readily taken as first-class Cheddar by ordinary consumers."

☞ A writer in the American Stock Journal says that costiveness and its accompanying evils are the main cause of sows destroying their young, and that green and other proper food are the preventive and cure.

For the "American Farmer."

Small Doses of Lime on Wheat.

Dear Sirs: In looking over your number for January, I find an article on lime upon wheat. Thinking my own experience on that subject may possibly be of some service to my unfortunate brethren in these hard times, I will, if you think proper, give it to them through your paper. My books and papers are so misplaced, I cannot now refer to dates, as I would like to do so, but must give it from memory the best I can. Some years before our unfortunate war, I saw an article, I think, in the Farmer's Register, from somewhere about Waynsborough, Augusta co., of this State, giving the (as I then thought) marvelous effects of lime sowed by hand upon alternate beds of wheat. I did not believe it, and did not try it. The next year I saw an article from Dr. Charles Brown, of this county, referring to, and endorsing that article from his own fair trial of it. I saw the Dr., heard his account; knowing him as I did, I believed it must all be true. I tried it fairly myself and found it so true, I practiced upon my next three crops of wheat, which were three of the very best crops of wheat I ever made. The war came on, which stopped everything of the sort with us. The war is now over, but has left us all so poor, we can now hardly do anything which costs money. Last fall I purchased some seed wheat and guano of Messrs. Peyton, Carey & Co., of your city, seeded it in good time, and it looked well when last seen—but covered with snow for five or six weeks, a good prospect for a fair crop, yet I am disposed to give it every chance to do its very best, for we do need all it can possibly do, and I am now contracting for four hundred bushels of lime at Fishersville, Augusta county, to be delivered at the Charlottesville depot, from thence to be wagoned over nine miles of rough mountain road, to be slaked and sowed over my wheat crop next month by hand. Now, sir, to do this requires the strongest kind of faith gained by experience. Hard as are the times with us, and doubtful as is our labor now, I could not attempt to do this on any man's say so; nor do I advise any one to do it on mine. All I have advised any of my friends to do is just to procure one barrel of lime costing two dollars, slake it well, take it to the field of wheat, step off one acre, and sow it himself, put up no stakes, nor marks, and if it does not so loom up, as to cry out for itself, (*Here am I,*) then he can let it alone for the future. What can we get lime in your place at, delivered in Charlottsville? This is written alone for the benefit of my hard pressed and impoverished brethren of the plough. Your "Farmer" has reached me, for which accept my sincere thanks.

Yours, truly,

January 23, 1867. Geo. C. Gilmer.

For the "American Farmer."

Improvement of Poor Land.

If the land be stiff, plough deep in the fall—open all the bed and water furrows so that no surface water shall lie on the land. In the spring apply lime, twenty-five bushels per acre, reduce the soil to a perfect tilth by rolling, harrowing and cross-harrowing, and plant in corn. Cultivate this crop thoroughly with the harrow and cultivator until it is breast high—sow two bushels peas per acre, cover with cultivator. This completes the culture of the corn crop.

As early as it can be safely done, cut down the corn and remove it so as to give the peas the full benefit of the sun and air. When *matured*, plough under the peas, vine, and all—roll, sow wheat, harrow in, and before a rain, sow one peck of timothy per acre. In the following spring sow clover.

When the wheat is harvested, sow one bushel plaster per acre—which repeat the last of the following March. When two-thirds of the clover bloom has turned, cut and cure for hay—apply all the stable and barn-yard manure, and straw as a top-dressing, and repeat the plaster, and in the fall when the clover is ripe, plough in and seed to wheat and timothy as before.* Let the field lie in grass two years, when the round will be commenced again by ploughing in the fall for corn.

The cost at the ruling prices of last year is as follows:

25 bushels of lime at 20c. per bushel.....	$5 00
2 bushels peas at $2 per bushel.....	4 00
½ bushel timothy at $5 per bushel.....	2 50
⅛ bushel clover $9.50 per pushel.....	1 19
3 bushels of plaster at 50c. per bushel...	1 50
	$14 19

I do not know the price of plaster, but I suppose that 50 cents a bushel will be enough. The total cost in money will be $14.19 in the course of seven years, or $2.02 5-7 per annum.

This course differs somewhat from the system advised by "A. M." in your February number, and involves a less outlay in money by $1.38 cents per acre.

* If the money could be spared, 200 pounds of guano and bone-dust, in equal proportions, might be advantageously put in with this crop of wheat, increasing the crops of grain and grass.

N. B. All the manure that can be made on the farm should be applied to the clover and grass land.

A "clover stand" in Eastern Virginia, even upon well limed and highly cultivated lands, is by no means a certainty, owing mainly to our climate. A pea crop rarely, if ever, fails. On lands like that we are now seeking to improve, it would be almost a miracle to get a good clover stand, while on the other hand, we might confidently look for a very respectable pea cover, aided as it would be by the beneficial effects of the lime.

The pea fallow is but little inferior to a clover fallow for wheat—and on Dinwiddie land limed, as suggested, with a moderate fallow of peas, I would confidently look for ten or fifteen bushels of wheat per acre. The smaller yield at present prices, say $2.50 per bushel, will pay all the expenses for the whole course.

Realizing by experience the repeated failures in securing a clover "stand," I have combined timothy with the clover, so as to secure a cover. If both the clover and timothy failed, I would try a second pea fallow. If the land be unsuitable for timothy, I would substitute orchard grass, a bushel per acre in the fall, and like quantity in the spring. Even on this poor land, with the aids afforded, three-fourths of a ton of hay per acre would not be too high a calculation. The turning under of the clover and timothy would add yet more fertilizing matter, and fifteen to twenty bushels of wheat might be hoped for.

One other objection to "A. M's" system is that Dinwiddie would have to wait rather long for the reimbusement of his outlay—a serious matter with the farmers of the South.

I think "A. M." might improve his course sensibly, if he would allow his first crops of clover to fall and plough them with his second crop under. He would thereby greatly increase the vegetable matter for the active employment of the large dose of lime he administers. I can but think that he loses much by fallowing his clover in May and June, leaving a naked surface exposed to the scorching suns of our summers. Besides, very few farmers would find the time in May or June for so heavy a job.

It has been with great diffidence that I venture to give my views upon so important a subject as the permanent improvement of poor land: but I made up my mind when I laid aside the sword to do all I could to rebuild the broken fortunes of myself and countrymen, and if I have contributed anything to this end by this communication, I shall have my reward. I thank "A. M." for the Samaritan spirit which has evoked from "*Nazareth*," his kindly efforts in behalf of Southern improvement. Blessings be upon all who lend us, in our hour of need, a helping hand: and the fullest success to my old friend the "American Farmer." F.

NEAR RICHMOND, Feb. 4, 1867.

For the "American Farmer."

Cultivation of Basket Willow.

Many experiments have been made to cultivate the "Basket Willow" with more or less success. The experiments and results of them made by cultivators upon low swampy lands are much wanted, and should be communicated for the benefit of those who have lands comparatively worthless for any other purpose. The willow is not only capable of being grown on low swampy and meadow land, but on dry banks and flat sandy land. But the best land adapted to the successful culture of this desirable addition to the farmer's products and profits, are the low flat meadows bordering upon streams, &c. There are in Maryland thousands of acres of land, that with good cultivation, (*which consists entirely of preventing any coarse weeds from overgrowing the plant,*) would produce from one to two tons per acre. The cost of raising the "Basket Willow" consists in selecting a soil that it is always damp, and if flooded in winter and spring it will not be at all damaged. It has been our practice to first drain the land by cutting open ditches about twenty-five feet apart, three feet wide at top, from two to three feet deep, and eighteen inches at the bottom. Then remove all trees and brush which may be growing thereon, then plough the land, and by using the cultivator, harrow, &c., reduce the land to a good tilth, being careful to destroy all coarse growing weeds, &c., before planting the cuttings. For this latitude we should advise planting in the month of April; we have planted at the rate of 11,000 per acre, two foot apart, which will be found ample room for cleaning, cutting, &c. We have used cuttings about eighteen inches in length inserted two-thirds in the ground, which have given every satisfaction. It is recommended by some cultivators to allow the growth of a year before cutting. Our practice has been to cut down to within two eyes of the main cutting every shoot of the first season's growth, thereby insuring a much stronger growth the second season. The after management of the plantation consist in keeping it entirely free from weeds during the early spring months; two thorough hoeings in spring, and one (if the land is sufficiently dry) in the fall, will be quite sufficient for this purpose. Landon, in the "*Arbevetum Britanicum*" describes upwards of one hundred and eighty varieties of willow. The

late Duke of Bedford, one of the best farmers and Arbeviculturists of his day, gave great attention to the cultivation of the willow; and in the extensive Arberetum at Wilbour Abbey, in Bedfordshire, England, there are grown upwards of two hundred species and varieties, one of which, *Salix, Alba* had its origin at that place. But of the many varieties cultivated the "*salix viminalis*" is found the most valuable for the manufacture of baskets, chairs, &c., and such is the experience of the cultivators of the willow in this country. There are hundreds of thousands of acres of land which are admirably adapted to the cultivation of the "Basket Willow," and which I am fully convinced, if properly planted and managed, would yield an immense profit.

I will most cheerfully give any information in my power to any inquiries made upon the subject, by letter or otherwise.

Md. Agr. College. DANIEL BARKER.

For the "American Farmer"

Speculations on Potato Planting, &c.

Occasional allusions are made in agricultural journals to the subject of planting potatoes in the fall.

I have no practical experience on the subject, and write altogether speculatively. Were I to experiment, after thoroughly preparing the land, I would run out deep, bout furrows, north and south. Plant the potatoes about the last of August, which will afford time and heat sufficient to start the shoots and partially decay the tubers.

After planting, spread over the tubers four inches of rough but well-decomposed manure, and on the manure eight inches of unbroken rye straw, (tangled straw will do as well but it is more difficult to cover,) and finish covering by running an angular harrow turned up side down, "broad end on," which will draw to the centre of the furrows a light covering of earth. Early in November, or before the ground freezes, throw up, on either side of the potatoes, (by a heavy wide-breasted plow,) a ridge; then with a one-horse plow lap those furrows, thus covering the potatoes, by the three applications, about twenty inches, and on either side fifteen. The frost may penetrate through the earth but will be arrested by the straw. The ridges should be convex or roof-shaped.

In the spring (early in March) uncover down to the straw. When the vines are fairly up, sub-soil on either side, running the share next the potatoes which will allow a free circulation of air and heat afterwards, cultivate as science and practice dictate.

In the autumn of '65 I left a row of potatoes (planted in April) ungathered: early in November I threw off the earth nearly down to the potatoes with a double mould board plow, and covered with straw, and earthed up as previously described. As soon as the frost was out of the ground on the following spring, I dug up a daily supply which lasted nearly till my extra early crop was sufficiently ripe for use. Nearly every potato was sound and as fresh as the succeeding early crop. Granting this experiment to be a fact, it follows that we can have at command this almost indispensable vegetable every month in the year.

As regards spring-forcing, see horticultural books and the monthlies on the subject.

Without seriously deviating from the subject I will add, that covering a summer crop of potatoes with straw, or mulching, will add greatly to the product. The mulch retains moisture, prevents excessive heat, and holds the rich gases arising from the atmospheric air. In our Southern States, mulching, as regards the potato crop, is indispensable to success.

Again, to keep potatoes fresh and sound for spring and summer use, select from the potato pits, when uncovered in the spring, those that are sound and unsprouted; form, for example, conical pits 6 inches deep, and 9 feet in circumference: in these, throw the potatoes carefully; on each layer of potatoes sift a heavy coat of dry sand or light loam,—cover with six inches of straw, twelve inches of earth, and, when settled, sod the surface, and form drains twelve inches deep around the pits, with an opening for the water to pass off. The same object may be accomplished by packing the potatoes in dry sand, and stowing them in a dry, cool cellar.

By excluding air, heat, frost and dampness, I believe potatoes may be kept in their fresh, original state, either during the summer or winter months, or for an indefinite time. My theory is, if we exclude the elements from the potatoes, dormancy results.

For convenience of transportation during spring and summer, pack in tight barrels with cut straw, saw dust, bran, &c.

Were I a northern or Canadian farmer I would not hesitate (if necessity required it) to cover potatoes under a snow drift. Let one of your sharp Yankee boys tie up in a coarse bag a half peck of sound dry potatoes (globular form), then, when the snow is in a fit state, let him roll it over the snow (as boys are wont to do) till it becomes too large for his strength, then let him

place the ball under a northern aspect, on the approach of spring cover the ball with straw, and over it a triangular chicken-coop, the closed side facing the South, or cover with pine boughs or brush to keep the straw in place, and to exclude the elements. I will wager high that the said boy will have the pride to present his mamma with half peck sound potatoes for her 4th of July dinner. If boys south of the State of Maine wish to try the experiment, I advise them to "break cargo" on next Easter Sunday.

My object is to induce my brother farmers to think more, experiment, and with practice unite science. It will be noticed that all I have said is speculative. S.

Baltimore County.

For the "American Farmer."

Uses of Fruits and Vegetables.

Of the culinary vegetables which we cultivate in our gardens, chemists tell us, that every genus possesses a virtue for the prevention and cure of many of the diseases incidental to human nature, suited especially for the season when it is in use; and the same is the case with fruits when they are ripe. So that a well stocked garden is a laboratory, filled with a great variety of medicines suited to all our needs. We think but little of the value of wholesome vegetables, while we have plenty of them; but when we cant get them, the cravings of nature will soon remind us that they are needed. What ardent longings have people for fresh vegetables while upon a long sea voyage! Raw turnip and raw carrot have been as sweet to our palate on shipboard as the finest fruits have been upon land. Without the prudent use of vegetables, along with grain, food, fish and flesh meats, we would soon be covered with disease. Vegetables correct the humors, and vitiating properties of fish and flesh meats; and they cool and moisten the heat and dryness of grain food; yet all of these are needed for our sustenance and good health; it is the combination of the various ingredients compounded in the stomach, that gives a lively apetite, a strong digestion and vigor and agility to our faculties. People who live much in-doors, and have not much exercise, should use plenty of vegetables to prevent costiveness, and to keep the pores of the skin open to the free flow of perspiration; but those who labor hard out of doors, must use more grain and fish and flesh meats, to give them hardiness and strength; their exercises will naturally keep their pores open for perspiration. We should only eat such vegetables as suit our palates; the *palate* is the judge of what is suitable for the stomach, and refuses entrance to the unsuitable. It is the faithful watchman to guard the gateway to the stomach; and whatever is distasteful to it, should be rejected. The old "Adage" that "one man's food is another man's poison," holds as true with vegetables, and fruits too, as any other kind of food. Strawberries, cucumbers, melons, squashes, pumpkins, tomatoes, egg-plants, &c., are all included in this class.

All kinds of our cultivated fruit, contain an essential virtue when ripe, for the preservation of our health and prolongation of our lives. They are all nourishing, and most wholesome when fully matured; but, even then, they should be used with prudence, as the immoderate use of anything is injurious; besides, the greater number of them being very wholesome and palatable in their natural or raw states. There are a great many ways of preparing and keeping them to please our palates. There are jellies, jams, syrups, stews, &c, made by our virtuous wives,; and men make of them—wine, cider, perry, &c., which when pure, are all both pleasant and wholesome. Then, there are the abusive uses of them, by adulteration and over fermentation. They are made into brandies, whiskies and vinegars—*men-killers*—but by careful keeping, we can have both fruits and vegetables to use in their natural states all the year round. Those that come on in autumn are easily kept sound all the winter through, until others grow in the spring. How beautifully the various species of fruits and vegetables follow each other in regular progression to give us a constant supply! How wonderful the foresight, and awful the conception, that planned everything so complete.

Philadelphia. WALTER ELDER.

Our correspondent will find that we have used the privilege he gives us to prune his article somewhat. He can furnish us, we know, good practical articles on cultivating fruits and vegetables, but there is a little disposition, we find, among the most practical to moralise and philosophise. As our readers claim of us a very practical journal, we are obliged to limit ourselves somewhat rigidly in other respects. As to "brandy, whiskey and vinegar," we may not contend, perhaps, with an *Elder* as to the first two, but is not the other a good and wholesome condiment? How about cucumbers without vinegar?—[ED.]

☞Twenty years ago there were no vineyards in the Department of the Indre, in France; at the present time the extent under vineyards is about 60,000 acres.

For the American Farmer.

Tariff of Farm Wages.

Messrs. Worthington & Lewis.

GENTLEMEN: I enclose a blank proposition for a tariff of prices for 1847, also resolutions on the same subject taken from a Somerset county paper upwards of a year since.

Your old and honored journal being the principal mouth-piece in this State, devoted to the interest of our farmers, prompts me to leave this important matter in your hands—hoping for prompt and early action. The subject has been alluded to frequently by farmers in this district—all unite in saying, there must be united action before individuals should act. Men now are comparatively numerous, and provisions reduced in price. Last year, wages were nearly double that of days of yore. I wish that employees and employers shall be equally protected, and act together for general success.

January 28, 1867. PLOWMAN.

PROPOSITION.

That Baltimore and the adjoining counties adopt the following tariff of prices for the year 1867; due consideration being had in reference to *short* days, price of provisions, and probable price of products:

I suggest that, managers, overseers, and head gardners be paid $... per month. Best farm hands $... per month; second rate hands $... per month. Female laborers on farm $... per month. Cutting hard wood $... per cord; soft, ditto, $... per cord. Grubbing $... per 50 feet square.

Mauling oak rails.....$... per hundred.
" chestnut posts.....$... per "
" oak posts.....$... per "
" chestnut rails.....$... per "

Making new post rail fence, including digging, boring, morticing and pointing rails $... per pannel; cleaning out old ditch 3 feet wide, 1 foot at the foot and half spit deep, $... per 50 yards. Other widths of ditch in proportion.

☞ Without a guarantee, I doubt the propriety of hiring men by the year.

The following are the rates alluded to as adopted at a meeting in Somerset county:

For cutting oak wood 75 cents per cord, pine 60 cents per cord, for mauling oak rails $1 per hundred, pine rails 60 cents per hundred, for day labor on farm with board 62½ cents, without board 87½ cents. For hands to work regularly, per month with board $10, per year $120. For female labor by the year $36, for cleaning old ditch 3 feet wide, one spit deep, $1 per hundred yards, 4 feet wide, one spit deep, $1.25 per hundred yards; all other lengths and depths in proportion. For grubbing $1 per square.

Resolved, That we recommend to the farmers of Somerset county to decline to hire day labor in any department of their business, when hands can be more advantageously hired by the month or year, believing that an ample supply of reliable labor can be had in time for the spring crop at reasonable rates, and such as the farmer can well afford to pay.

For the "American Farmer."

Inquiries.

CUMBERLAND COUNTY, N. C.
January 14, 1867.

MESSRS. EDITORS: Will you take the trouble to give some instruction to one who has just begun to devote himself to agricultural pursuits, and whose knowledge of agriculture, either practical or theoretical, is very limited.

The land on which I purpose farming is river bottom, originally of only mediam fertility, and exhausted almost to the point of absolute unproductiveness by careless and improper cultivation. Much of the soil is stiff clay, and entirely too wet for grain crops without an amount of drainage, which, I fear, would cost more than the land would be worth. Now, what I want to know is, can such land be profitably converted into permanent grass land? and the best mode of doing so. What is the best plan of eradicating weeds and the native grasses which are neither fit for grazing nor mowing? What kind of grass is best suited to such land? Will it pay to use gypsum or any others of the fertilizers advertized for sale, for the purpose of increasing the yield of grass on such land, until a stock of cattle sufficient to make the quantity of manure required can be subsisted on the farm?

Is it profitable to keep cows for making butter when it will sell for no more than thirty cents per pound? What breed of cattle is the best for both dairy and fattening purposes?

You will oblige me, Messrs. Editors, by replying to the above inquiries, and giving information on any other point connected with grass-growing, through your paper, to which I am

A SUBSCRIBER.

Will some of our correspondents familiar with the character of land here spoken of give us their views in response to the above.—[ED.

☞ Every child that eats fruit should be taught the importance of saving and sowing seeds and rearing them up to fruit bearing.

For the "American Farmer"

Concentration of Forces.

[The following is the most material portion of a communication, received at a late date, from an experienced farmer and large landholder in Albemarle county. We are not willing to omit anything which will help our Southern friends to the solution of the difficult problems involved in the matters of land and labor.—ED.]

"My own impression now is, since we can't rely upon the present system of labor, we had better curtail the area put in cultivation, and lay out the little means now left us in concentrated manures and labor saving implements, and apply the one and use the other ourselves, as far as we can, until our present wandering laborers shall have grown tired of their idleness, and come to their senses. Out of a field to go in corn this year, I have selected some twenty-five acres for my own cultivation, the balance rented out for a third and a fourth to my white neighbors, to cultivate with their own hands. This is a good field, one-half being low ground; it would be considered fair corn land unaided by manures, yet I have thought of so applying bought manures upon the whole of my part, as reasonably to expect a first class crop of corn. Then in its last cultivation, seed it with turnips, rutabaga, peas and buckwheat, to be fed off by stock purchased next summer or fall. Then flush up all of my own and my tenant's corn land, and seed to oats; then the oat lands to be flushed up, manured, with guano, and put in wheat and the grasses; my wheat, oats and grass, to be cut by horse power, which I have. What grass I cannot cut nor graze, will be left to fall upon and fatten my lands. In this way, I think I can do with much less labor and realize better profits, until labor shall become more reliable. Without a better system of labor than the one now among us, I deem it utterly impossible to keep up our outside enclosures and the dividing fences. Owing to our miserable system of law making, and law enforcing powers, we are compelled to keep up, as best we can, our outer enclosures, to keep out a few worthless, wandering stock, and I have been thinking perhaps it might be better for us to see after our outside enclosures, and keep our own stock in an enclosed lot, or field, or wood lot, (of which I have a very large one, of some three hundred and fifty acres, now well enclosed,) having a lane to our barn or stable lots, where we might so aid the deficiencies of our lots, by soiling, as to keep them in good condition cheaper, and better than by hiring to keep up all of our inside fences; and then watch our stock at night to save them from the sad depredations, now often made upon them, by our retired laborers, who sleep during the day, to enable them to go out the more successfully, while all honest laborers are taking their necessary rest. Please reflect upon these, my humble suggestions, made for the benefit of our sadly oppressed people of the South, and now and then, give to us, through your valuable paper, a page or two of your good suggestions, of which we all are so sadly in need, and for which many of us will sincerely thank you." G. C. G.

Albemarle county, Va.

For the "American Farmer."

Small Farms.

REESE'S CORNER, KENT CO., MD.,
February 11, 1867.

Editors of American Farmer:

At this time, when we are about commencing our farm operations for the present year, and find that we are a good deal troubled for want of sufficient manual labor, it is advocated by many persons to reduce the size of our farms. In this opinion I am at variance with them, and suggest that it will only increase the scarcity of labor, as it will certainly require more force, both of manual and animal, to conduct the operation of three farms, each containing two hundred acres, than it will to conduct one farm, containing six hundred acres; and I find it less trouble to secure hands sufficient to conduct the larger farm than it is the smaller ones, for the reason that the negroes prefer to have a number of hands together, than to work in smaller numbers.

The expense of carrying on the operation of the larger farm is also considerably less in proportion to the number of acres in cultivation, and the number of bushels of grain or nett sales pro rata or per hand. The owner or overseer can manage the larger force at the same time that it would require him to oversee the operation of the smaller force. To work the farm of two hundred acres would require at least six horses, as it is necessary to have a spare one, at least, for the use of the family, whilst twelve will conduct all the operations of the larger one, whilst it would require nearly the same amount of farm implements for the smaller as it would the larger farm, unless they would depend on hiring reaper, drill, threshing machine, &c., as needed, which is rather an uncertain way of securing a crop.

What we need in our section of the country, I

am satisfied, is a change in our system of farming operations; that is, to cultivate more grass, both for pasture and provender, cultivating less land in grain, making more manure in the farm yard, and buying less imported; raising more stock, and taking better care of it. Also, in cultivating a portion of the land, lay one-eighth in fruit, and pay close and strict attention to it, so as to compete with our Northern fruit growers, even in their own markets. More energy and less complaining.

"Never dim joy's brightest rays.
By gloomy fears of coming sorrows;
But always cheat the cloudy days,
With hopeful thoughts of happy morrows."

A J. R.

For the "American Farmer."

JOYNER'S DEPOT, N. C., January 18, 1867.

Editors American Farmer:

Will you please imform me, through the *Farmer*, how to prepare and manure, with bought manures, (as home made manures are not to be had) one acre of poor land for clover. The land will produce only about ten bushels of corn in its present condition, and the clay is about fifteen to eighteen inches from top of ground. I wish to sow an acre in clover for a few hogs, and it (the land) will not produce the clover in its present condition, and I wish you to inform me what kinds of bought manure is best, and how much of each kind should be applied to make the land produce good clover. What is the difference between shell and stone lime for agriculture, as a manure? Which is worth the most, a bushel of ashes or a bushel of shell lime? How many bushels of lime are necessary to be applied to an acre of land? A. C. S.

Answer—Land that will produce but ten bushels of corn to the acre, should have two hundred to two hundred and fifty pounds of some good superphosphate—whatever you have found to do well in your neighborhood—in order to get a good growth of clover. A bushel to the acre of ground plaster, (sulphate of lime,) should be sown upon the clover when it gets the third leaf. The land must have been well cultivated the previous season in corn, or other hoed crop. It is difficult to get a set of clover on poor, and very sandy land, without a top-dressing of manure, having straw or other litter in it.

Ordinarily, shell lime is quite equal in value to stone lime, weight for weight; fifty bushels of slaked lime per acre is a medium top-dressing. It will help very much to make light lands produce clover and grass. Good oak ashes, are more valuable than lime, bushel for bushel; they contain both lime and potash.

Hogs are now so liable to disease, that, we think, the most profitable, for ordinary farm use, is some healthy, thrifty country hog, crossed with a close-made, Chester county hog, or almost any improved breed of good size. The "Little Guinea" is too small for profit, though an economical feeder, and the "Big Guinea" we are not acquainted with.—ED. FARMER.

Maryland State Sorgho Convention.

The third annual Convention of the Maryland State Sorgho Association assembled at Gilmour's Hotel on Tuesday, 12th February, and was called to order by the President, A. R. Durbin, of Carroll county, who made some remarks. He said there was no doubt that molasses and sugar could be made from the sorgho, but whether it will pay Maryland farmers to raise the plant for their own use is a problem yet to be solved. During the past year the product showed a marked deterioration, more than half the cane having been worthless, though raised from pure seed. He thought the annual meeting of the cane growers will be productive of good, and the members would do all in their power to present to the farmers the importance of producing their own syrups. The report of the State Board was presented, and its questions discussed. Fifty specimens of syrup, one of granulated sugar, and several of mush sugar, were exhibited, and a committee appointed for the purpose made a lengthy report on their qualities.

The following resolutions were discussed and adopted:

Resolved, That regular sorgho is the most productive and valuable variety of cane for general purposes, but that the Liberian, possessing some peculiar qualities, is worthy of further cultivation. Offered by Mr. H. Ball, of Harford county.

Resolved, That early and deep plowing, planting more seed than is intended to stand, the plant then suckering less, with thorough working with cultivators, is the best method of cultivation. Offered by Mr. Kinsey.

Resolved, That any speedy market fertilizer is more desirable to start cane than stable manure, but that a well-improved soil is to be relied on for its successful growth. Offered by Mr. Bruster.

Resolved, That a light sandy loam soil, with a trace of lime in its composition, is preferable

to a clay loam or sub-soil. Offered by Mr. Cloud.

Resolved, That the planting of soaked or dry seed is successful in proportion to the kind of weather that succeeds said planting, and that a mixture of soaked and dry seed is advisable, so as to adapt its growth to any weather that may follow the planting. Offered by Mr. C. C. Kinsey.

Resolved, That a committee of three be appointed to experiment with canes, as follows: Take pure seed, and plant free from contact with any species of the millet family; then plant the same kind of seed with broom corn and other species; after the canes are matured, test results as to quantity, quality, and density, and report result to next annual meeting. Offered by Mr. Bruster.

Resolved, That shallow and rapid evaporation is attended with the best results; also, that fire is more convenient and durable than steam as an evaporating agent.

Resolved, That sorghum syrups should be cooled down to a temperature as low at least as 175 degrees as soon as possible after being removed from the pan.

Resolved, That Maryland farmers can produce and manufacture sorghum syrup at a cost per gallon not exceeding one-half the cost of corn per bushel.

Resolved, That for ordinary domestic operations in sorghum, vertical mills, being less expensive, and receiving the power more direct, are the most economical and appropriate. In large operations, requiring machinery of large capacity, horizontal mills should be used.

A paper was adopted declaring, for the benefit of all operators, that all taxes upon sorghum syrup and sugar have been abolished; and that manufacturers are only required to procure a license when the whole product of the season's operations exceed $1000.

Mr. Bruster, of Baltimore county, offered the following resolution, which was also adopted:

Resolved, That the State Board be authorized to confer with the officers of the Maryland State Agricultural Society with a view of introducing and benefitting the sorgho interest in its various branches by encouraging with premiums and otherwise.

The Convention, after some conversational discussion, adjourned *sine die*.

☞The Secretary of the Iowa Board of Agriculture claims that full one-third of the receipts of wheat at Chicago are from Iowa.

Arrival of First Steam Plow at N. Orleans.

It will interest our planting friends, factors, and others interested in the agricultural development of the South, to know that one of the steam plows of Messrs. Fowler & Co., Leeds, England, has arrived by the steamship Alhambra, from Liverpool, consigned to Messrs. Longstreet, Owen & Co.

We strongly recommend the attention of agriculturists to this fact, believing, as we do, its introduction will at no far distant day prove it an implement of the greatest importance in the cultivation of our cotton and sugar lands, and in the highest degree save a vast amount of animal and human labor in the production of our products, sugar and cotton.

Messrs. Fowler & Co. have introduced their plows throughout England and in Egypt, and we are informed hundreds of them are now being worked by the Arabs and Bedouins in the valley of the Nile, preparing the soil for the crop of this year. Mr. Eyth, the engineer, accompanying the engine, informs us that as soon as all the parts of the machine are landed from the vessel, an exhibition of its working will be given, in the vicinity of the city, to afford an opportunity for our planting friends and others to see it in operation, and to test its power and suitability for the great agricultural district of the Mississippi valley.—*New Orleans Weekly Times.*

KICKING COWS.—J. J. Watson writes the New England Farmer in this wise: I had a kicking heifer—a perfect kangaroo. I tried moral suasion—no use; then retaliation—when she kicked, I kicked—she grew worse and I no better. I then "tied her up," but that didn't affect her hind legs—she spilled her milk—she jammed the pail—she rapped my shins. I was then advised to take up one fore foot and slip a short strap over her knee, so as to compel her to stand on three legs, being "tied up," of course. This done, cut your nails, and milk at your leisure. She can't hurt you, and will "come to her milk," and give up kicking.

☞A Scotch paper says a farmer in that county found two lambs in a culvert where they had been, without any food, for twenty-one days. A third lamb had died, but these two were still alive, although very weak.

☞The plan of planting a few acres with forest trees, to be used as fuel, and allowed to grow up again, thus furnishing a perpetual supply, is strongly recommended to prairie farmers by some recent writers.

Sunday Reading.

Imagination cannot form to itself a more exquisite and affecting piece of scenery than that exhibited by Solomon in the book of Proverbs. In his seventh chapter, he introduces the world, by its meretricious blandishments, alluring the unwary to the chamber of destruction. In the succeeding chapter, by way of perfect contrast, appears in the beauty and majesty of holiness the Son of the Father, the true and eternal Wisdom of God, with all the tender love and affectionate concern of a parent, inviting men to substantial joys and enduring pleasures of immortality, in the house of Salvation.

The *high mountain* and *the pinnacle of the Temple* seem to point to Satan's chief temptation, the sin of *pride*, whereby he himself fell, and wherewith he seeks to make havoc of our souls, in things sacred, even in the very temple of God. How difficult it is, yea, impossible to mortal man, to stand unmoved on the high places of the earth, so as to say, "I refrain my soul and keep it low." "Get thee behind me, Satan."

How is it possible for God to make an intelligent creature to receive its happiness from anything, but Himself, since this would not only be giving His glory to another, but in some sort an annihilation of Himself? For, whatever constitutes, or confers our happiness, will, in the reason of the thing, be our God, and we cannot be persuaded to place our desires, to pay our homage anywhere else.

Consider four things; Christ's baptism, His departure into the wilderness, His fasting, and lastly, His contest and conquest over the Tempter and temptation. In the first, we call to mind our regeneration in the fountain of grace; in the second, our departure from the vanities of the world; in the third, the mortification of the flesh; in the fourth, how to resist the enemy.

He, that brought ruin into the state of man, began the same by eating; but He, that brought recovery into the ruinated state of Adam, began the same by fasting. He fasted *days* and *nights*; whence we may gather that we must be armed against the tempter, as well in the days of prosperity, as nights of adversity.

All the sayings, syllables, accents, and dots in the Divine Scriptures are full of meaning.

Had Hercules sat at home by the fireside, and passed his life in effeminate ease and indulgence, he had never been Hercules. They were the lion, the hydra, the boar, and all those monsters he so laboriously defeated, which exercised his gallantry. What honor had he acquired, if his virtue had not been thus dangerously employed? What benefit had mankind reaped from so great a soul, if he had declined the occasions of exerting it?

We are, by nature, half angel, half brute. We must rise towards the one, or sink towards the other; and at length, associate to all eternity either with angels or devils. To feed, to strengthen, to exercise, the spiritual part of us, is to rise. To feed, to strengthen, to exercise the brutal part, is to sink and be lost forever. "We lost the innocence and dignity of nature by eating," says Athanasius, "and must restore ourselves by abstinence."

Before you begin your psalm of praise and rejoicing in God, make this use of your imagination: Be still, and imagine, that you saw *the heavens open*, and the glorious choirs of the Cherubim and Seraphim about the throne of God. Think upon this, till your imagination has carried you above the clouds, till it has placed you amongst those heavenly beings, and made you long to bear part in their eternal music.

I suppose, that in the baptism of Christ, the mystery of all our baptisms was visibly acted; and that God says to every one truly baptized, as He said to Him, (in a proportionable sense,) "Thou art my Son, in whom I am well pleased."

Jesus is cleansed; and dost thou despise purification? By John, and dost thou say ought against thy teacher? At thirty years old; but dost thou in teaching precede thy elders?

Prayer is the way to have *heaven* upon earth, and to have some foretastes of the grapes of Canaan, whilst we are in the wilderness of the world, before we get a full meal of them.

It is a great deal easier to commit the second sin than it was to commit the first; and a great deal harder to repent of a second than it was to repent of the first.

Prayer tranquillizes and cleanses the soul, so as to render it more fit for the reception of God's gifts.

THE MARYLAND AGRICULTURAL COLLEGE.—The duties of this Institution will be resumed on Monday, 25th day of March. (See Advertisement.)

☞Attention is called to the large public sale at the farm of J. Howard McHenry, Esq., near Pikesville, Md., on the 3d and 4th April. See advertisement.

Baltimore Markets, Feb. 23, 1867.

COFFEE.—Rio, 17¼a19 cts. gold, according to quality. Laguayra 17¼a18¼, and Java 25a25¼ cts. gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	30	—
Good do	30	—
Low Middling	31	—
Middling	32¼	—

FERTILIZERS.—Peruvian Guano, $82; Reese & Co's Soluble Pacific Guano, $65; Flour of Bone, $60; G. Ober's Kettlewells) AA Manipulated, $70; A do., $60; Ammoniated Alkaline Phosphate, $55; Alkaline Phosphate, $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56; Maryland Powder of Bone, $50; Andrew Coe's Super-Phosphate of Lime, $60; —all per ton of 2 000 lbs.; Pure Ground Plaster, $13.50a $14.00 per ton, or $2 50 per bbl. Shell Lime, slacked, 6c., unslacked, 10c. per bushel, at kilns.

FISH.—*Mackerel.*—No. 1, $19a21; No. 2, $16 50a17 50; large, No. 3, $14a15. *Herrings* —Labrador, $6a7; Potomac and Susquehanna, ——; Codfish, 5¼a6¼ cts. per lb.

FLOUR.—Howard Street Super and Cut Extra, $10.50a $11.00; Family, $14.10a16.00; City Mills Super, $10.25a 11.50; Baltimore Family, $17.50.

Rye Flour and Corn Meal.—Rye Flour, new, $6.75a 7 25; Corn Meal, $4.62a4.75.

GRAIN.—*Wheat.*—Good to prime Red, $3 00a3.10; White, $3.30.

Rye.—$1.25 per bushel.

Oats.—Heavy to light—ranging as to character from 55 a58c. per bushel—bulk.

Corn.—White, 93a96 cts.; Yellow, 93a96 cts. per bushel.

HAY AND STRAW.—Timothy $25a27, and Rye Straw $27 per ton.

BEANS.—$3.00a3.25 as to quality.

POTATOES.—$1.00 per bushel.

PROVISIONS.—*Bacon.*—Shoulders, 11a12 cts.; Sides, 12a13; Hams, plain bagged, 16 cts.; sugar cured, 17 cts. per lb.

SALT.—Liverpool Ground Alum, $2.20a2.25; Fine, $3 25; Turk's Island, 60a63c. per bushel.

SEEDS.—Clover, held at $8.50a9.50; Timothy, $3.75a 4 00; Flaxseed, $2 75a$2.80.

TOBACCO.—We give the range of prices as follows:

Maryland.	
Frosted to common	$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10.00a15.00
Fancy	17.00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00

Ohio.	
Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.25a2.30 per gallon, in barrels.

WOOL —We quote; Unwashed, 25a27 cts. per lb.; Tub-washed, 45a57 cts.; Fleece, common, 40a45 cts.; Pulled, No. 1, 28a33 cts.; Merino, 37a40 cts.

CATTLE MARKET.—Common, $5 50a$6.25; Good, $7a $7.25. Prime Beeves, $7.50a8.00 per 100 lbs.

Sheep—7¼a8¼ cents per lb. gross.

Hogs—$10.50a11.25 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Feb. 23, 1867.

BUTTER —Ohio, in brls. and kegs, 20 to 25 cts; Roll, 30 to 33; Virginia and Pennsylvania in kegs and tubs, 20 to 25; Glades, 25 to 43; Goshen, 45 to 50.

BEESWAX—43 cts.

CHEESE.—Eastern, 20; Western, 18.

DRIED FRUIT.—Apples, 10; Peaches, 17.

EGGS—In barrels, 40 cents per dozen.

FEATHERS—80 cents for good Southern.

LARD.—Brls. 13, kegs 13½, jars and other country packages 14 cents.

TALLOW.—11¼ cents.

CONTENTS OF THE MARCH NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, APRIL, 1867. Vol. I.—No. 10.

APRIL.

"Fled now the sullen murmers of the north,
The splendid raiment of the spring peeps forth;
Her universal green, and the clear sky,
Delight, still more and more, the gazing eye.
Wide o'er the fields, in rising moisture strong,
Shoots up the simple flower, or creeps along
The mellowed soil."

Farm Work for the Month.

SOWING OATS.

The work to be first despatched is the sowing of oats, and other spring grains not yet disposed of. The wet weather continued so long into March, has delayed the early spring work, and redoubled energy will be needed to bring it up. Let the oats be sowed at the earliest period practicable, and the grass seeds at the same time, immediately after the harrowing, and to be followed by the roller.

CORN PREPARATION.

We should not wish, under ordinary circumstances, to begin the planting of corn during this month, in this latitude. The first week of May is time enough. But the work of preparation must be accomplished by the close of the month, that there may be no delay when the right time comes.

Let it be considered that a due preparation of the ground now is not only much better for the crop, but saves a great deal of summer work, when time is more precious, and work more oppressive. There is no fact better established than the value of completing the work of the corn field much earlier than is done in our common practice. If we only turn the sod, and then make our marks for planting, a very large portion of the proper work of preparation is left for the time in which the working of the crop should be accomplished, and this is necessarily carried so late into the summer, that the crop is damaged by the very means we take to make it. This valuable crop is so accommodating, that it admits of having liberties taken with it, and we commit it to the ground on a degree of preparation which tobacco and other crops would by no means admit of. To do it ample justice, turn the sod well, and roll and harrow till there is a good seed bed. Then the laying off and crossing is done without disturbing the bed, and the after working is completed before the earing begins, instead of being carried into and beyond the wheat harvest.

To be able to plant close enough to make a full crop, early working and early "laying by" are essential.

MANURING.

Whatever manures are to be used, the earlier they are got upon the ground the better, that they may be submitted to the solvent action of spring rains. There is often, we think, much loss by too long delay in this matter. Apply early, and keep them near the surface. For manuring corn in the hill, some well prepared compost of plaster, ashes, and rich mould, or poultry house manure, with little plaster, or good superphosphate, or mixed guanos, should be prepared. Where it is not practicable to give the land a sufficient broadcast manuring, it is very desirable to have it manured in the hill. Indeed, under any circumstances, and with seeds of every kind, a little fertilizing material in immediate contact with seed is advisable, to give the young plant a vigorous start.

TOBACCO BEDS.

As soon as the plants are started, give them a dressing of rich compost, or some other fertilizer, to be repeated every ten days. Their security from the fly is dependent mainly on their vigorous growth. When grass and weeds are well started, have the beds very thoroughly picked, and follow with a top-dressing. The plants being well up, to dress frequently with small applications of manure, and keep them free of grass, are the essentials of good management.

TOBACCO IN THE HOUSE.

Continue to prepare for market, as heretofore directed, taking care that the bulks do not heat and acquire a bad smell, which no after treatment will get rid of.

CLOVER SEED.

Wheat fields, not yet sown with clover, will be benefitted, when not too much crusted, nor too wet, by harrowing with a heavy drag. Immediately after this sow clover seed, and follow with roller. On the oat field, sow clover seeds on the surface, after the oats are put in, and follow with roller.

PLASTER.

Plaster should be sown, if possible, during this month, on last spring's sowing of clover; and on the new seeding, when it shows the third leaf.

GATES AND FENCING.

Let there be no further delay in having these all put in best condition. The safety of crops will depend upon them, and the busiest working season should not be taxed with what should have been much earlier done.

SWEET POTATOES.

There is no root crop so profitable, perhaps, as the sweet potato, except for the difficulty of preserving it for winter use. Where there is convenient transportation, or where it may get the advantage of the summer and fall market, the price which it commonly brings should make it a favorite crop, and the refuse may at all times be profitably consumed by cows or hogs.

The potatoes from which plants are to be grown for future transplanting, should now be laid down. If convenient to use glass, as it may be where a small crop is grown, it will bring them forward earlier; but this is not necessary. A friend near Norfolk, Va., gave us, some years ago, his method of preparing beds for raising plants for a large crop. We plough up the place intended for the bed, six feet wide, running in length east and west; this we plough up to the depth of twelve inches, and throw out the dirt on each side of the intended bed. This trench we fill with leaves from the woods, corn stalks, or wheat straw—the last being preferred. This we have well trodden down, and put on top of it fresh stable manure, about six inches thick, which must also be well trodden and packed. The sides are then straightened up and dirt packed against them as high as the manure. We then put on top of the manure about two inches of wood's mould, which being levelled, the bed is prepared for the slips. Lay these cross-wise of the bed, about an inch apart, and cover with fine wood's mould about an inch in depth. We usually have fine straw on each side of the bed, with which we cover up every night, or on the approach of rain, which it is necessary to keep off till the slips have sprouted well. After they make their appearance above the covering, we add another inch of mould, and after they appear through this, another still, which is enough.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER, Maryland Agricultural College.

APRIL.

Continue to spade into the soil all refuse vegetable matter, and where practicable, strew it over with lime, to hasten the decomposition. It is much better to bury all such matter at once, than to lay it on heaps, where it loses all its most fertilizing properties. When placed beneath the surface of the soil the greater part of the gases will be retained, till again taken up in combination with water by the roots of the plants. Seeds not yet planted should be got in as early as practicable, otherwise a whole season may be sacrificed. Great activity will now be required in hoeing and cleaning; weeds will grow apace, and the annual grasses, &c., if allowed to gain the ascendancy now, will scatter much seed and be a constant annoyance during the whole of the season afterwards.

ASPARAGUS.—The young plants will now be in a good state for planting in beds, which, according to former directions, should be in a good state to receive them.

BEETS.—Sow the early Red Bassano, and the Castelnaudary for a full crop.

CELERY.—Sow on a warm border, which will come up in good time to make good plants for fall supply. Transplant, upon a bed three parts rotten dung and one part loam, the plants from the first sowings.

Cabbage.—A sowing of two or three kinds now will furnish a supply of useful plants to fill up vacant plots, as summer crops are taken off. The Winningstadt is a capital one to sow now to fill up gaps, as it may be planted as close as sixteen inches. Premium, Flat Dutch, Stone Mason, and Drumhead Savoy are kinds that should be largely relied upon.

Cauliflowers.—Continue to plant out the strongest plants from the stock kept through the winter. Those which have been brought on under glass will be getting sufficiently advanced to be benefitted by applications of liquid manure, to keep them in a free growing state. Let the soil be constantly stirred about them.

Beans —The dwarf or bush varieties, such as Early Valentine, Early Yellow Six Weeks, and Dun Cranberry may now be sown. Sow also a few in boxes or pots to make good any that may miss in the rows. Also, from the first week in the month, the pole varieties, such as the old Red Cranberry, Scarlet Runner, and Indian Chief, for stringing; the Large Lima, Horticultural Corn Bean, and Rhode Island Butter Bean, for shelling.

Lettuce—Repeat the sowings of different kinds and thin out and transplant those advancing, as occasion may require.

Onions.—Sow the silver-skinned for pickling; sow very thickly and tread the ground very firmly, using but little soil to cover them.

Potatoes, coming up, should be hoed. Patatoes may still be planted, and any remaining out of the ground should be got in at once.

Parsley.—Sow in a rich border, very thin, and cover the drills with hemlock or cedar branches for about two weeks, then remove the covering, and the young plants will be seen peeping through. This plan hastens the germination of the seed, which is generally very slow.

Peas.—The Champion of England, and Dwarf Blue Imperial, will be found capital kinds to sow now. Hoe between the rows of advancing crops, and draw the earth up each side of the rows; put sticks to those that are sufficiently forward.

Radishes.—Make successional sowings of the turnip rooted varieties, to succeed those sown last month. Small sowings are best, each made as soon as the other is up.

Spinach.—Sow the Round Leaved, to succeed that sown in March. Sow for succession the improved long, purple eggplant, the Early York tomato. bellnose pepper, cucumber, melon-squash, early sweet corn, &c. Give plenty of air to hot-beds, and whenever water is needed, use it in a tepid state. Transplant, or pot, egg-plants, peppers, and tomatoes, and keep them growing vigorously. Thin out all advancing crops as soon as sufficiently advanced. This should always be done in due time, and at two times; in the first instance leave double the number you intend to retain as a permanent crop, to meet accidents to which young seedlings are liable, and then thin them to the proper distance when such danger is considered over.

The Fruit Garden.

Where fine fruit is a desideratum, the thinning out of the branches of peaches, if not previously done, should be attended to forthwith, removing all the foreright wood shoots. As blossom buds appear very thick this year, it is very important to take off a portion of those which are ill placed. As the peach and nectarine advance in age, and require a full complement of wood and circumference alloted them, in order to insure fine fruit, we have found it necessary to pursue the system of thinning out, that the trees may be maintained in a healthy fruit bearing condition, and not weakened by crowding with too much wood. Where disbudding is practiced, it should be proceeded with, more or less, according to the development of vegetation; and this we may expect will now be rapid. Constant attention will be necessary in order that the removal of shoots may be gradual.

New plantations of strawberries (in dry weather) will require an abundance of water. Hoe between the rows of old plantations, taking away, where necessary, some of the longest of the litter, &c., which may have been used as a covering during the winter, then follow with a dressing of lime, using it before an expected shower, that it may be washed into the ground, which we have found to be of great benefit in destroying slugs, and benefitting the plants. Strawberries, in pots, under glass, should have plenty of air, (but no cold draughts) a dry atmosphere, and to be kept near the glass. Plants in fruit must also have plenty of air, in order to get a full flavor. Top-dress raspberries with half decayed barn yard manure. Cut down the autumn bearing raspberries, cut away all suckers but two or three, and give them a top-dressing of manure. These never succeed unless they are kept quite thin. Look over grafted trees, and remove all shoots below the scions. Complete the planting of all fruit trees, strawberry plants, &c. Where grape vines, raspberries, blackberries, &c., are laid down in the autumn, that-

should now be taken up and secured to stakes, &c. Grafting, if not completed, may be continued during the early part of the month. Use every means to destroy and prevent the attacks of insects upon fruit trees, &c. After high winds, look to newly planted trees, and have them well secured to stakes and the earth made firm around them. Apply soap suds and liquid manure to strawberry beds, grape vines, raspberries, peach trees, &c. Any person who has applied liquid manure to his fruit trees, &c., when in a growing state, can have no doubt of the great benefits which they have derived thereby; nevertheless it is surprising how few there are who adopt it.

The Flower Garden.

"Return, Sicilian Muse,
And call the vales, and bid them hither cast
Their bells and flowrets of a thousand hues.
Ye valleys low, where the mild whispers use,
Of shades, and wanton winds, and gushing brooks,
On whose fresh lap the swart star sparely looks,
Throw hither all your quaint enamell'd eyes,
That on the green turf seek the honied showers,
And purple all the ground with vernal flowers."

All operations in the flower garden should be concluded soon as possible; finish, if not already done, the pruning of roses which may have been left unpruned for the purpose of retarding their bloom. Let all flower beds be prepared when the weather is dry. Bedding plants, as verbenas, geraniums, heliotropes, petunias, &c., should be exposed as much as possible, night and day. Be in no haste to plant out, as we may yet have frosts and cold rains. Pot off plants newly rooted, and if convenient, give them the benefit of a hot-bed frame, to induce new roots to form Hollyhocks, planted the beginning of the month, will bloom well this season; the soil for hollyhocks should be deep and rich, and the plants from seeds or cuttings planted last fall. Plant the seeds of annuals, and thin out those sown in March, and the straggling kinds will be benefitted by topping. There are very few who know all that may be done with annuals, by giving a rich soil, plenty of room, and occasionally pinching out the tops of the leading shoots. Pinks and pansies—these should have a rich top-dressing now, taking care to stir the surface of the beds before it is applied. Take advantage of favorable weather for the destruction of weeds, &c., and to get flower borders well cleaned, it will be advisable to run the hoe through these, even if merely to stir the surface. Continue to regulate the stems of advanced herbaceous plants, tying them up if they require it.

Climbing vines, &c, should be frequently looked over and regulated as they advance in growth. Plant out in beds gladiolus roots, Ixias, Ferraria, or Tiger flower, Tritornias, &c. Continue to plant evergreens, taking the precaution to water them well at the time of planting, and occasionally, afterwards, to well mulch the surface, and, if but a few choice plants, to sprinkle the foliage over in the evenings of dry days. These attentions will enable late planted evergreens to grow well in most cases

Grass lawns should now have every neccessary attention, or the consequences will be a burnt up lawn by June, and the predominance of coarse grasses. Proper care of grass lawns not only preserves their beauty for present enjoyment, but improves their quality; frequent mowing tending to waken the coarse grasses, and encourage the finer kinds. A sprinkle of guano where the turf is poor will be very beneficial now. Grass newly from seeds should be handled very carefully, and not rolled till after it has been once mown. It is a good plan to mow seed grass as soon as it is strong enough, and leave the mowings on the ground; the turf will look unsightly for a short time, but it will be immensely benefitted by the mulch of its own material.

Dissolving Bones.—Bones dissolved, or reduced by any process, are one of the best manures, and every farmer can save and dissolve a great many each year if he will only set about it in the following manner: Get a large cask or box—a sugar hogshead is as good as anything—set it out where it will catch all the rain that falls, and into this throw your bones and ashes as fast as you make them; the ashes should be the greater bulk, so that the bones will be completely embedded in the ashes. The rains will keep the mass moist, and the lye will act on the bones, and completely dissolve them in from six to twelve months. Should there not be enough rain fall to thoroughly moisten the whole mass, chamber lye should be added, or water sufficient poured on to make up the deficiency. There should be two casks or boxes, so that when the one is full it may stand while the other is being filled, and in the meantime the bones become thoroughly dissolved. Some say that a little caustic lime added to the ashes, helps to dissolve the bones faster. This I have not tried, but the former I have, and know it to be a good thing: and would advise all to save and prepare the bones on their farms in this simple, easy, and inexpensive way.—*E. A. Riehl, in Farmer's Ad.*

For the "American Farmer."

Intensive and Extensive Farming—Sheep in the Southern States.

French writers, on rural economy, find it convenient to divide practical agriculture into two equally important systems of cultivation. To one is applied the term *intensive* farming, as indicating the concentration of capital, labor and fertilizers on a comparatively small surface, while the other is called *extensive* farming, because labor, capital, and, sometimes, manure, are employed over a wide area. Under favorable circumstances, both systems may be combined, as a brief review of the subject will satisfy the reader.

The want of good roads to cities, on which to convey grain, hay, vegetables and fruits to needy consumers in walled towns, early led to the more thorough and intense working of the soil near them, to avoid famine and the pestilence that ever follows in its train. We know so little of these scourges of antiquity that few appreciate the necessity for improved farming and gardening developed by the rapid growth of cities and villages. While the physical wants of any given number of people remain the same from one generation to another, their social progress may call for a much larger supply *per capita* of agricultural products. When one sees wool and cotton made into carpets for the million, and leather into cushions and covers for carriages, he has occular demonstration of arts and wants, whose demands on rural industry are as boundless as human pride and ambition.

In this country, cities and villages grow much faster than rural population, and as a consequence, the market price of all articles of food for man and beast, and of most raw materials of manufacture, steadily advance from one decade to another. The advance would now be much larger than it is if that part of the continent which belongs to the United States were not so highly favored by navigable rivers, lakes, bays, and by more than thirty thousand miles of working railways. While these facilities for cheap transportation greatly promote the most extensive system of tillage and husbandry, they are perhaps still more efficient in building up both old and new cities, towns and villages, which in turn create local markets for the products of the most intensive farming and fruit growing in their vicinity. The United States' Census Office estimates our population at the close of this century at something over one hundred million souls; and whether we study human progress in Europe or this country, all the indications favor the idea of a great advance in the market value of real estate within the next twenty years. Without disparaging the propriety of concentrating capital, skill and industry, on a rather limited surface, it may not be amiss to refer to some of the advantages of improving large tracts of land by sheep raising and wool growing in the South.

In the first place all must see that we have not capital nor labor to cultivate, with the plough, more than a small fraction of the six hundred million acres in the late slaveholding States, and I respectfully submit to large landholders and others whether it will not give a better income from Southern soil and labor to cultivate the best perennial grasses that grow in Texas, and on the plains east of the Rocky Mountains, as well as the Bermuda, Orchard, and Kentucky blue-grass, (not to name others which the writer knows to be reliable in Georgia and Tennessee,) and raise wool, sheep, and other stock, than to cling to the old system of planting and wearing out plantations? On all rich lands, planting would now pay handsomely with slave labor. But slavery being dead, the important fact can neither be concealed nor denied, that all free laborers, whether white or black, naturally prefer the easy tasks of shepherds, in the care of sheep and cattle, to the prolonged labor in the field in raising cotton, rice, tobacco, or other planting staples. In all hot, summer climates, where tropical plants are extensively cultivated, free men and women are found unreliable as field operatives, and mainly because they are measurably exempt from the stern necessity of being both industrious and faithful to their engagements, which exists in all cold climates. Instead of complaining of this state of things, and sometimes losing money by placing too much confidence in the stability of freedmen, it is better to adapt our agriculture to the instincts and idle habits of the persons with whom we have to deal, and let them be shepherds and shepherdesses in our employment, rather than common field hands.

By a judicious selection of grass adapted to one's soil and climate, permanent pastures may be formed at little expense; and at this time, fair sheep—say half-blood merino—may be bought in the Northern States at about a dollar a head, to be delivered after shearing. There it costs a dollar a year, or more, to keep a sheep, while the writer keeps them in East Tennessee at a cost of some twenty-five cents a head. Limestone, blue-grass lands are cheap here, and equally well adapted to grazing to the best in Kentucky. Poor land will pay better in Bermuda and other grass than in any hoed crop what-

ever, while rich land pays better in meadows, in the South, than in corn or cotton. The fact should be borne in mind, that many cities like Atlanta and Columbia send a thousand miles for the hay yearly consumed. With grass and sheep, one may easily recuperate all old fields, and soon double the value of almost any Southern landed estate. In making annual crops of wool and mutton, sheep operate on the *extensive* system of good husbandry—drawing nourishment daily from mountain sides, hills, plains, valleys, and coves. Where they rest at night, in yards or folds, and drop the residuum of their food, (on poor land it may be,) they foster the most *intensive* system of tillage in root crops, grain, or cotton, by supplying largely the best manures, which cost nothing; and where sheep are properly kept, needs no hauling or spreading. These hints are probably sufficient to indicate the fact that either the Southern grasses of Texas and the West India Islands, or those of Europe and the Northern States, will grow on nearly every acre of Southern soil, and pay a better income than planting ever can, take one year with another, and depend on free laborers. Texas has four species of "mesquite," which deserve a trial in all the cotton States. The writer has tried one of these, and Bermuda grass, in Georgia, with satisfactory results.

Gap Creek, Knox Co., Tenn. D. LEE.

For the "American Farmer."

The Range of Bees' Flight.

This is a subject of great importance to bee keepers, as it has been supposed that bees fly only about three (3) miles when collecting honey, consequently there was a fear lest the apiary might be overstocked.

Having ascertained that there was no bees on Kelley's Island, (Lake Erie,) in the spring of 1866, we established an apiary of the Italians there, for the purpose of rearing more Italian queens, and ascertaining the flight of the Italians for food. In less than a week after they commenced flying there, they were at work on the opposite end of the Island more than five (5) miles from their hives. This season we shall carry some of the Italians out on the water, in a bee hunting box, and ascertain just how far they will work to and from the hives or feed. We are of the opinion, however, that they will not work as far on the water as on the land, where there is a continuous supply of flowers to lead them off from the apiary. We will report further at the close of the season.

W. A. FLANDERS & Co.

Shelby, Ohio, Feb. 23, 1867.

Farming and Clover in Northwest Georgia.

Editors of American Farmer:

Inclosed find two dollars ($2,) my subscription for that old and valuable monthly the *American Farmer*. Pardon me for not remitting the money sooner; I have been waiting to get subscribers is one excuse for the delay, and I hope soon to send you some new names as I have had the promise of several to whom the paper has been shown. I am anxious to see a large circulation of the *Farmer* in this country. It will be of great value to the farmers here now that they have turned their attention to raising grain and grasses instead of cotton.

Clover grows here to a greater perfection than any place I have ever seen, keeping green and growing all winter, supporting cattle and keeping them in good order, with but very little of other food. You will recollect that when I removed to this country from Maryland, my neighbors tried to discourage me from raising clover, alleging that it would not grow in the South. Nevertheless, I sowed it, and it has far exceeded my expectations—growing on poor land as well as rich. In this country it is an evergreen, and grows all the year, and when once sown need not be repeated. The fields I first sowed are still beautifully set. Though they have been planted in corn, the culture of the corn crop has not destroyed its growth. If sown in wheat in the fall, the clover comes up in the spring and yields a better sward than when first sown. It far exceeds cotton, wheat, or corn, in value. The crop of hay will bring more than either the above named crops. As a pasture, it is equal, and as a fertilizer, it is of more value, than anything raised in the South. Many farmers have settled in this country, from Virginia and other farming States, and I know of no country that offers better inducements to good farmers than Northwest Georgia. You may hear from me again.

Respectfully,

Kingston, Cass Co., Ga. A. B. BEST.

The above, from a valued correspondent, was, by accident, mislaid, after its receipt, and has just reappeared. This is the gentlemen we have heretofore alluded to, who, when he went to Georgia, determined to sow clover seed "every month in the year," until he ascertained the right time. We hope to hear from him again, and often. [ED.]

☞ It has been estimated that the money loss to England by the cattle plague has been $17,865 in gold.

For the "American Farmer."

The Protective Tariff Bill.

Messrs. Editors: There is at present no object more worthy of public attention than the protective tariff bill, which our wise Congress is trying to patch up. It is astonishing to me, that none of our able agricultural writers have taken up their pen to defeat this unjust, and for our country *ruinous* law. A protective tariff is a *curse* to any country where *agriculture* is *dominating*. Read history, go to any country where such exist, and you will find progress *slow*, or even at a *stand still*. Can a more *unjust* and *senseless* law be made than such as compels about 24,000,000 of people to pay protective duty to enrich about 1,000,000 of manufacturers? Even the laborers who work for them must, out of their scanty earnings, pay the toll to enrich their rich masters more and more. How much better would these laborers and their families fare, if they went West, where they, in a few years, by industry, would gain an independence, whereas they in their present position remain at the mercy of their hard masters until the grave embraces them. Why *force* our country to become a manufacturing country? No country, with *ample* and *rich* soil like *ours*, should ever attempt to favor manufactories beyond such as can exist without protection. The time to do so may arrive, but not until hundreds of years have passed and the population has increased beyond the capacity of supporting them by agriculture; *then* artificial means are required to procure bread. Look at England! In spite of her riches and influence all over the world, what would become of the queen of the seas, if she was to be involved in a war of years' standing? What would become of her, if her artificially created industry did not find a market *all over* the world? She would perish to death by hunger! And why? because her population, kept at an unnatural height by her factories, would not be *able* to *make* or *find* their bread in their native country. What can induce a country like ours to create such a state of things? Nothing, gentlemen, but the *individual interest* of *most* of the men who advocate the protective tariff bill. Agriculture is the mother of our country! It cannot be denied. Point at any man in the United States, I do not care what his position or occupation is, if agriculture fails, he is bound to fail. Lawyers, doctors, merchants, ministers, mechanics and laborers, all would suffer, because they now are living by the products of agriculture, *direct* or *indirect*. And why now shall we submit to the more than unjust treatment of this most important class of our citizens, by a protective tariff for the manufacturers? Protective tariff men will say, we also protect the agricultural interest by laying a duty on wool, flax, hemp, &c., &c. No, you do not, gentlemen; your protection of agriculture is a mere humbug. By your protection you only help the farmer to pay a *small part* of the high rates he has to pay the manufacturers for their articles. For instance, you give the farmer by your tariff a protection of 13 cents on a pound of wool, which raises the price per pound to 46 cents from 33 cents before the war. Well, before the war he bought—to mention only a few articles—his calico for 12½ cents a yard, now he has to pay 25 cents for the very poorest kind. Before the war he bought a yard of cloth for $1, for which he now has to pay $2.50. Before the war he bought a keg of nails for $3, now he has to pay from $7 to $8. The average increase in price for agricultural products does not exceed 75 per cent., while his expenses, to obtain the same articles he used before the war, are increased from 100 to 150 per cent. Look at the labor he employs. Before the war he could hire help at $12 to $15 per month, and have plenty. Now, as the statistics of the Agricultural Department show, he has to pay an average of $28 per month, and scarce at that. Before the war, he paid a mechanic from $1 to $1.50 per day. Now, he has to pay $3. If this increase of expenses contributed to improve the situation of the laboring class, he would, any how, have *some* consolation, but it does not. The laborer has to spend as much more now than he did before the war as the increase of his earnings. The reason? Because he has to pay about 100 per cent. more now than then for the necessities of life. Doctors, lawyers, &c., &c., charge higher now than then, pleading, as a very good excuse, the high taxes. Merchants charge from one half to one quarter of a per cent more, pleading, for an excuse, enormous taxes. So you see that the taxes on all other branches of society fall back, direct or indirect, on the agricultural population. But how are we to obtain money for the Government treasury? asks the protective tariff bill men. Very simply, gentlemen, by *comparatively free trade and direct taxation!* Our debt is, say $4,000,000,000, on which we have to pay an average interest of about 7 per cent., makes $280,000,000 per annum. I have not taken the time to ascertain the statistic wealth of the United States, but I certainly remain far below reality, if I put it at $100,000,000,000. Suppose a tax of one half of one per cent. per annum was levied on this amount, it would make the sum of $500,000,000, sufficient to pay the interest on our debt and besides $220,000,000 an-

nually of the principal. Through this system we also would be enabled to abolish the internal revenue, a still more hateful and injurious institution than the protective tariff. Also, this tax falls back on the consumer. This would enable us to do away with the whole host of internal revenue officers and half of the custom house officers who now absorb about 20 per cent. of all the taxes now gathered, besides millions that are lost by fraud. But the *greatest blessing* derived from the abolishment of these heinous taxes would be the *improvement* of the *morality* of the people. The taxes abolished, the temptation to avoid or break the law for sake of gain would be removed.

L. A. HANSEN, SR.

Clifton, Fairfax Co., Va., March, 1867.

For the "American Farmer."

Answer to Inquiries from Cumberland County, North Carolina.

Your case is rather a hard one, but work and patience will make you succeed. Although you think draining will cost too much, still it is the *base* of your operations for improvement. Even if converted into a meadow, you will have to protect the land from surplus water; if not, the artificial grasses you sow will be supplanted by wild grasses, not fit for cattle food.

Well, you have to commence with draining say a ditch eighteen inches wide and from twelve to eighteen inches deep, every thirty feet, more or less, according to circumstances. When dry enough, trench-plough in the fall, throwing the furrow to the centre, and let the land lie in this rough state until spring. As soon as it is in fair working condition, harrow it *perfectly* even: spread a good layer of lime and harrow again. Let it remain in this state for about three weeks. Then sow oats, two bushels to an acre, work with a cultivator, sow three hundred pounds of Peruvian guano per acre, and harrow well. If the land is cloddy, roll with a heavy roller and harrow again. This done, sow the following mixture of grass seeds:

Phleum pratense, (timothy)	8 lbs.
Aira cœspitisa, (hassock grass)	8 "
Poa aquatica (water meadow grass)	8 "
Phalaris arundinacea, (reed canary grass)	8 "
Holcus lanatus, (meadow soft grass)	8 "
Trifolium repens, (white clover)	4 "

and roll, if the land is not inclined to bake.

After the oats are cut, mulch the young grass with some rotten manure or compost. This will, if no particular unfavorable circumstances occur, secure you a good stand of grass. If some spots should fail, which you will be able to observe after the oats are cut, you may harrow such places and sow some grass seed on these spots before you mulch. Cattle must, under no circumstances, be allowed in the field. In fact, cattle should never be grazed on fields intended for meadow, but the aftermath be allowed to rot on the land. It is manure, and protects the plants against frost.

By securing a good stand of artificial grasses, the wild grasses will disappear. To keep up this meadow, you will have to mulch it every other spring. Fall mulching would be preferable, but as the land may be subject to overflowing, it would be useless and a waste of manure.

In regard to your questions about keeping cows for making butter, I can inform you that it will pay even if you have to sell butter at thirty cents a pound. My dairy-book shows that I have made a pound of butter from every four gallons of milk. At a low calculation, a cow, well kept, will yield six hundred gallons of milk in eight months, so you can make your own calculation. The best cows for milk are the Ayreshires. For milk and fattening combined, the Durham, crossed with polled Galloway, and again crossed with Durham.

I forgot to mention that if your land is located so as to allow subsoil drainage, from two and a half to three feet deep, it would pay better by far than any surface drainage. But I suppose it is too low.

L. A. H.

Clifton, Fairfax Co., Va.

EFFECTS OF PEARLASH.—If our friends can in any way teach their wives, daughters, or cooks, to keep the pearlash out of their bread, all the yellow people, especially the yellow children, who are supposed to be turned yellow by the fever and ague, and bilious fevers, will soon be turned white. It is a great mistake to suppose that the yellow countenances of the West come from bile, when it is the enormous quantity of pearlash eaten in the bread that is reflected through the skin. Bread is the staff of life, it is said—and so it is—but it is the staff of death, too, in this country. Bad bread kills about as many people here as bad rum. So many people eat poisonous pearlash for bread that they die by inches. Dyspepsia, that great monster disease of the country, that deranges the liver, brings on costiveness, and thus finally kills the human victim, is half the time "pearlash." Here in the East—out of New England—we have driven off the pearlash-saleratus cooks, but not altogether. Pearlash lives here yet in bread, but in cities and towns we have nearly whipped out the murderers. In the distant Western towns, beyond the good hotels of the lakes and rivers, Pearlash, under the name of Saleratus, is King. It is not any wonder, then, that the people of the East turn yellow West, and sicken, not of fever and ague, bilious and congestive fevers, but of pearlash three times a day.—*Journal of Applied Chemistry.*

For the "American Farmer."

What shall we do with our Farms?

DINWIDDIE, March 7, 1867.

Mr. Editor:

The unexpected and rapid revolution which has come upon us of the South, in completely changing our system of labor, has apparently thrown all "at sea," and no man seems to know where he will drift. Some are looking in the distance in anticipation that some craft may heave in sight, and rescue a drowning man; others are catching at every imaginary object which presents itself, allured with the hope of getting something tangible, which may for the time at least stay his approaching end; others again, less hopeful, are making only the efforts of the last struggles, contending with the waves of disappointment and misfortune, and must of necessity soon perish. But there is a large class, whose picture, although clouded by the sorrows of past misfortune, can yet show at times a bright spot, who have struck out for the shore, trusting in the guidance and direction of a Divine Providence, who will lead them to a haven of rest. The Southern people are overburdened with land; the taxes upon this land *must* be paid, the labor to cultivate this land *cannot* be obtained, and now the question is, what must be done? I have not the vanity to believe that I can solve this question satisfactorily to all, but as it is from the interchange of views that great truths are established, I propose to lay before your readers what I conceive to be our better policy. There are some questions of vital importance to the landholders to be propounded and answered before he enters upon the first principles of the plan I propose. 1. Do his liabilities justify even an attempt to retain all the land he has? 2. Is it desirable or possible to be made profitable to keep his land? If he gives a negative answer to the former, then he should avail himself of every opportunity to dispose of his land to the best advantage of his creditors; for a man burdened with debt is far worse off than a man burdened with land. If he gives a negative answer to the latter, then let him dispose of so much of his land as will justify him in making the rest both desirable and profitable. Suppose, however, he can answer but in the affirmative, the question arises what must be done? In laying before your readers the plan I propose, I am not unmindful that I shall have opposition, for I see already, in the last number of the *American Farmer*, different views expressed. It should be the object of every farmer at present to have as much of his land cultivated as possible, with an eye to its future improvement, and to do this is the sheet anchor of our future success. The man who can devise the best means to this end, is our greatest benefactor; and it must be done by council or advice one with another. Our landed estates must be divided into smaller farms, each farm having a comfortable and neat residence for its tenant; and every inducement we offer in the way of conveniences tends so much towards getting desirable tenants. Now, who must be the tenants? Not the negroes, for it is an axiom well established that they are incapable of successfully managing even a small farm profitably to themselves and to the owner. They have never been thrown upon their own resources, but have only executed what was devised by wiser heads. What they may in the future become, time will only show; but at present they are certainly unprofitable tenants, when left to their own plans. We must then look to a higher order of talent, and a race imbued with a higher order of moral principles. The negro must inevitably be the laboring class among us for the present, as the whites of the South have not been accustomed to the physical fatigue requisite for agricultural pursuits; so the white man must plan and the negro execute as in former times, until the whites become accustomed to assume all the responsibilities and withstand all the hardships of a farm; then they will be independent of the negro, and rather than be vexed and annoyed by them, will prefer, and even take pleasure, in making his bread by the sweat of his own brow. These small farms then must have white tenants —sober, industrious and honest—who will not only plan but work so far as he is able. He can employ as many negroes as are necessary, with his own labor, to work the farm successfully. He must be encouraged by his landlord, by the liberal inducements offered for improvement, and, as before stated, all the conveniences that can be readily furnished. He must have an interest in the farm for at least three years, and as much longer as possible. We must not expect to get the full value of our lands the first year in part of the crop or money, but must take into consideration the additional improvements in land, &c. It is useless to talk to us about the success of Yankee farming; we must have a system of our own, and we must have concert of action; have our agricultural societies; go, and carry our tenants; read, and write for our agricultural journals; theorize, and practice our principles, and let our neighbors know, by precept and example, what we are doing.

B. P. R.

For the "American Farmer"

Potatoes—Seed vs. Butt Ends,

With some General Remarks.

Reader, have you ever tested the matter, to ascertain which will yield the larger crop, seed or butt ends, cut so as the weights will be about equal. If so, you doubtless ascertained that the butt ends had considerably the advantage, both in quantity and quality, and were also some two weeks earlier. Why is this so? I answer, simply because the seed ends have more eyes and send forth a superabundance of shoots. Some years ago, I read in a Patent Office report where a parcel of potatoes that had been cut three or four days, and as a consequence considerably shrivelled, exceeded largely in amount a parcel that were planted fresh. My curiosity being excited upon this subject, I was led to try a number of experiments in order to ascertain the cause of this singular phenomenon. Without giving a detailed history of my operations, I ascertained that the cause was simply owing to the fact that the shrivelled portion sent forth fewer tubers. Upon this same principle we can readily account why butt ends exceed seed ends. After this, I improved my product largely, both in quantity and quality, by throwing out the tubers, leaving but a single stalk at a place. I have thus had seven single plants to fill a half bushel, eight would heap it, and the joint product of two plants weighed eleven pounds. The extra tubers can readily be transplanted and make a fine yield. They are more hardy for transplanting than the sweet potato, and yield equally as well.

Potatoes, as a general thing, are crowded too much for a large yield. A single tuber for every two feet square I think is sufficiently close, where the ground is rich, and I am not certain but a greater distance would not result advantageously. The most, however, that can be done now is to thin out your present crops.

MANURES.

Common wood ashes and barn yard manure, applied separately, perhaps suit the potato as well as any other manure.

JUNE PLANTING.

In the province of Ecuador, in South America, they, perhaps, raise the finest potatoes in the world. The climate there, generally, is about 80 degrees, varying but few over or under throughout the year. By planting in June, from the 15th to the 20th, and littering heavily, so as to protect the ground from the heat of the sun, we approximate the requisite temperature of 80 degrees, as the potatoes acquire the most of their growth in September and October. Potatoes planted at this time, and covered with leaves or straw to the depth of six or eight inches, will present a much smoother appearance than those maturing in midsummer. I am also confident that the yield is much larger, other things being equal.

PREPARATION OF THE LAND.

A green crop of rye, oats, clover, or any thing of the kind turned under about the middle of May, will greatly increase the potato crop. If this same crop be guanoed heavily, so as to make a large growth, so much the better. I have tried guanoes for the green crop and barn yard manure and ashes before planting, with the best of results. In fact, by this method of manuring and thinning according to directions elsewhere given. I invariably took the first premium wherever I entered my articles. For a large yield. June planting has decidedly the preference.

Respectfully, &c., N. C.

For the "American Farmer."

Fire-Fanged Manure.

This is manure that has been thrown in heaps "to rot," to use a familiar term of the farmer, and has undergone a high process of heating, and has assumed a whitish, mouldy appearance. It is also very light as compared with other manures. Few farmers are aware of the immense loss that is thus sustained. In a careful experiment, I ascertained that unheated barn yard manure increased a sweet potato crop a little over 100 per cent., while an equal quantity of fire-fanged made no appreciable difference. I am clearly of the opinion that a sufficient loss is thus sustained annually to pay the entire taxes of the people, or at least in the Southern States, not having much knowledge of what is done North. The fertilizing qualities, principally ammonia, are thus driven off, after which your manure is an inert mass scarcely worth carting to a field. Therefore use at once, or if it be necessary to bulk, use loam as a compost, so as to prevent heating. Respectfully, &c., N. C.

AGE OF SHEEP—HOW DETERMINED.—The age of sheep may be known by the front teeth. They are eight in number and appear all of a size. In the second year the two middle ones fall out, and their place is supplied by two large ones. In the third year a small tooth on each side. In the fourth year the large teeth are six in number. In the fifth year the whole begin to get worn. In the seventh year the whole fall out or are broken. It is said that the teeth of ewes begin to decay at five or six; those of wethers at seven.

Artificial Manures.

BY W. WALLACE FYFE.

[A Lecture delivered to the students of the Royal Agricultural College, Circencester.]

[CONCLUDED.]

Sulphate of lime, or gypsum, is the most abundant of all the natural sulphates of earths or metals. Very large quantities of the pure gypsum, quarried in Derbyshire, Mr. Parr tells us, (Letters to the Farmers,) in an unburnt state and ground to powder, are sent to London, not only for adulterating flour, sugar, lozenges, &c., but for mixing with Peruvian guano, which it is supposed, by some, to render genuine by taking a pound or two of value off the ton. This adulteration is carried to an incredible extent. Chemically, the composition of gypsum consists of twenty-eight parts lime, forty parts sulphuric acid, and eighteen of water. Hence it is capable of supplying to plants lime, sulphur, and sulphuric acid. In a burnt state, when it has lost all its water, it is the well-known plaster of Paris. Burnt gypsum dissolves less readily than unburnt, and much water is in both instances required, since a gallon of water will not take up into solution exceeding three drachms of unburnt gypsum. A dressing of three cwt. per acre will benefit clover in some kinds of land, as it will other green crops requiring sulphur. As an addition to the dung heap, gypsum, in small quantities, is an important agent in fixing ammonia. It is, however, better suited as a fixer in the liquid manure tank, since it acts only in the presence of an excess of moisture. Agricultural salt, an article cheaply, extensively, and, it would appear, effectively used as a top dressing upon pasture, is by no means a pure material; but presented to us in the less concentrated form in which it is thus mixed up with impurities, it is the better adapted for a manure. Mr. Duckham uses it extensively on his pastures in Herefordshire; but he has informed me that, though the results, in the appearance and increase of the herbage, have been very marked, the use of it is attended with a serious risk to breeding ewes, which cannot be too widely known. This fact in his experience he has had confirmed to him by that of the agent for a nobleman in Wales, and of another practical farmer in a different part of the country; so that there can be no doubt that where salt has been applied upon the pastures, the cause of ewes either dropping their lambs prematurely, or, if going to maturity, bringing forth a diminutive and weakly offspring, has been, in these three instances, traced to the employment of salt as a dressing for grass. I hold in my hand a most extraordinary pamphlet on "The Use of Salt in Agriculture," being prize essays published by the Salt Chamber of Commerce at Norwich, in which more than enough is certainly said of the value of this application. But without asking you to accept in its integrity a commercial puff of this nature, some of the positions advanced and the conclusions arrived at may, with propriety, be metioned. Thus, it is said that when common salt, through the medium of rain water or otherwise, comes in contact with earthy bases of ammonia, phosphoric and silicic acids, potash, magnesia, &c., originally in the soil, or carried into it through the rain water or manures, it sets the ammonia, phosphoric and silicic acids, potash, &c., free, and makes them at once available for the nourishment of the growing plants. Hence the great importance of bringing salt into the soil to solve or bring into action the dormant fertilizing powers of soil and manures, for larger crops will inevitably follow its proper application. What, then, is its proper application? The first essayist says, "Salt should never be applied with the seed. In cold, heavy, wet, undrained land, salt cannot act by itself, nor in sterile land; and it is only in conjunction with other manures that it may do some good in such unprofitable land. Salt, applied with lime, will always assist the efficacy of the latter. The application of salt upon the breaking up of land, and then afterwards top-dressing in small quantities at different times, will be found the most beneficial and economical way; and it will also get worms, slugs, &c., out of the ground. Salt, applied to compost and manure, will always repay itself many-fold. The mixing of all manures containing either phosphates, potash, or ammonia, with an equal weight of salt, can only tend to make such manures more effective. Repeated top-dressings in spring in small quantities are far preferable to heavy ones at one time." I notice that, according to Dr. Voelcker's analysis, in some experiments on the growth of wheat, that the manure which was most successful in results both as to straw and grain was composed of one-sixth common salt. Now, common salt, or chloride of sodium, exists in all cultivated crops, especially roots—such as turnips and mangold-wurzel—and is therefore necessary to them, especially in places remote from the sea, or screened from the sea winds by hills. The usual influence of the sea-spray is said to extend inshore through seven miles of atmosphere, although in sea storms tree leaves in the direction of the wind have been found coated with salt crystals at twenty miles from the sea. Applied as a top-

dressing, salt invariably increases the weight per bushel of reaped grain, and it is advantageous to mix it with the farmyard manure or the water employed in slaking lime. In the course of our preceding recommendations, we have not failed to commend the use of ashes obtained by burning couch heaps, and even by paring and burning hedge banks and fences, and in every other way that ashes are to be obtained. But it is to the experience of the American farmer that we must have recourse, if we would know the true manurial value of ashes, which, used in our own system simply as an auxiliary, are most conveniently employed in licking up the liquid manure oozings, and economising and distributing their fertilizing influences in a form in which they may thus be handled. A writer in the "Albany Cultivator" mentions having applied forty bushels of ashes per acre to a thin, gravelly soil some years ago, to the manifest improvement of the product. The ground, he says, was ploughed up the next spring for corn and potatoes, and the benefit of the application was plainly seen; the potato vines (as he calls them) withstood the severe drought of that year perfectly, and gave excellent fair potatoes, and the corn was equally benefited. The effect of the application of ashes in quantity is felt for several years. For composting muck, ashes are of much value, nearly equal to lime, bushel for bushel, hastening the decomposition of vegetable matter and fitting it to benefit the soil. Wood-ash, as Johnston points out, contains a portion of common pearl-ash in an impure form, with sulphate also, and silicate of potash; hence the extensive use of wood-ash as a manure in every country where it can be readily obtained. Applied alone, wood-ash is beneficial to clovers, beans, and other leguminosæ. A common turnip manure, extensively employed in this country, consists of wood-ash mixed with bones in equal bulk. The common potash of commerce being obtained by washing common wood-ash with water as long as anything continues to dissolve, the lixurated or washed refuse which accumulates under this process retains behind a large portion of undissolved ash, containing silicate of potash, mixed with silicate, carbonate, and phosphate of lime, and this is found to be a manure remarkably well adapted for oats, being, however, most suitable for clay lands. Laid on to the extent of one or two tons an acre, its effect has been known to last for fifteen or twenty years. In Germany they frequently burn rye straw, and employ the ash as a top-dressing—the dry straw being strewn over the field, burnt, and the ash ploughed in. Johnston urges that the ash of the husk of oats and barley now wasted would prove a valuable top-dressing to meadow land, young corn crops, bog oats, &c.; and mentions one miller in the north who makes two bushels of ash a day from the husks of the oats he grinds. The waste of this ash, he adds, long persevered in, can scarcely have failed slowly to impoverish the land. Dutch ashes are the ashes of peat burned for the purpose of application to the land. The best form of this application is probably, however, the far famed peat charcoal, whose powers, as a fixer of ammonia and liquid manure absorbent, are perfectly unrivalled. At one time peat charcoal promised to have a run—and I know an eminent London market gardener, Mr. Cuthill, author of "The Market Gardens 'round London," and numerous clever practical gardening treatises, who swears by it still. My neighbour, when at home, the Rev. Henry Moule, of Fordington, in vol. xxiv., p. 1, of the "Royal Agricultural Society's Journal," recommends a system of earth closets, which has, after having been successfully tried at many places, been brought before the British Association and Social Science Congress, as carried out at one of the Wiltshire Poor-Law Unions. There is nothing new in Mr. Moule's system, the power of soils to absorb manure having been long familiar; but he claims for himself the merit of having first directed public attention to the repeated action and use of the earth. He has patented an earth closet for the purpose of carrying this on, so that the supply, admixture, removal, and drying of the earth may be satisfactorily and economically performed. But it is only in towns, he observes, where the delivery, stowage and removal of earth are attended with cost and difficulty, that any artificial aid for drying the compost would be desirable. On premises not cramped for space, the atmosphere, especially with the aid of a glass roof to the shed, would act sufficiently fast. The illustrations afforded of the efficacy of night-soil thus secured as a manure are necessarily minor ones. A cottager at Bradford Abbas commenced the system in his large cottage garden in the spring of 1862. He applied the manure to patches of mangold and swedes, and the land-steward, who persuaded him to try it, never saw such fines roots as were then grown. In 1860 a farm bailiff received from Mr. Moule one cwt. of mixed earth from his stock of three cart loads, which had passed five times through a closet used by fifteen persons, and had subsequently occupied a shed for seven months. It was applied to a quarter acre of ground drilled in with swedes, whilst to the remainder of the field of four acres an equal dressing of super-phosphate

was applied. The crop, though injured by the rapid growth of weeds of that wet, trying season, was good. But the roots in the quarter acre which received the mixed earth, when pulled and weighed, exceeded by one-third any that could be found in the rest of the field. In 1861 this same field was sown to barley. Throughout the growth of the crop the appearance of this same quarter of an acre, with no additional manure, was manifestly superior to that of the remainder of the field, and the bailiff estimated the produce to be in the proportion of three to four. Mr. Moule calculates that the manurial value of a ton of dried earth, used five times, might be £2, 10s., and used seven times, £3, 10s.; and I have no doubt, if we can reconcile ourselves to it, we have here another cheap source of guano. The Chinese acknowledge the potency of no other manure, and public laws and private regulations are alike directed towards its preservation as one of the great necessities of life. We, who go upon the large scale of production, cannot descend to the minute manuring of the Chinese, however much more productive, because we have not the same superfluity of surplus labor to bestow upon it. But it is on all hands admitted that night-soil, although the most disliked of all manures, is, undoubtedly, in its dry state, weight for weight, the most effective of all known fertilizers—it contains so much of soluable saline matter; and being constituted from the food we eat, and which we desire again to grow, necessarily contains the elements essential to the growth of plants. In Paris, Berlin, and other great cities, the dried night-soil, with some admixture of gypsum or lime, is manufactured for sale under the name of *poudrette*, and transferred to all parts of the country around in casks It is also dried and prepared for sale in London; and what is the substance known as animalized charcoal but night-soil, dried with gypsum and mixed with finely powdered wood charcoal? Being generally allowed to ferment, however, in the open air, without any admixture, a greater waste of substance probably takes place than of any other fertilizer of obvious value; and I am happy to see that on this College farm it is most carefully used up, although perhaps the vehicle—coal ashes and culm—could be altered and improved. Incidentally we have once or twice had occasion to allude to the application of fish and fish offal to the land. There are few substances in which putrefactive decomposition proceeds more rapidly than in fish; and often enough, when a large and unexpected haul has occurred upon our coasts, inopportunely for their disposal in market, sprats, herring, pilchards, mackerel, &c., have gone to manure the land at something like sixpence a bushel. In these cases they are, however, little other than wasted; and frequently applied as they are as a top-dressing to pastures, are even deleterious and dangerous to human health. At all events, I know one melancholy instance of a poor little girl, who, in passing through a field covered with decayed herrings, unhappily caught up one, and smelling it, inhaled the deadly poison of its fumes, fevered and died. The manurial properties of fish and fish offal having, however, become very apparent, unusual attention has of late years been directed to the utilisation of the large quantities of fish unsuited for human food, and of the offal from large fishcuring places on the coast. The beneficial effects obtained by farmers in the vicinity of these supplies was not denied; but the object in view was to convert them into a portable state, and extend these benefits over the country. It appeared, at the same time, that in this event the supplies were likely to be largely increased by creating a demand, because the fishermen habitually cast away all useless fish which they capture. Numerous patents for fish manures were consequently taken out, but few of them have been carried largely into operation. But the failure of these sometimes complicated processes need not daunt those who simply seek to see waste fish converted into a dry manure. The manufacturers, possessed of a complete monomania for rendering things soluble, have, in fact, persisted in treating this, like all other substances, with sulphuric acid, whilst the strongest opinion exists that the water once removed, all that needs to be done is to reduce the fish refuse to a powder, for commercial purposes. A stove or steam flues to effect the drying, and a mill to grind it, would therefore be the extent of the apparatus required. Of the fish manures that have come into the market, without vouching for the process of production, we find the composition :

	I.	II.	III.
Water	9 77	12.15	7.55
Organic matter	53.55	55 27	87.05
Phosphates	4.72	6.44	0.55
Sulphate of lime	1 63	1.71 carbon	0.45
Common salt	26 49	22 29 alkaline	2 55
Sand	3 84	2 14	1.45
	100	100	
Ammonia	6.20	7.63	7.29

The value of the first would be about £4, 12s., of the second £5, 10s., and of the third, about £4, 16s. per ton. These were English samples. In a Portugese sample, sulphuric acid had been used in the manufacture, and we must value it consequently the same as a super-phosphate :

Water	14.04
Organic matter	27.77
Bi phosphate of lime—7.00 bone earth made soluble	4.48
Insoluble phosphates	1.60
Sulphate of lime	36.17
Alkaline salts	6.14
Sand	9.80
	100.00
Ammonia	2.10

The value of this manure, derived mainly from the phosphate of lime, is only £3, 16s. per ton. Yet fish manures have commonly been offered at £8 or £9 per ton. The manufacture has, consequently, not been encouraged; but it is believed that fish refuse can be had at 8s. or 10s. a ton, and that four or five tons of raw material could be made into a ton of concentrated manure, at £2 a ton; and if the cost of manufacture were the same, £4 a ton, increased to £6 by retailers' profits, would bring it for that figure into the hands of the farmer Dr. Anderson, who has investigated this point, is of opinion that this might be accomplished by the fishcurers working up the offal and acting as manure manufacturers, and a good fish manure provided. Mr. Scot Skirving of Camptoun, a gentleman I have the pleasure of knowing very well, gives the result of some experiments with fish guano in East Lothian. The manure employed by him was composed of the heads, bones, and skin of fish (chiefly cod) dried in the sun, and afterwards ground into fine particles by machinery. In 1860 Professor Anderson requested Mr. Scot Skirving to test this Norwegian fish manure on the turnip crop, which he did; and the result was so satisfactory that he ordered a quantity from Norway, and made a further experiment in 1861, when it was found that whilst Peruvian guano in one plot yielded only at the rate of 15 tons 13 cwt. of roots per acre, and concentrated manure 20 tons, the fish offal gave 20 tons, 3 cwt.; but in another instance Peruvian guano yielded at the rate of 26 tons, 10 cwt. This experiment was made with a crop of purple-top turnips. From unavoidable circumstances, we are told the seed was not sown till too late, (23d to 25th of June,) and the weight of crop was generally less than it would otherwise have turned out. The actual cost of the fish offal imported in small quantity to Mr. Scot Skirving was £10, 7s. 6d. per ton—Dr. Anderson only valuing it at £8, 2s. In reporting upon this experiment, the former observes that a mixture of guano with bones in some form has generally given, in his experience, more satisfactory results than when the guano was used alone; and no doubt the fish offal ought also to be mixed with other manures; but it is when applied alone that the merits or demerits of a new fertilizer can be most effectually tested. In a financial point of view, I do confess that things do not, however, look favorably for fish manure.

I had still upon my list for examination the manurial properties of blood, soot, sewage-manure; but the parting word must now be spoken. Gentlemen, I thank you for all your intelligent indulgence, your kindness, your courtesy, and attention. In all the audiences I have ever addressed, I have never felt myself more thoroughly appreciated. I came to enter into your College life, to test its discipline, and to add my quota to the endeavors to promote its objects. A man necessarily makes an attempt of this kind under diffidence and difficulties; but you have, by your admirable conduct, completely removed all hesitation that I or any one need feel in coming forward to address a body of intelligent young gentlemen, excellently grounded in the sciences that are taught here, and which really are the tests of useful education. Gentlemen, I wish you in rapid succession a series of lecturers far abler than I can pretend to be, assured that you deserve to have the best and highest of our men of science and knowledge contributing to your instruction and enlightenment. But this I know, that go where I may, I shall ever look back with gratification and delight to the days and hours I have spent within the walls of the Royal Agricultural College, and I shall carry away with me a favorable impression of the generous and manly spirit of fellowship that predominates amongst you, and the solid acquirements which, I am happy to tell you, your Rev. Principal is satisfied you attain.

What Stock Most Enriches Pasture?

It is generally accepted as a fact that soil under pasture grows fertile. When land is plowed and cropped, and pasture forms part of a systematic rotation, the soil under grass recuperates in power to grow grain. This is due to several causes, prominent among which is the thick turf formed and plowed under, thus supplying a quantity of manure for the succeeding crop. If a field were left in grass for a long time, and all the growth allowed to rot on the ground, we see no reason why the soil would not increase in fertility so long as this practice was continued. But were the grass removed in the form of hay each year, and no compensation made, no practical farmer would contend that the soil grew richer when subjected to such treatment for a long time. Land in grass, then, becomes rich only in proportion as the growth of vegetable matter from it—as roots, stems, leaves and seed—is returned for manure.

Land is enriched by pasturing for the production of grain in two ways; the formation of a sod to be rotted for manure, and the deposition of the solid and liquid excrements of the stock. It is important for the grain farmer to consider the kind of stock which, feeding on his pastures, will enrich them most. There is, perhaps, not much practical difference in the amount of manure made by various animals on the same pasture; but the form in which it is deposited, and the habits of stock in choosing their resting places ought to be well considered. Horses are the very worst fertilizers of pasture; they are very close feeders, and they delight to graze the summits of knolls, and all spots where the herbage is short and sweet. On such spots they are continually feeding, yet they manure them very little. The observer will find their droppings mostly in rich hollows, places where the herbage is rank and coarse, showing that the soil is already fertile above the average of the field. In this respect cattle have not the same instinct as the horse, and they are neither so close nor so dainty feeders, but the objection holds against them, as the horse, that their manure is not scattered sufficiently for the good of the land. This is, indeed, the chief objection to employing horses or cattle to enrich land by pasturing. If the grass is turned into hay and fed to them in the yard or stable, the manure therefrom may all be saved and applied judiciously. But this course involves much labor. In the field every observant farmer knows that the droppings of horses and cattle seem to fertilize the soil but little when their bulk is considered, and the best effects are invariably seen not from the solid but from the liquid manures that fall on the field. In pasturing cattle and horses, we conclude that not more than one part in a hundred receives any manure, while the ninety-nine other parts are impoverished as much as though the grass were cut and removed in the form of hay.

Without doubt sheep are the very best stock with which to enrich land by pasturing. They range over the whole field and refuse hardly anything. Their manure is scattered in the very best form it could be applied as a top-dressing. If they frequent the knolls where the grass is sweet they also enrich them, and they choose for their resting places at night, and therefore fertilize, the highest part of the field. In hot weather they will frequent the shade trees, but from such places the accumulated manure is easily scraped up and distributed to other parts. And the farmer who is mainly a grain grower will find no stock more profitable and convenient for all his purposes than sheep.—*Exchange.*

Prof. Mapes' High Pressure Farming.

The agricultural editor of the New York Times, having recently visited the Fruit and Vegetable Farm in New Jersey, of the late Professor Mapes, gives the following account of the subsoiling, manuring, &c., which he found as practised there by Mr. Quinn, a faithful disciple of the Professor:

"The person who is familiar with different kinds of soil, who has followed the plow and wielded the spade for thirty years, where the land is heavy and the hard pan extends to the second rail of the fence, is prepared to appreciate the eminent advantages of the sub-soil plow in deepening the seed-bed for any kind of plants, and in effecting that complete and thorough pulverization which is essential to the production of remunerating crops of cereals, grain, roots, grass, small fruits or fruit trees. The sub-soil plow has wrought wonders on that farm. A comparison of its condition previous to being sub-soiled, with its present fertile and productive state, is exceedingly wonderful. Mr. Quinn assured us that when they commenced operation on that soil its greatest maximum yield of oats was only seven bushels per acre! Judging from my own land of a similar character when seventy bushels of superior oats grew on an acre, and from the fields of some other farmers, where the yield was ninety to one hundred bushels of good oats per acre, I have no hesitation in saying that any of the fields that have been renovated by Mr. Quinn's system of management by use of the sub-soil plough and manure—will produce from ninety to one hundred bushels of the first quality of oats, and crops of other cereal grain in the same proportion. The entire soil is a seed-bed for fifteen to eighteen inches deep. Mr. Quinn examined it in places with a spading fork, and no hard pan, nor unbroken bars or ridges of sub-soil were found. The entire ground was cleared of thousands of loads of stones; old, unsightly stone walls, in some instances nearly one rod wide, were removed; hedges of briars and bushes and noxious weeds were cut up, and the roots ripped up by the plow, and a system of most thorough extermination and complete pulverization was at once inaugurated. Wherever the natural drainage was not complete, under drains were made at once, so that no disfiguring blotches of wet swales were left unplowed, as is the usual custom on many good grain farms. An untold amount of hard work had to be performed which does not show advantageously to people who have not been operators in carrying out similar improvements. A farmer may bury a thousand

dollars in ditching a few acres of land, and in sub-soiling and renovating it; and those who have no faith in the soil—who have no confidence in sub-soil plowing—who think it don't pay to manure land—will never perceive how the proprietor is ever going to receive an equivalent for the labor and toil and money expended in improving the productiveness of the soil for any kind of crops or fruit. There are three things which have made that farm what it now is for productiveness, which are drainage, thorough pulverization and manuring; and these three things lie at the very foundation of all improved agriculture. It is almost an endless task to take such a farm as that was and make it what it now is. Yet such an enterprise always has paid well, and ever will pay when intelligently conducted, although it is attended with far greater difficulty to render some soils more productive, than others. No farmer can ever expect to have his labors crowned with satisfactory success who does not begin right. A man may plow and manure and pulverize and cultivate till his hair is gray with old age, and never be able to make farming, or gardening, or fruit-growing pay, if he neglects to relieve the ground of the excessive moisture which is injurious to vegetation.

"The sources of barn-yard manure have been quite limited on that farm, as only a small number of animals was kept to make manure. But more or less barn-yard manure was purchased from year to year, at the stables in Newark, and super-phosphate has been employed with excellent results, about 400 pounds being sufficient for an acre. Beside these fertilizers, lime has been used occasionally, and Squankum marl, which supplies a large amount of potash to the soil. The land has been 'under the plow' every season; and yet, with what plowing, harrowing, pulverization and manuring the soil has received, its productiveness was increased gradually, from year to year. A liberal equivalent was returned to every field for the crops removed. All the crops and fruit trees assured the beholder that the soil had received superior cultivation, and that hereafter, the proprietor will receive a liberal remuneration for the labor expended in years past.

"The kinds of crops on the ground consisted of a field of Indian corn, a field of some five or six acres of superior cabbage, potatoes, carrots, pie-plant and fruit trees. The potatoes appeared exceedingly thrifty, and would yield, no doubt, two hundred bushels per acre. Not a weed could be seen among the tops, which covered the entire ground, although the rows were three and a half feet apart one way and three feet the other, with level cultivation. Carrots were very fine, and the great bulk of the cultivation of root crops is performed with a root cleaner and Knox's horse-hoe, either which will do the work of twenty men with hand-hoes.

"There are now about five thousand choice pear trees on the place, a portion being dwarfs in full bearing, some having on, when we saw them, not less than $10 worth of pears each. Mr. Quinn sold from four Bartlett trees, the present season $100 worth of large, nice Bartlett pears. The varieties most esteemed, and which have succeed satisfactorily in that locality, are the Bartlett, Duchess d'Angouleme, Sheldon, Beurre d'Anjou and the Lawrence. Almost all the trees appeared exceedingly healthy, and were growing luxuriantly. In many instances the branches had grown upward and laterally, the present season, over four feet. The distance apart for planting the pear trees is eight by ten feet for dwarfs, and twelve by fifteen for standards. Many of the dwarfs were here being trained into standards. The entire ground is kept as clean as a summer fallow among and beneath the trees, with the horse-hoe and handhoes. In some parts of the pear orchard, salt hay had been spread over all the ground, about two inches thick, which had saved the work required in cultivating and hoeing, had kept down most effectually all weeds and grass, kept the soil moist and mellow, so that the trees grew more rapidly than by any other system of management, and the salt hay forms a soft bed for the fruit to fall on.

"As the growth of the young trees is considered of far more value than the small quantity of fruit that a young tree can bear, almost every specimen of the fruit is removed early in the season, for the purpose of encouraging as large a growth of branches as is practicable. The trees were transplanted with extraordinary care. After the sub-soil plow had performed its accustomed task of breaking up the hard substratum all over the field, large holes were excavated where each tree was to stand, and rich soil and fertilizing matter were placed in the holes, and the roots of the trees all spread out with much care, so that there could be nothing to hinder a luxuriant and healthy growth.

"Between the rows of pear trees on one and a quarter acres rhubarb has been cultivated; and Mr. Quinn assured us that he had sold, the past season, rhubarb from that small plot amounting to $422.46 net profit; and, what was remarkable, the trees in that part of the pear orchard appeared healthy, and had attained as large growth, as in any other place where no crops

had been cultivated. In some parts of the orchard currant bushes are cultivated between the rows of trees. As soon as it is apparent that the space is required by the pear trees, the currant bushes are removed. One acre of the pear orchard was occupied with currant bushes between the rows; and from the bushes on that one acre the currants sold for $289.73 net profit the past season. In one or two years longer the pear trees will require all the space, when currant bushes must either grow in the shade or be removed.

"Some portions of the orchard are occupied with strawberry beds, and others with blackberry bushes. A small portion of the orchard is devoted to peach trees, and although the trees were thrifty and healthy, no fruit had appeared on the branches the present season, as the severe winter had destroyed the vitality of the buds.

"Mr. Quinn keeps an accurate account of all the farming operations, so that the end of each year he is able to determine at a glance whether farming has been progressive or retrogressive, and whether more money has been expended in the production of a given crop than it will command in the market. His books show that the receipts for the products of the farm vary from year to year. In 1865 the total receipts amounted to $9,004.53 on that small farm.

"We might extend these notes much further; but what we have recorded will be amply sufficient, we trust, to establish one point, which is, that farming can be made to pay, when farmers begin right and manage judiciously. Success always depends on the right sort of management. A bad manager and poor cultivator will always fail even on good farm. But a good farmer will grow rich on a barren soil."

A Vegetable Garden.

It has been said that a farmer's family may get a great part of their living from the garden and the pork barrel, and such is the case. It is also a fact that the produce of the garden will help to fill the pork barrel, for beets and cabbages, parsnips, carrots and turnips, etc., make excellent food for pigs, and with sour milk from the dairy, these vegetables may be turned to very profitable account.

Every farmer should set apart a small field near the homestead for the production of vegetables. In this field, which should consist of from three to five acres, parsnips, carrots, beets, rutabagas, etc., can be raised in drills and tilled by horse labor. All the produce of this field that is not needed in the house will be exceedingly useful for hogs and cattle. Cabbages should be raised extensively on every farm, when properly managed they produce enormously, and are excellent food for milch cows in the fall when grass is scarce. Pigs thrive well on cabbages chopped fine and mixed with milk. Parsnips and carrots are nutritious food for cattle or hogs.

In this vegetable garden a rotation might be established in which red clover and rye for soiling should form a part, also early corn. Managed in this way only a portion of the field would require manure every year, and even this part might be enriched by liquid manure, soot, ashes, bones and other manurial substances which are suffered to go to waste about the homestead. The refuse vegetable matter from the garden will make a very important addition to the manure heap.—*Western Rural.*

Planting Orchards and Fruit Gardens.

The increasing demand for every kind of fruit is encouraging many persons to lay out and plant new orchards and fruit gardens. In the vicinity of large cities the raising of small fruits has been found very profitable, as berries of all kinds have been in great demand for the last few years, and as raspberries, blackberries, gooseberries, currants, etc., come into bearing in a very short time after planting, there can be no objection on account of the length of time that these fruits take before they make any return for the outlay.

Persons who plant orchards and fruit gardens now, have many advantages which the pioneers of horticulture were not favored with. The experience of several years has pointed out the varieties of fruit best suited to various localities, and improved varieties have been introduced which are greatly superior to the old.

We sometimes hear a man object to planting orchards or gardens because the prime of his life is past, and he thinks he may not live to eat the fruit of his labor. The rapidity with which currants, gooseberries, raspberries, grape vines, and dwarf pears come into bearing, should completely upset these objections. The strawberry, raspberry and blackberry yield some fruit the first year after being planted, and a full crop the second year. The Concord grape vine bears well the third year, and dwarf pears sometimes bear a fair crop the fourth year from planting. It is a good plan to plant standard Bartletts, Seckels and Louise Bonne de Jerseys, among the dwarf pears, as they will be about coming into bearing when the dwarf varieties have declined.—*Western Rural.*

The American Farmer.

Baltimore, April 1, 1867.

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BALTIMORE.

MARYLAND AGRICULTURAL COLLEGE.—Communications on College business should be addressed hereafter to N. B. Worthington, Registrar, Hyattsville P. O., Md.

MARYLAND STATE AGRICULTURAL AND MECHANICAL SOCIETY.—It gives us great pleasure to be able to say that the Legislature has passed the bill chartering this society, and appropriating for the purchase of grounds for its use, twenty-five thousand dollars. The law places this fund in the hands of trustees, to be held for the benefit of the association.

ILLINOIS AGRICULTURAL COLLEGE.—The Legislature of Illinois has located the State Agricultural University in Champaign county. It is stated that four competing counties offered from $350,000 to $450,000, for the advantage of having it located within their limits.

MAINE AGRICULTURAL COLLEGE.—Hon. Phineas Barnes, of Portland, has been elected President of this institution, at a salary of $3,000. Mr. Frederick Law Olmsted, Landscape Architect, of New York, makes to the Board a report on the location of buildings and improvement of the grounds.

☞ "A correspondent wants to know how to destroy sassafras; and some one advises to pasture sheep; but cattle are better, because they can reach higher, and therefore save you the trouble of cutting down the shrubs. Will some one please inform me how to destroy persimmon?" J. A. R.

CONDITION OF THE SOUTH.—We are indebted to B. M. Rhodes & Co., for pamphlet containing a communication of T. C. Peters, Esq., of this State, formerly of New York, addressed to Gen. Grant, on "*The Condition of the South with regard to its needs for a Cotton Crop, and its Financial wants in connection therewith, as well as the Safety of Temporary Loans.*"

Mr. Peters, in a recent tour, passed through Virginia, North Carolina, South Carolina, and Georgia, visiting the commercial and business centres of those States. He undertakes, from what he saw, to refute the persistent lies which have been so industriously and malignantly circulated as to the security of person and property in the South, maintains that labour is abundant, and urges that the great need of the Southern people is money, to pay wages, and furnish provisions, and that the security which can be given to capitalists for advances is perfectly safe and reliable. The purpose of Mr. P. is very praiseworthy, and we trust his publication may effect some of the good he proposes.

AGRICULTURE OF MAINE.—S. L. Goodale, Esq., Secretary of the Maine Board of Agriculture, has favoured us with six volumes of his very valuable Reports, running from 1860 to the present time. We find in them a great deal of excellent matter, most creditable to the State and her able Secretary of Agriculture. When will our State have such a Secretary, and furnish such an annual report?

Hungarian Grass and Grasshoppers.

J. M. Miller, in *Kansas Farmer*, says that Hungarian grass grows in favor with stock raisers every year One of his neighbors sowed a few acres on fresh broken sod, and reports that he got three tons to the acre of splendid hay. A great advantage of this kind of provender is, that it may be sown as late as the first of July, and make a crop. The grasshoppers being expected to come again in Kansas, and destroy "every green thing," the writer says, "I am going ahead, and if they eat up my corn, rye, wheat, oats, &c., and then go away, which is the general opinion, I am going to sow my land all to Hungarian grass, and at least have plenty of feed.

The Hungarian grass and other millets are exhausting crops, and prosper in any rich, dry soil. They come off the ground in time for fall grain, which may be put in with the drill without further ploughing.

The Agricultural College.

The Maryland Agricultural College opens its new session, which was announced last month in our advertising pages, under better auspices than have ever favored it before. It has a property valued at about a hundred thousand dollars, with all claims against it provided for, and has had appropriated to its use the income to arise from the sale of two hundred and ten thousand acres of public lands; in accepting which endowment the State of Maryland pledges itself to maintain the College, by such support as may be needful for its legitimate ends. The property of the College is a farm of two hundred and eighty-three acres, with a very commodious and substantial farm house and servants' houses, of brick, a comfortable house, in modern style, for the President, and the College building, of four stories above the basement, a hundred and fifty feet in length, and fifty in width, with very superior sleeping apartments for a hundred and fifty persons, spacious lecture rooms, and the necessary housekeeping accommodations. A very substantial and valuable stone barn, containing nearly all the crops of the season, was destroyed by fire sometime since. This serious loss, and the destruction about the same time of a large portion of the fencing by the army of General Burnside encamping on the farm, has tended greatly to embarrass the farming operations. This barn, it is to be presumed, will be now replaced by a new one of modern architecture, and the farm put at once into such condition, and provided with such equipments, as may adapt it to its proper purposes.

With the improvement effected in its fiscal affairs, and the ability to make changes and amendments, the necessity for which has been seen and felt continually, there is added now the experience of the past to remedy the defects of past management, and suggest improvements. The difficulties hitherto encountered, have been such as are incident to new enterprises, and do not present any unsurmountable obstacle to full success.

THE TEACHINGS OF THE COLLEGE.

It seems to us that, in entering on its new career, it should be more distinctly and generally made known that in the first place it is not a school of agriculture only, as our medical and law schools are of those professions, nor is it, in the second place, modelled after the old fashioned schools of learning, which Princeton and Yale, and our own St. John's and Washington Colleges have followed. These latter answer all the purposes of training for what are commonly called "the learned professions," but there is a growing demand and urgent necessity for schools of science, and of science in its applications to the industrial pursuits. Agriculturists, machinists, engineers, &c., need instruction and training in their specialities for which they cannot afford the time and means, after the period of an ordinary educational course, yet a course of liberal education is more and more demanded by those very classes. They need to be instructed in those branches of learning which every educated man must master—in all that pertains to the training of the man and the citizen. It is the problem of the day to associate, in the same institution, what is strictly necessary to a course of liberal education, with such special scientific instruction as will educate the pupil in the principles of whatsoever industry he may design to pursue, *and in their application*. The Maryland College, to our mind, is designed to be such an institution. It has thus far, prudently, perhaps, perhaps too prudently, adhered to the system of the old schools, in presenting a full classical course, but it must become a school of applied science; first of agriculture, as the great leading industry; then of the mechanic arts, then of military science—for all these are demanded by the terms of the law which maintains it—and it is manifest that as it develops these departments, it must dispense with the unending demands of the ancient classics, and such sciences as have no direct bearing on industrial pursuits.

In pursuance of these views, not expecting in the beginning, all that we hope, and may, we think, reasonably anticipate of future development, there is an immediate, imperative demand upon the Trustees of the College to get into active, effective, working order, all that belongs to its leading characteristic, its agricultural department. We know how the burden of an unbearable debt, and the casualties above mentioned, have combined with other causes to repress the best intentions in this direction heretofore; but, we know too, that the community outside has not understood or appreciated these obstacles, and that a reproach has attached to the management of the Institution in this regard, which it can only get rid of by the most vigorous and prompt measures, to put the farm into such condition, and to furnish it with such stock, and implements, and needful appointments, as become the character of the Institution, and will make it the means of instruction in the improved practice of the day, and in the application of the principles of science, which should be taught as well by lectures in the field, as by instruction in the recitation room. We believe the Managers are as much impressed with this necessity as we

are, and we hope to see soon the result of their convictions on this important point.

To the specialty of agricultural teaching, pertain the sciences of chemistry, geology, mineralogy, botany, zoology, meteorology, &c. The principles of architecture, and mechanics, and engineering, and their application to every description of farm building and farm implement, and the making of roads, bridges, embankments, drains, &c. These, and others, which we now overlook, must come necessarily, to greater or less extent, into an agricultural course, connected with practical instruction in the various processes which enter into the daily working of the farm crops, as ploughing, harrowing, seeding, harvesting, the care of the manure-heaps, rotation of crops, management of pasture and meadow, the dairy, the breeding and feeding of stock, &c., &c. Horticulture and fruit culture, and the knowledge and culture of flowers even, should be embraced in the practical course.

With this, the agricultural student should combine the usual mathematical course, one or more foreign languages, a thorough study of his mother-tongue, the English language, and familiarity with its literature, rhetoric, logic, mental and moral philosophy, history, and the philosophy of history. Such a course may satisfy even the ambitious student, and, well mastered, should entitle him to the highest honors of the Institution.

For the present, any course of study which the student may prefer is open to him, but it should be well understood, that the College is to be rather a school of science than of classical learning, and of science especially in its applications, first to agriculture, and then to the mechanic arts.

☞ A subscriber at Milton, N. C., writes as follows: "Your number of October, 1866, contained an article upon the "Arrangement of Fields." Your four field system begins with corn; this is succeeded by wheat. The third year of the rotation, the clover sown the year previous attains perfection in June, and in August the field is turned for the great crop—wheat on clover fallow; which crop closes the rotation. It is sown without grass seeds, and the following year the corn crop comes in again. This system is impracticable here, as we are too busy in the fall with tobacco to remove corn stalks and prepare for wheat. As to fallowing and harvesting, plenty of team and a reaper overrides these difficulties. Could the system be changed, and clover do as well, or do at all, in the following: First, corn: the following spring, oats and clover, &c.?

Reply—There being no difference between the rotation alluded to by our correspondent, and that he proposes, except that he sows oats in spring instead of wheat in fall, all that need be said is, wheat is usually a better crop to sow grass seeds with than oats, and therefore to be preferred, especially where there is difficulty in getting a "set." Soil and climate favoring, clover grows well with oats. [ED.]

Catalogues, &c., Received.

Edw. J. Evans & Co., York, Penna. Fruit and Ornamental Trees, Strawberry Plants, Bulbs, Grape Vines, Field and Garden Seeds, Seedling Potatoes, &c.

Ellwanger & Barry, Rochester, N. Y. Ornamental Trees, Shrubs, Roses and Flowering Plants; Fruits, Green and Hot House Plants.

W. S. Little, Rochester, N. Y. Trees, Fruits, Vines and Flowers.

Jas. Vick, Rochester, N. Y. Hardy Bulbs and Floral Guide.

J. B. Cline, Rochester, N. Y. Fruits, Flowers and Ornamental Trees.

Holton & Zundell, Haverstraw, N. Y. Grape Vines.

B. M. Watson, Plymouth, Mass. Field, Garden, Tree and Flower Seeds.

Theo. Ch. Wendell, Boston, Mass. Flower and Garden Seeds.

W. D. Strowger & Co., Oswego, N. Y. Trees, Shrubs and Plants—illustrated.

R. H. Allen & Co., New York City. Implements, Seeds and Trees.

Sheppard & Co., New York City. American and Imported Seeds.

John S. Collins, Moorestown, N. J. Strawberries, Raspberries, Blackberries, Vines and Small Fruits.

Thos. C. Andrews, Moorestown, N. J. Strawberries, Raspberries, Blackberries, Vines and Small Fruits.

Randolph Peters, Newark, Del. Trees, Fruits, Plants, &c.

R. Sinclair & Co., Baltimore. Implements, Machinery, Tools, Seeds, Trees, Plants, &c.

Wm. Corse & Son, Baltimore. Trees, Fruits, Vines, Plants and Seeds.

Richard Cromwell, Baltimore. Implements, Machines, Tools, Trees, Fruits, Seeds, Plants, &c.

John Saul, Washington, D. C. Trees, New, rare and beautiful Plants, Evergreens, Seeds, &c.

N. P. Boyer & Co., Gum Tree P. O., Chester Co., Penna. Hog Breeder's Manual.

W. A. Flanders & Co., Shelby, Ohio. Italian Bees.

For the "American Farmer."

Large vs. Small Farms—Economy of Associated Capital and Labor.

CHARLES COUNTY VA.,

March 15th, 1867.

Messrs. Editors:

Your correspondent, H. H., of Augusta, Georgia, has made some valuable suggestions in relation to the rehabilitation of the South, and I am happy to see that you are directing the attention of your correspondents to this important subject. I hope you will hold it up before them until the proper solution of this difficult problem has been reached.

The same general principles apply to agriculculture, which control any other business; that is to say, that the size of a man's farm, and the number of acres cultivated, must depend mainly upon the amount of capital at his command. The capitalist, with his thousands, can as easily cultivate his hundreds of acres as the poor man his small patch. But the question is, which can be most profitably tilled, the large or the small farm, where the capital is adequate in each case? Of course there are many modifying circumstances, such as location, market facilities, character of crop, soil, labor, &c., which might vary the rule in each case, and of which the practical business man would speedily avail himself. But let the question be discussed with reference to the great planting interest of the South, cotton, tobacco, sugar and rice, for it is to these that we must look for the restoration of our section to prosperity once more. I affirm that if the experience of the last fifty years has developed any truth, it is that all great enterprises must be accomplished by "associated capital and associated labor." It is no less true in agriculture than in commerce and manufactures. The expenses decrease, and the profits increase, with the augmenting capital and labor, until you reach a certain maximum. This maximum is varied by every variety of circumstance; nevertheless the law is the same. Let every practical planter look to the cotton, rice and sugar plantations of the South, as conducted before the introduction of the steam engine to the gin house, the sugar mill, and the rice mill, the change wrought thereby, and no further proof or illustration will be needed to establish this fact. I admit that free labor is not so easily associated as slave, but free capital is more so. The capital of the country is no longer locked up in the labor of the country. The disenthralment of capital is some compensation for the loss sustained by emancipation. But the real, pressing want of the South, at this time, is not labor, or the ability to control it, but *capital* to command it. Capital always has, and always will, both command and control labor; but the capital we have not. There is no accumulated capital in the South; the fruit of two centuries' toil was swept away by four years of war. We have nothing left now but real estate—land—and the question is, how shall this be made available? The universal answer has been: "You must sell your surplus land, reduce the size of your farms, thereby securing the capital to cultivate the remainder." Moreover it is affirmed that this is the inevitable tendency of free society. It may be the case where a dense population exists, under democratic institutions; but we have none of those things in the South—the reverse, a sparse population and a military despotism. Moreover it is folly to speak of cutting off our lands, those fine old patrimonial homesteads, and selling off the surplus, for if those who own land—the only property left in the South—can't hold it and cultivate it, how can those buy who have *nothing* left? Everybody, except the land-holder, was swept clean by the war, nor have the few exceptions to the rule, any disposition to profit by the sad experience of their friends. Everybody wants to go to the towns and villages and live by their wits; nobody wants to eat their bread in the sweat of their brow. Yet the only lands which have been sold in the South since the war, have been sold to Southern people. The unsettled condition of things, growing out of the emancipation of the slaves, and the unfriendly legislation of the Federal government, discriminating against Southern products, has kept out immigration, has kept out capital; nor can it be induced while this condition of things continues. For one, I do not wish to see foreign immigration. I fear it may prove an addition to our already overgrown pauper population, and fuel to the flame of fanaticism, which is now scourging us. If we can get skilled mechanics, and men with capital, who can buy our lands, and add mechanical skill and enterprise to the country, I shall gladly receive them; but these are too smart to come here under the present condition of things. Then what shall we do? Why, rely upon our own brave hearts and strong arms, as a gallant and chivalrous people should. Let us realize the fact that we are miserably poor, and at once adapt our style of living and business to our circumstances. Whatever Congress may do there is no escape from the galling yoke of poverty, and when this fact is recognized, and fully realized, there will be less difficulty in knowing what and how to do. Then I say to

alleviate as much as possible the sufferings and afflictions of our bankrupt and broken hearted people, let us form associations of capital, associations of skill, associations of land, associations of labor, and associations of all combined. There has always been too much individuality in the South. MOSSING FORD.

For the "American Farmer."

Mississippi Grape Vine.

GENTLEMEN: In your November number I noticed an article describing the wonderful grape vine of Santa Barbara. I will give you now a history and description of a wonderful grape vine of Mississippi on the farm of Mr. William Moore, of Atala county of this State, a small planter, a good citizen, and every way reliable. His place is situated about twelve miles from the geographical centre of the State, as laid down on "Daniel's Masonic Map of the State of Mississippi." The greater portion of the surrounding country is broken and hilly; soil light, mixed with sand, and clay foundation. Mr. Moore has but one vine or plant. It is now thirty-four years old, began bearing at three years old, and was planted in his yard for ornamental purposes alone; has never been pruned, or cultivated in any manner, and never failed to make a tolerable crop any year. Mr. Moore assures me that he makes from fifty to one hundred gallons of good wine annually, without machinery. His plan is primitive and simple. This vine has run and spread until it covers about one-quarter of an acre of land; the only attention it requires or gets is props or forks to bear up the still extending branches. When the fruit begins to ripen, he spreads beneath a sheet, and gently shakes the vine, and the ripe fruit falls. It is then put into a common wash tub and mashed with a wooden pestle made out of a sappling taken from the forest green, and squeezed or pressed in some common home-made cloth. The balance of the operation to make wine of the same sort. As the grapes ripen he pursues the same routine. The quantity made depends on the time he can spare from his crop. His neighbors have free access to this wine. With him wine making is only secondary, and when he has nothing else to do. Now, gentlemen, you would be astonished on tasting this wine. The flavor is fine, rich and pure. I know that the general impression is, that wine made in the back woods in so common a way must be only stuff. It is stuff sure enough, and if I can get conveyance I will send you a bottle, so that you may judge for yourselves. Without any aid, in its pure and natural state, I think it is the strongest wine made. We make a good deal of wine from the wild grape of the forest, which is all very strong. This grape is the Scuppernong, and for the information of others, as to the value of this variety to the South, I refer them to an article in your October number over the signature of J. Van Buren. This gentleman understands the great value of this grape to the South. I think, gentlemen, the Mississippi grape beats the Santa Barbara vine, and should satisfy us that we need not send to foreign countries for our wines. MISSISSIPPI.

Kosciusko, Miss., March 3, 1867.

TIMBER AND RAINFALL.—According to Rentzsch, a German authority, the proportion of forest or woodland required for an agricultural country, in order to secure it a regular and sufficient rainfall without violent storms, is twenty-three per cent. in interior regions, and twenty per cent. near the coasts. This estimate relates to Germany. The same writer estimates that five per cent. of timber is sufficient for England. An English authority, Sir Henry James, regards this last estimate too high for England, deeming 2.5 per cent. of timber sufficient. It is probable that the percentage of timber required in Germany is less than would be necessary in the level regions of our own section, as mountains exert an important influence upon the amount of rainfall.

The following interesting account of the influence of timber upon rainfall and springs is taken from Boussingault's Rural Economy:

"The Wolf-spring in the Commune of Soubey, France, furnishes a remarkable instance of the influence of woods upon fountains. A few years ago this spring did not exist. At the place where it now rises, a small thread of water was observed, after very long rains, but the stream disappeared with the rain. The spot is in the middle of a very steep pasture, inclining to the south. Eighty years ago the owner of the land, perceiving that some firs were shooting up in the upper part of it, determined to let them grow, and they soon formed a flourishing grove. As soon as they were well grown, a fine spring appeared in place of the occasional rill, and furnished abundant water in the longest drought. For forty or fifty years this spring was considered the best in Clos-du-Doubs. A few years since, the grove was felled, and the ground turned again to a pasture. The spring disappeared with the wood, and is now as dry as it was ninety years ago."

☞ Feed your poultry raw onions chopped fine mixed with other food, about twice a week. It is better than a dozen cures for chicken cholera.

A French Statesman Feeds Chickens.

The distinguished diplomatist and statesman of France, Mons. Druyn de Lhuys, who is looked upon in that country as the head of the diplomatic profession, having successfully filled every grade in it, from that of mere attache, and like the great Cardinal, "sounded all the depths and shoals of honor," has not "fallen from his high estate," but has betaken himself to a farm, and feeds chickens. The following account of a visit to him by an acquaintance, is extracted from an article which was translated from *Le Figaro* for the *Richmond Eclectic*.

"Mons. Drouyn de Lhuys quitted the Foreign office in the month of May, 1855. As I owed to him my first appointment and subsequent promotion, I thought it my duty to take advantage of his retirement from office to present him my thanks. He was then living in a small country house, on the banks of the Bievre, in the hamlet called Amblainvilliers. I took the Orsay railway for Calaiseau station. Half an hour afterwards I rang the bell at a modest iron gate. A servant opened it, and I saw Mons. Drouyn de Lhuys some twenty paces distant in the garden. I had never seen him before, except in the State drawing-room of the Ministry of the Boulevard des Capucines or at some Foreign Ambassador's or Minister's. You remember his aristocratic air, his distinguished bearing, his elegant carriage? I saw before me at Amblainvilliers an excellent country landlord, wearing a broad-orimmed flexible hat, a coarse frock coat, pantaloons rolled above the ankle, for the ground was muddy, and holding in one hand an earthenware dish full of dough, which he distributed to young chickens, crying "chick! chick! chick! here chick!" in a voice which a Norman farmer's wife would have envied. I dared not advance, for I was afraid of being indiscreet in surprising him amid his rustic occupations. But he saw me, and it seems to me I still have before me his courteous, frank smile, as he came forward to meet me, with his earthenware dish in his hands, and followed by all his chickens.

"He said, 'Ah! good day, dear sir! How kind it is in you to remember a peasant of the Bievre. Pardon me if I do not hold out to you my hand in its present condition; but if you will be good enough to go into the drawing room, I will join you there—unless you prefer waiting with me until I feed this little family.'

"You may easily believe I stayed. There was among the poultry a little cock, which seized with avidity the biggest pieces; but he did not eat them; he carried them first to one and then to another hen. This sight interested Mons. Drouyn de Lhuys. He repeatedly said to me: 'Just see how kind-hearted and generous that little cock is!'

"All this time I gazed on the man who, a few months previously, held in his hands the whole Eastern question, who had so ably prepared the treaty about to be signed, who had left at London, Vienna, St. Petersburg, such brilliant souvenirs, so great a reputation for honesty and skill, and who there stood gravely and seriously amusing himself feeding chickens.

"My astonishment was not less great when, thirty minutes afterwards, a cart—a real country cart—drawn by a little white horse, drove up in front of the door, and a young woman nimbly leaped out of it. She wore a calico dress and a broad straw bonnet. This young woman was one of those whose grace and elegance have been oftenest and most justly celebrated, whose dresses were instanced as oracles of good taste. She had just returned from visiting a poor woman of the hamlet, and she still wore the wooden clogs in which she had paid the visit. I was confounded by this simplicity."

Hen's Nests.

The nests should be on the ground—if possible, on the earth—and not in the same place where laying hens have access to them. An exception must be made to the ground, if farmers set eggs while hard frost is still in the earth. In this case you must be more careful not to forget to moisten the eggs with water when the hens come off to feed. I prefer in cold weather to lift the hen off, wet the eggs, and put her on again. There is less risk of a chill. Many complaints are made of eggs not hatching, though there are birds in each. This is entirely caused by their being too dry. Unless moistened, the inner membrane of the egg becomes so hard and dry that the chick cannot break through. This is especially the case with the Cochins, and I have often had to hatch half the eggs myself (by breaking the shell with my finger, not by sitting *a la poule*) and let them out.

When a hen steals her nest, she goes out early in the morning for food, before the dew is off the grass, and returns with wet feathers; so that by damping the eggs we imitate this natural process. The eggs of ducks and geese will still more require this attention.

I have found the most convenient way to set hens was to get a common tea-chest or box, put a portable sloping roof to it, made of a few pieces of board. Cut a hole at one end, like that for a dog-kennel. In front of this put a wire pen or a frame made of lathes. Provide the hen with

food and water daily, and you need not be under any anxiety about your hen leaving her eggs; she cannot get out, and will return on the eggs, if really broody, in a very short time. In this way you would have them entirely under your command. When the chickens are hatched, I find these same boxes answer every purpose: only in wet weather, if a shed cannot be had, they must have the frame covered with canvass or boards.—*Col. Hassard's address before Canada Poultry Association.*

Broom Corn.

On the rich alluvial bottoms of the Mohawk river, in New York, and other similar localities, broom corn is very extensively and profitably grown. It has never received much attention as a market crop in Missouri. During the past year several large crops were grown, and recently there has been much inquiry for information in regard to this crop.

Our deep, rich, river bottom lands cannot be excelled for the purpose of broom corn culture. Any of our moderately rich soils will produce very profitable crops of it. It will pay well to grow broom corn for the brush alone, at present prices, much better than corn or wheat. In addition, it will yield fully seventy-five bushels of seed to the acre on good land, which is generally considered quite as valuable as oats for feeding to stock.

According to the census returns of Massachusetts for the year 1865, in one county of that State, where broom corn is most largely grown, there was an average yield in value per acre of a few cents less than one hundred and fifty dollars. In such localities as the Mohawk valley, or our river bottoms, the result would probably be much greater.

Mr. M. A. Kitchen, of Harrisonville, Cass county, Missouri, raised a crop of broom corn the past year, and writes as follows in regard to it: "Of the broom corn have had a fair crop. My ground was deep and well ploughed. My corn was planted three and a half feet by twenty-one inches. I plowed it all one way. I dropped the seed by hand and covered it the same way. There was nothing peculiar about the cultivation of the corn, more than it was well done.

"In growing, the corn, or rather the seed, was allowed to get fully ripe. The brush is now a bright color, quite green, and very tough. In gathering my corn, I broke it down in tables, two rows together, one across the other, one man breaking something over an acre a day. After cutting, and as being cut, it was laid on the tables to cure. As soon as cured and dry, and before rain, it was hauled and put under a shed, with the seed on the brush, and there it remains to some extent wet, perfectly cured, and in fine condition. I feed the seed to my stock, and remove it from the brush as I need it for use. I have fed my work horses on no other grain for the last three months. My cows and hogs are all fed on it, and are all fat. I do not know just how much brush I had to the acre; I think, nearly half a ton. The yield of seed is near seventy-five bushels to the acre, and, according to my experience, it is worth as much as oats, in measure, for feeding to stock.

"The yield of brush per acre, varies according to soil and season, from three hundred pounds to one thousand pounds per acre. When well ripened, the seed will average three or four pounds for every pound of brush. It weighs about fifty pounds per bushel, and sometimes a yield of one hundred and fifty bushels per acre has been obtained."—*Farmers' Advertiser.*

BED YOUR STABLES.—A horse, remarks the *Rural World*, will get tired of standing and treading on a hard floor; so will a cow, a sheep, a man. A soft bed feels easy—gives rest. And yet we neglect the bedding of our stables to a great extent. Injured limbs and other ailments, especially of the hoof, are the result often of a neglect here, as has been clearly enough shown, and as any man can clearly enough see, if he gives the subject a moment's thought. Bed with straw, which is plenty, or saw-dust, or tan-bark or shavings. The dryer these materials are the better. Every day remove the moistened bedding, and replace with new. Such a floor, well bedded, adds greatly to the warmth of a stable, and thus becomes a fodder saver. The small holes and crevices in a floor, with a good bedding upon them, will let little or no cold through, and will drain the stable. Rather have a ground floor than hard, naked plank.

A GOOD WORK HORSE.—The California Agricultural Society requires that a first premium work-horse shall be between fifteen and sixteen hands; quick, lively ears; broad between the eyes; round barrel; short loins; well up in the shoulder; deep chested; square quarters; flat legs; short between the knee and pastern, and hock and pastern; hind legs well under him; speed equal to eight miles an hour on the road, and at least three miles at the plough; with sufficient blood to ensure spirit and endurance.

Calves "Brought up by Hand."

A member of the Circencester Farmers' Club makes a speciality of rearing calves, and has read a paper before that association describing his experience. He has been in the habit of procuring the calves dropped on the farm of a neighbor, and, with only *four cows* of his own, raised fifty calves in 1864, fifty-five in 1865, and, in 1866, fifty-five were weaned, but three have been lost by mismanagement. He takes the calves from about the first of March, when ten days old, paying thirty shillings each for them.

They have for the first three or four days two or three quarts of milk at a meal; then gradually some food in the shape of gruel is added, and, by degrees, water is substituted for milk. Mixing oilcake with gruel is the secret of success. I use half oilcake, the best I can buy. Take a large bucket, capable of holding six gallons, put into it two gallons of scalding water; then add seven pounds of linseed cake, finely ground, which is obtained by collecting the dust that falls through the screen of the crusher, and passing it through one of Turner's mills. Well stir the oilcake and water together, and add two gallons of hay tea.

The hay tea is made by pouring scalding water in the morning on good sweet hay, in a tub, the tea standing covered till night, and having seven pounds of meal (wheat, barley and beans mixed) stirred into a tubfull before use. The same hay will bear a second infusion during the night, for next morning. Two quarts per head, with an equal amount of cold water, is enough for a feed. The old plan of letting them suck through the cowman's fingers is preferred, and, as soon as they can eat, crushed corn, sweet hay and roots are placed within reach; vetches as soon as ready, and mangolds, of which a supply should always be stored if practicable. The calves live in a cool, well ventilated house, are kept very clean and quiet, supplied with fresh water daily, and the manure frequently removed.

Fattening Hogs.

The editor of the Germantown Telegraph having made inquiries of a farmer as to the profitableness of pork raising and the best way to feed hogs, received a reply, the substance of which was:

1. That feeding grain—especially corn—to hogs will pay better than would the same amount fed to any other kind of farm stock. But this is qualified as to the kind or breed of hogs fed and the manner of treating them. The breed should be the "Chester White"—the *nom de plume* of the writer—and they should be fed in such a manner as to gain a pound a day. In other words the hog, at a year old, should weigh three hundred and sixty-five pounds. Greater weight than this could be produced, but the increase would not pay the extra expense necessary to procure it.

2. One bushel of good shelled corn, made into meal, and fed to the hogs regularly, in such quantity as to prevent them from fretting for more, will produce from five to seven pounds of pork during the months of October and November. After this season of the year more feed is required and less pork produced according to the quantity fed.

3. An important point is to keep the hogs growing all the time—not starving them to mere hog frames, during the summer, and then attempting to finish off quickly on the arrival of cold weather.

4. When put up in the fall—indeed during the entire season—a comfortable shelter should be provided so that the hogs may avail themselves of it whenever a storm occurs, but when the autumnal storms commence, the hogs should be penned for good till ready for slaughter.

5. With the pure "Chester White" stock of hogs, properly brought forward during the spring and summer months, it is safe to feed eighty-five cent corn on a basis of five cents per pound for the animal fed. This feed for October and November should be corn meal, mixed with water to the consistency of a thick slop.—*Rural New Yorker.*

Does the Soil Need Rest?

Our fathers in Agriculture quite generally held the opinion that summer-fallowing greatly benefitted the soil by the rest it gave. If the land lay utterly idle through all the season of growth, should it not recuperate its powers of production? They believed it would. And this opinion prevails to some extent at the present time among farmers.

But absolute rest obviously adds nothing to the soil; no food for plants descends from the air above or rises from the sub-soil below. No favorable chemical action is known to be induced by exposing a naked soil a long time to the elements; on the contrary it may be apprehended that the washing of the rain, the parching of the sun, the evaporation of the atmosphere, remove some of the volatile substances which are found in a fertile soil. Rest does not impart fertility to the sands of the desert, nor are arable soils in a state of nature where they are increasing

in fertility, ever permitted to be destitute of vegetable covering.

The soil then does not need rest—requires cultivation. By cultivation we mean here those physical changes which may be made. It wants deep and thorough working, so that the roots of plants can reach every particle of soil; it needs draining, to draw off the stagnant water which is poison to the roots of our cereals and cultivated grasses. Deep, thorough, and frequent pulverization of the soil, though it adds nothing to the amount of plant food, will, by making it all available to the crops, cause the land to be very productive. Then, except during the brief period of this thorough working, the soil should be producing, for it is by the sole agency of what grows upon it that the farmer can hope to increase the amount of plant food in his land.

But is not land constantly producing crops, whether of grain or grass, exhausting itself? Yes; if those crops are removed from the soil, and no remuneration made therefor; but if the whole produce of the ground is returned to it the amount of plant food is increased. The soil becomes richer for the reason that the substance of the plant was only partly derived from the soil, but largely from the atmosphere, and while the soil receives again what it gave, through the decomposition of the plant, it has in addition all that was drawn from other sources. This is the reason why the plowing under of clover, or other green crops, for manure, enriches the soil. The crops have drawn only part of their fertilizing components from the soil—they have gathered from the air likewise—and it is precisely this which increases the previous richness of the soil. And if all the manure which crops will make by passing through the animal system be returned to the soil, its fertility will doubtless be maintained; enough will be returned to replace the ash-constituents of the plant, which alone were derived from the earth.

We conclude, then, that the soil does not need rest to render it fertile. It needs cultivation and cropping, not reckless, wasteful, unmethodical farming, but that so planned and executed as to grow large and varied crops, and dispose of them in such manner as to return the extracted elements of fertility to the soil.—*Rural New Yorker.*

OWNERSHIP OF LAND IN GREAT BRITAIN.—Mr. Bright, in one of his late speeches, is reported to have said that one-half of Scotland is owned by twelve persons, and one-half of England by one hundred and fifty.

The Agricultural Report for December.

Taking the estimates given by the Agricultural Department, in the report for November and December, there is every reason to congratulate ourselves upon bountiful harvests. The crops of the past year were ample, and there is nothing discouraging in the future prospect. Notwithstanding the sadly unsettled condition of the eleven Southern States, they have produced a good supply of food. 185,000,000 bushels of corn are placed to their credit, while the yield in the Northern States, exclusive of the Pacific, is estimated at 679,000,000 bushels, and the grain is of an excellent quality. The total amount of corn produced in the United States for 1866, is summed up at 880,000,000 bushels. In the Southern States, activity also has been shown in the cultivation of wheat, as the yield for the year is estimated at 17,000,000 bushels, and the whole quantity grown throughout the United States, is assumed to be 180,000,000 bushels. The potato crop, for the entire country, excluding the Pacific States, is placed at 104,000,000 bushels; the crop for the Southern States, not including sweet potatoes, being 5,884,000 bushels. Notwithstanding that the potato crop was almost a failure, in some sections of the West, the whole amount produced compares favorably with the estimates of other years. In the hay crop we have a marked deficiency, the estimate falling short of 21,000,000 tons, including the eleven Southern States heretofore unreported. For 1865, the estimate exceeded 23,500,000 tons, excluding the Southern States. Though we have less in quantity, the quality is said to be excellent. The tobacco crop is more flattering than has been reported for any year since the commencement of our civil war. This is not surprising, as the plant which constitutes a valuable article of commerce is chiefly grown in the Sothern States. The following estimates are given: For Virginia, 95,000,000 pounds; for Tennessee, 40,000,000 pounds; for North Carolina, 30,000,000 pounds, and for Kentucky, 35,000,000 pounds; and the total amount is summed up as 350,000,000 pounds. In regard to the cotton crop the report says:

The estimates of the cotton crop made in our October report, upon data of September 1st, and subsequently modified by local losses, especially in Louisiana, have been fully sustained in most of the cotton States. From the data received in the department, the total estimate, including the little grown in States north of the cotton region proper, cannot be placed below 1,750,000 bales of 400 pounds each. As compared with outside estimates this inclines to lower rather than upper

ranges of figures. Some cotton planters and commission merchants make the total 1,250,000 bales, of 500 pounds each, which is nearer the actual weight of New Orleans bales—a result scarcely less than that arrived at in this department. On the other hand, there are others who assume a total of 2,000,000 bales. Our estimates are not an average of a great many irresponsible guesses of individuals in several States, but the actual footing up of careful county estimates, after close scrutiny and cautious examination. The following are the estimates for the States below mentioned:

North Carolina	91,000	bales.
South Carolina	102,000	"
Georgia	205,000	"
Florida	36,000	"
Alabama	220,000	"
Mississippi	270,000	"
Louisiana	109,000	"
Texas	300,000	"
Arkansas	182,000	"
Tennessee	148,000	"
	1,663 000	"
Other States	87,000	"
Total	1,750,000	"

The above figures are very gratifying, as they show that, in spite of a protracted and desolating war and present political excitement, the people are fast returning to agricultural pursuits. The song of the reaper is now heard where once lurked deadly foes, and where the sharp report of the rifle disturbed the calm repose of nature. Though the war encouraged thoughtlessness and habits of idleness, we behold how eagerly labor has been embraced, and, in an imposing array of figures, have the results of frugal industry. This we can only accept as another evidence of the greatness of our people, and the fertile resources of our country. If agitation should cease in political circles, the results would be far more gratifying for the fall of 1867, than they are for 1866.—*Turf, Field and Farm.*

Wheaten Grits.—Any one can be supplied with this wholesome and palatable food, by getting good white wheat and washing and thoroughly drying it. Then grind it in a coffee mill, kept for the purpose, setting it to grind as *coarse* as possible. Place it in a six-quart tin pail, and pour cold water to cover it; set this pail into a kettle containing six or eight inches depth of hot water. Set it to cook for four hours, stirring occasionally, and adding more water as the wheat swells. Before taking up, stir in salt to your tasts. Have ready your moulds or dishes, (having first wet them,) and pour the wheat into them. When cool, they should turn out like jelly, and be eaten with cream.—*Country Gentleman.*

Top-Dressing Grass Lands.

By top-dressing grass lands we expect to effect two objects. First, to protect the roots from the effects of atmosphere, to which they are exposed by frost and by drainage of the finer particles of soil, which are too often removed by heavy rains, leaving the roots of grass exposed to the chilling influence of cold winds one day, and perhaps the next subjecting them to the scorching rays of a hot sun.

That such protection is necessary may be clearly seen by walking over the fields in spring after the ground has settled or after heavy rains in any season, for where the ground freezes, it expands. The roots of grass are thrown up by this expansion, and when the frost leaves the ground, the earth by its own weight falls back to its natural position, while the roots of grass, being lighter than the earth, are left too much above it, and are thus exposed. The very nature of the case shows, then, that a protection is necessary in order to secure a fall crop and prolong the life of the exposed plants.

Nature, in top-dressing the fertile intervale, makes use of the swollen stream to effect her object, and the stream in its course brings down the fine soil from the hillsides, decayed leaves from the forest, and indeed every light material that comes in its course, and spreads them evenly over the lands they are to enrich. So economically is this arrangement carried on, that even the heavy clay, washed from the worn bank, is, by a continued intermingling of the waters, mixed with other material, and turned to a good account in the general deposit So nature teaches us that we need not depend exclusively on the stable and barn-yard for means of improving our lands, but that we may go into waste places and collect materials which are apparently useless as they lie, and by giving them a proper mixture, make them very available in increasing the fertility of the soil.

Although barn-yard manure may be the best fertilizer for top-dressing, there are few farmers that can afford to take it from other crops to appriate it in large quantities to this object. The compost heap, if well prepared, will answer nearly as good a purpose, for it will give full protection to grass roots; and though the vegetable food it affords may not show so great an effect on the abundance of the first and second crops, it is not unusual for the good results to show themselves longer. So that in the end the balance of credit will stand in favor of the compost. The material to be used in composting for top-dressing is abundant and within the reach of every farmer, and to say what it is, we can only say

every substance of a decaying or decomposable nature. The compost heap may be composed of all the odds and ends and offal found on or around the farm, and the more these odds and ends are collected and brought into a mass the more valuable it becomes.

From general practice it may very safely be inferred that public opinion is yet divided on the proper time for applying top-dressing, especially to grass lands. Within our memory there was but one practice adopted, and that was, to draw to the meadows such a portion of the manure as the farmer was disposed to appropriate to the meadows and place it in heaps, where it remained until spring, when it was spread probably as even as circumstances would permit, no particular care being taken, however, to reduce the hard lumps which too often remained to dry up in the sun and operate as vexatious nuisances to the scythe and the rake in haying time. This course is now, however, to a great extent done away with, though we yet see occasionally instances of adherence to this erroneous practice.

The provident farmer feels himself bound to regard the comfort and future usefulness of his horse or his ox after a day of labor is passed. He then supplies the animals with wholesome food to repair its exhausted energies and afford the protection which health demands. Interest and philanthropy both require him to do so.

There is an analogy between animals and plants. All are organized bodies and derive their subsistence through organs adapted to themselves. Grass, like the horse or the ox, is nourished and supported by aliment adapted to its use. Like them, it has its period of labor in its yearly growth, and when accomplished they require nutriment and rest.

When the meadow has been shorn of its strength and the "harvest horns" shouted through the valleys and echoed along the hillsides, then it may be supposed that the exhausted nature of the grasses need food and rest, as well as protection, from the hot rays of a summer sun, from which they were but recently protected by the burthen of their own abundant growth. Hence, although we favor the dressing at any time from the removal of the crop in summer until the new growth commences in spring, we give preference to the time as soon as may be, after the crop is taken off. We do so for the reasons stated, that the roots of grass are exhausted from bringing forth the crops; that they are exposed to scorching rays of the sun, and in a few weeks will be severely exposed to cold winds and pinching frosts, and the earlier we guard against these exposures the more successful will be our efforts.

Whatever material used for top-dressing, it should be of a character which will permit it to be spread evenly over the surface, and in order to give an even spreading, we have succeeded best in spreading from the load as it is drawn out. Whether the application be of manure or compost, it will require great care to spread evenly from heaps. In the matter of time, too, as also of even spreading, it had better be done from the load.—*Country Gentleman.*

Pennsylvania Farming.

A Cumberland county, Penn., farmer writes to the New York Farmers' Club of his way, on this wise:

I plow clover sod in autumn or March, and lime fifty bushels to the acre, and plant with corn. This I harvest by cutting close to the ground, putting in shocks to cure. It is husked at the shocks, the stalks tied in bundles, hauled near the barn and stacked. In the spring the corn stubble is plowed for oats. The oat stubble is dressed with barnyard manure, plowed and harrowed and left till it is time to sow wheat; then go over with a large cultivator and afterward drill in the wheat. If intending to make the field into mowing land, I sow three pecks of timothy seed (per ten acres) with the wheat, and in the spring one bushel of clover seed. Our farms in Cumberland county are generally so divided that we have two parts for corn, two for oats, two for wheat, two for mowing, and one for pasture. This is our regular rotation. Our grass crops are heavy, and generally forty to fifty bushels of corn to the acre, forty to fifty bushels oats, and fifteen to twenty-five bushels wheat.

My farm is clear of foul weeds, and hay and fodder are so plenty that I do not turn stock to pasture before the clover is in head, and I never feed so close that I cannot turn down vegetable matter enough to produce a good crop of corn without any other manure. Still, we are careful to make all the manure possible, which we do by stabling our cattle the greater part of the year. We also stall feed many cattle, preferring to feed all the hay and fodder we make in the stables, using plenty of straw and leaves for litter. The dung heaps from our stable enable us to give our wheat lands a heavy coat of manure every year. By plowing this in deep, we have plenty of wheat to sell and keep; and this is the way we keep our land in good condition—never exhausted, never in want of rest, never in a condition that will not produce a good crop. Land needs to be covered with a crop all the time; we

do not think clover seed expensive: we can always make as much as we need and have some to sell. There is one thing the farmer must never forget in this course of farming, that is, to use lime as I have recommended, every year upon one portion of the farm.

Making a Poor Farm Rich.

Some twenty-five or thirty years ago, I bought a farm containing about one hundred and twenty acres of land. It had been managed badly for many years preceding the sale of it. Fence rows, where hundreds of loads of stone had been hauled off the adjacent fields, were from ten to twenty feet wide, and were filled with cedars, cherry trees, alders, sassafras, briers, rotten rails, &c. Gutters were washed in various places, exposing a stony, barren soil, that looked like anything else than desirable farm land. An old farmer, on the day of sale, remarked, in reference to the gulleys in the fields, that it mattered but little if all such land was washed away. The buildings were old and dilapidated and needed immediate repairs, to render them at all comfortable for man or beast. This property, however, had two redeeming traits—it was well wooded and well watered.

As was the farm, so was the farmer—poor. To better this state of things was the aim of the writer, which could not be accomplished without much hard work. This had to be done, and he had to do it. Wood had to be cut and hauled to the kiln; lime to be burned, hauled and spread; fence-rows cleaned out, fences made, &c. I put one thousand bushels of lime on two ten-acre fields, in the fall, before possession was given. These fields were plowed in the following spring, and put in with corn, which yielded, when husked, not over fifty bushels of sound corn altogether. From one of them, however, I got one hundred bushels of buckwheat, having sown some seed among the sparse and puny-looking stalks of corn about the middle of July.

The next season both fields were put in with oats, averaging forty bushels per acre. I sowed clover and timothy on the oats, and rolled them all in together. The season was favorable, and seed took well. I mowed these fields two summers in succession, and had a very good crop of hay. I then put five hundred bushels of lime on one of the fields, and in the spring planted it with corn, which yielded me four hundred bushels, without the offal. No manure whatever was used for the crop in addition to the lime, excepting the corn was plastered in the hill. Oats, wheat, (manured from the barn-yard,) and two crops of grass followed. The ground was then limed again as before, and I gathered the ensuing season sixty bushels of corn per acre. The other fields on the farm have been worked as this, with about the same results, excepting the corn, which I think has not been equaled since. There were but two acres of wheat on the place when I bought it, as all the manure made would not cover a greater extent than this, after sufficient was taken out for a potato patch and garden. Two horses and three cows constituted about all the stock. Now there are five horses, and upwards of twenty head of cattle kept. The manure they make is sufficient for twenty acres of ground annually. By the increased productions of my farm, I have been enabled to pay my debts, erect new buildings, and to give my children a good, sound education.

So much for lime; without this fertilizer I could not have lived. I have never sold more than three or four loads of hay, nor bought more than three or four loads of manure. Several times the wheat crop has yielded thirty bushels per acre. I paid $31 per acre for my farm, and have refused $110.

I have written this to show that poor land may be made good with lime, and the increased amount of manure obtained as the consequence of liberal application. Two good horses and a yoke of oxen were all the working stock used on the farm for several years. Young farmers will do well to remember that oxen will do as much work as horses, eat less grain, require less expensive harness, can be geared in half the time, can be managed more safely by boys, and in fine are preferable in very many ways.—*Germantown Telegraph.*

☞ The wool crop of California for 1866, so far marketed, is about 5,000,000 pounds, of which 3,000,000 pounds have been purchased for the mills of San Francisco, and the balance exported to the Atlantic States. Oregon this year produced not far from 1,800,000 pounds of wool, 1,100,000 pounds being taken by her woolen mills, 300,000 pounds by the San Francisco mills, and the balance exported.

The Coming Summer.—French scientific men predict that the summer of 1867 will be cold and wet, like that of 1866; and they base the prediction on the fact that immense masses of ice have broken, or are about to break, away from the extreme north, and will drift to warmer seas, where they will melt, producing cold and vapour.—*The Farmer* (Scottish).

Professional Students and Mechanics in the South.

Are we—under the new order of things, as we were under the old—to be overstocked in Virginia with "professional" men? There is some ground to apprehend that we shall. We have seen it stated that an undue proportion of the students in some of our leading colleges are taking the law and medical tickets. We do not set ourselves up as advisers and directors, and would not arrogantly interfere with the rights or with the private affairs of our fellow-citizens, but we feel it to be our duty as journalists and patriots to combat any practice, any principle, or any idea that may prove prejudicial to the interests of the commonwealth. We have now more lawyers, doctors, and other non-producers than are needed; there are enough to last for twenty or thirty years. Our great wants are *producers* and *men of practical science*, to aid in developing the resources of the State, and to turn them to account when developed. Agriculture, the mechanic arts, and manufactures—the honest, manly industries—are the great sources of wealth. We want to see our young men turn their attention and devote their talents to them, and to let law and physic alone. The competition in these professions is now so great, and will be for the next quarter of a century, that few, comparatively, can attain the distinction and prosperity which so many covet; most of them will be but poor and proud gentlemen as long as they live. Take an intelligent, industrious young man, put him in an iron manufactory, for instance, and let him learn the business thoroughly; then start him in life with a licensed lawyer or medical graduate; and ten to one he will, in fifteen years, be rich or in a fair way to make a fortune, when the lawyer and the doctor will be without any considerable practice, or at best with only income enough to supply their commonest wants. The same result will be attained, if, instead of the iron business, any of the great branches of practical industry are selected. The fortunes are not made by the professional men; the great influence that propels the business of life, and controls society and the destinies of communities and countries, does not emanate from them. *The influence of the commercial, mechanical, and agricultural classes is every year growing more potential.* Formerly they were, as compared with professional men, ignorant and uncultivated; but at this epoch they are the men of expansive views, and the projectors of those great enterprises that build up cities, and confer wealth, power, and grandeur upon nations. The men of ideas, of real intellect, and of supreme influence belong, in this age, to those classes. They are the men who wield the mighty influences of steam, the telegraph, and all those other practical agencies that control the affairs of life—the destinies of men and nations. If called upon to define this power, we would describe it as "educated labor." It is that which has built up the wealth and prosperity of England, and that has placed the Northern States so far in advance of the States of the South. Labor was not honored here, under the old order of things, as it deserves to be honored. Almost every young man of any pretensions studied law or medicine; or, being a landed proprietor, turned his attention to farming; or, if the son of a merchant, to merchandise. Only those who had no choice between pursuits became mechanics and artisans. There were really not enough of them for the necessities of the country; and of the comparatively small number a large proportion were ignorant and unskillful; many came from the North—some from abroad. There was in those days an indisposition among the educated young men of the South to engage in business of any sort that was not connected with the learned professions. The mistaken notion prevailed that labor was degrading—a delusion that, more than all other things combined, retarded the growth and development of Virginia. We fear that our young men are not yet emancipated from the fatal influence of this delusion, and that too many of the present generation will follow in the footsteps of those of the past generation only to reap a harvest of disappointment—for the paternal wealth that supported so many in respectable idleness no longer exists.

We rejoice to see so many schools and colleges, and to know that such large numbers of our young men and boys—much larger than we had ventured to hope for—are attending them. One chief object of education is to instill correct ideas into the minds of youth, and to eradicate false ideas and opinions. We hope that our professors and teachers will not forget to combat that pernicious and too prevalent error that labor is not honorable, and that the mechanical occupations of life are unworthy of educated young men. We have known many instances of boys who manifested remarkable mechanical genius, and who, if put into the workshop, would have made their mark in the world, but who, under the fatal influence of that delusion, have been made ciphers and nonentities for life, in consequence of the attempt, against their natural bent, to make lawyers or doctors of them. Every parent should give his children as *thorough* an education as he can afford. The more tho-

roughly they are educated the better they are fitted for all the pursuits and business of life, no matter what those pursuits or that business may be. The educated mechanic or artisan dignifies labor, and removes the reproach of ignorance which so long existed. Education should embrace the whole range of physical science, for in the new era that will soon dawn upon Virginia, (we speak for our own State especially.) her hitherto undeveloped resources in mines, minerals and water power will be brought into requisition. Our young men should be prepared to take the lead in this great work and profit by its rewards. *The time is not distant when Virginia will be filled with workshops and manufactories of every kind;* and if our own people are not qualified to take charge of them, strangers will come in and reap the harvest of fame and profit which they will surely yield.—*Richmond (Va.) Whig.*

Liberal Prizes Offered.—The question as to "Which is the Best Grape,"—if premiums are capable of settling it—ought to be in a fair way of reaching a decision. At a meeting of Cincinnati Horticultural Society, February 23d, it was resolved to hold an autumn exhibition at that city in connection with the "American Wine Growers' Association of Ohio," at which show the celebrated "Longworth Wine House" offers for competition the following magnificent prizes:

"A silver pitcher, two goblets and waiter, to cost not less than $350, as the first premium; a silver cup, to cost not less than $100, as a second premium, and a silver cup, to cost not less than $50, as a third premium. The first premium to be given to the best general wine grape of our whole country. The second premium to be given to the best variety of grapes, for wine purposes in the State of Ohio, provided it is not awarded to the grape that receives the first premium, in which case it will be given to the second best wine grape in the country. The third premium is to be given to the best table grape for general purposes, in the country. Our requirements are, that the plants, when generally cultivated, shall be perfectly healthy, hardy and productive, and the fruit shall produce a wine of good quality, as to flavor, strength and quantity. The fruit shall be shown at the coming fall consolidated exhibition of the American Wine Growers' Association of Ohio and Cincinnati Horticultural Society, in quantities of 10 lbs., or more, with samples of the wines from the competitors for the first two premiums, if practicable. The committee to be composed of the Hon. Marshal P. Wilder, of Boston; Solon Robinson, Esq., of New York; a member to be designated by the Lake Shore Grape Growers' Association, at their next meeting; a member to be appointed by the American Wine Growers' Association of Ohio, and Dr. C. W. Spaulding, of Missouri. At the meeting of the committee to award premiums, in case they are not all present, the members present, to fill the vacancies. The award of the committee to be final.—*Country Gentleman.*

Flesh in Grass.—Animals can do nothing (says a writer in *All the Year Round*) with inorganic materials, unless these have been previously prepared by the vegetable. The vegetable kingdom, therefore, as Jean Mace says, is the vast kitchen in which are cooked the dinners of the animal kingdom. When we eat the ox, it is the grass which he has eaten that actually nourishes us. For us, he is a mere intermediary, who transfers to us inact the albumen extracted by his stomach from the juices supplied to him by his pasture grounds. He is only a waiter in the grand eating-house of nature. The dishes he brings us have been put into his hands ready prepared. Only, to appreciate his services properly, we must remember that the nutrious portions furnished by grass are very small indeed in their weight and dimensions, and that it would be a weary task for our digestion to have to elaborate them one by one. We might be starved to death with our stomachs full, as happened to some unfortunate Australian explorers, who found plenty of nardoo to eat, but nothing else. The ox presents us with those little portions concentrated in a heaped up plateful; and our stomachs are the gainers by his complaisance.

Method of Extracting Cream from Whey.—Kilian Egger, of South Cortland, N. Y., has recently obtained a re-issue of the patent granted to him (Sept. 25, 1866) for an improved method of extracting cream from whey. After the cheese-curd has been separated from the whey, the latter is put in tanks, which may be about one foot deep, more or less; and to ten gallons (more or less) of whey a handful of salt is added. It is preferable that the tanks above mentioned should be made of zinc or have zinc bottoms, but they may be made of other material provided it is a good conductor of heat, or that the bottoms are of good conducting material. These tanks containing the whey are placed in running water, or upon a cool cellar floor, and allowed to stand for a few hours, when the cream is skimmed off and churned. The churning is performed at a lower temperature than is commonly used in churning butter from fresh cream.

Farmers' Gardens.

Perhaps there is no one thing connected with the culture of the soil so badly and universally neglected by farmers as their gardens. How many in your neighborhood, reader, have what may be strictly termed a good garden from year to year? How many grow an abundant supply of small fruits for the use of the family? How many have asparagus, radishes and salads plentifully, or at all, early in the season; melons, cucumbers, squashes, tomatoes, cabbages, peas, beans, green corn, &c., in the summer months; and celery, vegetable oysters, parnips, turnips, horse-radish, &c., in the fall, winter, and early spring? All farmers can and should have them; nothing which they eat is cheaper, more grateful or healthful than these, together with the summer fruits. If we can persuade you to take the pains, and incur the slight expense necessary to their production, we shall be amply rewarded for our labor by the gratitude and satisfaction which we know those feel who are dependent on you for support, and who eat daily at your table.

Have you a garden spot? It should be a choice piece of land; not large, but rich, dry, warm, near the dwelling, and enclosed to prevent the depredations of fowls and animals. If the soil is poor you have the means at hand to make it rich; if heavy or wet, thoroughly underdrain it—as it is small you can afford this expense. We repeat, it need not be large, for a small garden, well tilled, is much better, and less costly, than a large one overrun with weeds, and cultivated like your fields. Leaf mould from the woods, with ashes, lime and plaster, are the best manures you can use, unless you can spade or plough in *deep* fine barnyard manure. This year you should make a compost heap, and have it on hand for the next.

If the garden is small, it is best not to plough, but rather spade. First of all lay it out well; make a bed or border, as they are called, four or five feet wide, all round the outside. Next to this a walk; then one or two broad cross-walks, and reserve the rest for beds and walks, as crops and circumstances shall dictate. Make up your mind now to have a good garden this year; and in our next article we will try and tell you how to start the early vegetables and seeds in a cheap and simple manner.—*Rural New Yorker.*

☞ A single thistle, dock, or mullein, if allowed to perfect its seeds, and to disseminate them without hindrance, broadcast over the soil, will entail a task work which it will require much painful labor to perform.

Noxious Insects Naturalized in America.

No. 12, (September, 1866,) of the "Practical Entomologist," (Philadelphia,) contains an interesting article by Mr. B. D. Walsh, on this subject. From it we learn that fully one-half of the worst American insect foes have been imported from Europe. Thus the Hessian fly, (*Cecidomyia destructor,*) was introduced nearly ninety years since; the wheat midge, (*Diplosis tritici,*) about forty-five; the bee-moth, (*Galeria cereana,*) at the commencement of the nineteenth century; the apple moth, (*Carpocapasa pomonella,*) the currant clear wing, (*Trochilium tipuliforme,*) the meal worm, (*Tenebrio molitor,*) the cockroach, (*Blatta orientalis,*) at definite periods, and within the last few years the asparagus beetle, (*Crioceris asparagi,*) has made its appearance in the State of New York; finally the gooseberry saw-fly, (*Nematus ventricosus,*) has since 1862 showed itself in several places, and has already proved very destructive. Mr. Walsh doubts if even the so-called American cockroach, (*Blatta Americana,*) be really indigenous, and suspects its importation from Asia. Probably, with justice, he states that the injury inflicted on America by European insects is only reciprocated to a very slight extent; the chief insect pests for which we have to thank America being the pea-weevil, (*Bruchus pisi,*) and the now two-well known house ant, (*Myrmica molesta.*) He argues, therefore, that though popularly known as the "New World," the American continent being the older, its plants and animals mostly belong to an old-fashioned creation, and can no more stand their ground against their more vigorous imported European competitors, than the Red Indian can hold his own against the Caucasian race. Mr. Walsh's theoretical speculations always deserve earnest consideration, and, in this case, the facts appear to bear him out. One of our common white butterflies has already obtained a footing in Canada, and perhaps eventually may prove more destructive there than the indigenous *Pieris oleracea.* Nor is America the only land so situated, inasmuch as it seems ordained that the European race, wherever it may locate itself, shall take with it some of its natural pests. Thus it is well known that some of our common weeds flourish in Australia and New Zealand with far greater luxuriance than in Europe.—R. M'LACHLAN, in the (English) *Entomologist's Monthly Magazine.*

WOOL IN VERMONT.—Vermont produced this year nearly 4,000,000 pounds of wool. She is fifth in the loyal States in producing power—New York, Ohio, Michigan, and Pennsylvania ranking above her.

Sunday Reading.

Because we are not always masters of our own affairs, nor consequently of our time, therefore ought we to have ever ready at hand a good collection of texts, which contain in few words the power and spirit of gospel motives, the perfection and beauty of duties, and the substance of advice and counsel, and to fix these so in our memory, that they may serve as a shield, for us to oppose, as our Saviour did, against the darts of the devil, and as a supply of excellent and useful thoughts upon a sudden: so that, in all the little interruptions of business, and the many little vacancies of the day, the mind, which is an active and busy spirit, may never want a proper subject to work upon, much less lose itself in wild and lazy amusements, or defile itself by vain and vicious thoughts. But we must not only take care that meditation be frequent, but also that it be not loose and roving. To which end it will be necessary to study ourselves, as well as the scripture, and to be intimately acquainted with the advantages and disadvantages of our constitutions; so that in our meditations on the scriptures we may more particularly have an eye to those vices, we are most obnoxious to, and those virtues, which are either more necessary, or more feeble and undergrown.

Some there be, that for extreme refuge in their evil doings, do run to God's predestination and election, saying, that, "if I be elected to salvation by God, I shall be saved, whatsoever I do;" but such be great tempters of God, and abominable blasphemers of God's holy election; they *cast themselves down* from the pinnacle of the temple in presumption, that God may preserve them by His angels through predestination.

There were two remarkable periods of Christ's life, His *intrat* and His *exit*, His entrance into His public ministry at His baptism, and His finishing it at His Passion; and at both we have the devil fiercely encountering Him. When the christian is about some noble enterprise for God's glory, then Satan will lie, like a serpent, in the way, "an adder in the path, that biteth his horse's heels, so that his rider shall fall backward."

His defensive weapons were principally three, corresponding to the number of our three mortal enemies. He used the *wilderness*, against the temptations of the world; *fasting*, against the temptations of the flesh; and *prayer*, against the temptations of the devil.

The devil and sin, in themselves considered, are but weak and impotent; they cannot prevail over that soul, which yields not unto them. The evil spirit then only prevails over us, when we ourselves consent to his suggestions; all his strength lies in our treachery and falseness to our own souls. Sin is nothing else but a degeneration from true goodness, conceived by a dark and cloudy understanding, and brought forth by a corrupt will; it hath no consistency in itself, or foundation of its own to support it. Mendacium non habet pedes; it hath no feet, no basis of its own to subsist and rest itself upon. Let us withdraw our will and affections from it, and it will soon fall into nothing.

Seeing God's providence is manifest in ordinary means, it behoveth every man in his calling to use them carefully; and when ordinary means be at hand, we must not look for any help without them, though the Lord be able to do what He will without means. Our Saviour avoucheth it to be flat *tempting* of God, for Him to leap down from the pinnacle of the temple to the ground; whereas there was an ordinary way at hand to descend by stairs.

With what fear, reverence, and holy joy, should we *open* the Bible, the book of truth and happiness, God's heart opened to man; and yet the whole, and every part of it, secreted from him, and hid under an impenetrable veil, till he opens his heart to God.

It frequently happens that the enemy permits those, whom he has tempted, to continue some time in quiet, that he may surprise them more easily, when they least think of him, and make them fall into sin by some violent and sudden attack.

A false interpretation of scriptures causes that the gospel of the Lord becomes the gospel of man, or, which is worse, of the devil.

Poverty, predestination, and ambition are the three quivers, from which the devil drew his arrows.

An adulterous sense crosseth the verity of scripture, as much as does the corruption of the text.

It is a fearful mistake to believe that, because our wishes are not accomplished, they can do no harm.

THE STEAM PLOUGH AT THE SOUTH.—New Orleans papers announce the arrival there of one of Fowler's English Steam Ploughs. We quote:

Mr. Max Eighth, formerly chief engineer on the staff of Pasha Hahn, when that Pasha held the vice-royalty of Egypt, comes with the machine to superintend experiments made with it Having witnessed in Egypt the operation of the plough, he is convinced that it will be as successful here as it was on the Nile, and yesterday his favorite implement was tested on the fair grounds. A large company witnessed the trial, among whom were several gentlemen whose occupation from boyhood has been that of a planter.

Baltimore Markets, Mar. 23, 1867.

COFFEE.—Rio, 18¼a19½ cts. gold, according to quality. Laguayra ——, and Java 25a26½ cts. gold.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	25	—
Good do	26¼	—
Low Middling	28	—
Middling	30	—

FERTILIZERS.—Peruvian Guano $80; Patapsco Co's $60; Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone, $60; G.Ober's(Kettlewells) AA Manipulated,$70; A do.$60; Ammoniated Alkaline Phosphate,$55; Alkaline Phos. $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56; Maryland Powder of Bone, $50; Andrew Coe's Super-Phosphate of Lime, $60; —all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a $14.00 per ton, or $2 50 per bbl. Shell Lime, slacked, 6c., unslacked, 10c. per bushel, at kilns.

FISH.—*Mackerel.*—No. 1, $19a21; No. 2, $16 50a17.50; No. 3, $14a15. *Herrings* —Labrador, $5.50a6.50; Potomac and Susquehna, ——; Codfish, 5¼a6¼ cts. per lb.

FLOUR.—Howard Street Super and Cut Extra, $11.00a $12.00; Family, $14 50a16.00; City Mills Super, $10.62a 11.50; Baltimore Family, $17.50.

Rye Flour and Corn Meal.—Rye Flour, new, $7.25a 7.75; Corn Meal, $5.20a5.25.

GRAIN.—*Wheat.*—Good to prime Red, $3 20a3.30; White, $3.40a$3.50.

Rye.—$1.35a$1.50 per bushel.

Oats.—Heavy to light—ranging as to character from 65 a70c. per bushel—bulk.

Corn.—White, $1.08a$1.10; Yellow, $1 06a$1.08 per bushel.

HAY AND STRAW.—Timothy $28a32, and Rye Straw $28 per ton.

BEANS.—$3.00a3.25 as to quality.

POTATOES.—$1.00 per bushel.

PROVISIONS.—*Bacon.*—Shoulders, 10¼all cts.; Sides, 12a13¼; Hams, plain bagged, 16 cts.; sugar cured, 17 cts. per lb.

SALT.—Liverpool Ground Alum, $2.20a2.25; Fine, $3 25. Turk's Island, 62a65c. per bushel.

SEEDS.—Clover, held at $9.00a9.25; Timothy, $3.75a 4.00; Flaxseed, $2.75a$3.00.

TOBACCO.—We give the range of prices as follows:

Maryland.	
Frosted to common	$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10.00a15.00
Fancy	17.00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00

Ohio.	
Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY—$2.25a2.30 per gallon, in barrels.

WOOL —We quote: Unwashed, 26a28 cts. per lb.; Tub-washed, 45a47 cts.; Fleece, common, 42a47 cts.; Pulled, No. 1, 31a35 cts.; Merino, 38a41 cts.

CATTLE MARKET.—Common, $7.50; Good, $8 00a$8.75; Prime Beeves, $9.00a9.25 per 100 lbs.

Sheep—5a8¼ cents per lb. gross—scarce.

Hogs—$10.75a11.50 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HEWES, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, Mar. 23, 1867.

BUTTER —Ohio, in brls. and kegs, 20 to 25 cts; Roll. 30 to 33; Virginia and Pennsylvania in kegs and tubs, 20 to 25; Glades, 25 to 30; Goshen, 35 to 45.

BEESWAX—42 cts.

CHEESE.—Eastern, 22; Western, 18a20c.

DRIED FRUIT.—Apples, 10; Peaches, 17.

EGGS—In barrels, 21 cents per dozen.

FEATHERS—80 cents for good Southern

LARD.—Brls. 13, kegs 14, jars and other country packages 15 cents.

TALLOW.—11¼ cents.

CONTENTS OF THE APRIL NO.

THE

AMERICAN FARMER:

DEVOTED TO

Agriculture, Horticulture, and Rural Economy.

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

Sixth Series. BALTIMORE, MAY, 1867. Vol. I.—No. 11.

MAY.

"'Tis the season of tender delight,—
The season of fresh-springing flowers;
Young Spring in the joy of her beauty is bright,
And leads on the rapturous hours;
Fair Nature is loud in her transport of pleasure,
The woods and the valleys re-echo her lay;
The robin now warbles his love breathing measure,
And scatters the blossoms while tilting the spray;
One impulse of tenderness thrills through the groves,
While the birds carol sweetly their innocent loves."

Farm Work for the Month.

The great delay in spring work, caused by the long-continued rains, leaves little to be said in advance of our suggestions for April. Extra force, where needed, must be put on, and extra diligence used to bring up the work to the season.

THE CORN FIELD.

Push forward the ploughing, if not yet finished, and make the necessary preparation of the surface, with harrow and roller, bearing in mind that this is a very essential part of the cultivation, which must be done sooner or later, and is much better done before than after planting, and puts forward the general working of the crop. Look again to notes of last month, on other points. Have the necessary fertilizers in place, and plant at the earliest time practicable.

TOBACCO.

If practicable, get the old crop into market by the last of the month. Look well to the handling, and be careful to have it in good condition before it is put into the hogsheads. The peculiar odor of well-conditioned tobacco should be familiar to every one who has charge of a crop, and none should be packed until it will bear the scrutiny of a practised sense of smell.

Keep the beds for new crop clear of grass, and top-dress often as before directed; forcing the growth as much as practicable.

If sod ground is to be planted, the sooner it is ploughed the better, and, indeed, it should be the first turned of the season. It is well, unless turned very flat, to follow with the roller or harrow, to close the seams and effectually smother the grass. The first ploughing being completed, the after-working should not disturb the sod, and should be done as required by the progress of the plants.

The manuring should be done after the first ploughing.

POTATOES.

The principal crop of potatoes should not be planted before the middle of June, yet many persons may wish to take the chance of both an early and late sowing. A good sod, well turned now and manured in the drill, will give good return, if the season be favorable. The advantage of the later planting, is the postponement of the period of forming the tubers, beyond the usual time of excessive heat and drought. The seed potatoes may be cut at any time, and allowed to heal over before planting. Spread them on floor in a dry place for this purpose.

ROOT CROPS.

In proportion as we give attention to our stock, will it be found desirable to increase the crop of such roots as we may prefer. The sugar beet is one of the best for milch cows, keeping firm and fresh till summer. The parsnip is esteemed, especially in the Channel Islands, for butter-making cows. The carrot is found valuabl

for horses, and all are good, we believe, for sheep and hogs. We are not prepared to recommend them as yielding more of nutritive matter from the land cultivated, than the corn crop, until there shall be a fairer test of quality, than any yet known to us, but for the sake of such variety in winter food, and for the value of the change from dry to green provender, in winter to some extent, and in spring more, the stock-grower should value them.

The planting of such crops, excepting the varieties of turnip, should not be postponed beyond the present month. They need a deep soil, well manured, and thoroughly prepared.

SORGHUM.

This crop should be planted after the middle of the month. Pour boiling water on the seed and let it soak twenty-four hours. On every farm enough might be grown to give a year's supply of rich and wholesome syrup, provided there be a mill in the neighborhood to grind the cane. The sorghum makes excellent food for hogs in September, and a small quantity may be grown for this purpose.

HUNGARIAN GRASS.

This, or some other variety of millet, will make an excellent substitute for hay, if that fall short. One of the best farmers of Baltimore county reported to us some years ago, an average crop of three tons to the acre on twenty acres, of hay which his stock preferred to any other, and which was fed to his fattening bullocks.

It should be sown by the first of June, and will be fit to cut in ninety days. The ground must be well prepared and abundantly manured. A peck of seed to the acre is sufficient, but double that quantity will not be too much, and the fineness of the hay will be in proportion to the measure of seed.

FIELD PEA.

This crop, whether sown for improvement of land, or the peas, should be got in late in the month, or early in June. If sown broadcast, one-and-a-half to two bushels of seed should be sown, but, if in drills, two-and-a-half feet apart, a bushel will be sufficient. The black pea grows quickest, and is hardier than some others, but all kinds are valuable. For the table, the small black-eyed variety, known as "the lady pea," is, perhaps, the best.

SWEET POTATOES.

Have a moderately rich loam prepared for planting this root. Lay the rows off three feet apart and throw into ridges. They may be planted on the ridges two feet apart, or hills made at somewhat greater distance, putting a single plant to the hill.

PUMPKINS AND CYMLINS.

Be ready to plant these the first of June.

SHEEP SHEARING.

At any time after the middle of the month, let this work be done, and let it be carefully supervised by the master. Give shelter, should a cold rain follow.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER, Maryland Agricultural College.

MAY.

ASPARAGUS BEDS should be kept clean, weeded, and stirred with a fork, being careful not to stir too deeply.

CABBAGE PLANTS should be planted out in showery weather at every opportunity, if only a very few at a time. It will be a benefit to the seed bed in giving the seedlings more light and air, and prevent them from being too much drawn up. Hoe and earth up those sown early. Sow, for transplanting in June and July, seed of the premium Flat Dutch, Stone Mason Drumhead, Drumhead Savoy, &c.

CAULIFLOWER.—Hoe between the growing crops to destroy weeds, and to give the roots the full benefit of showers. Those which were planted close should be thinned out by taking every alternate plant, as soon as there is a small head formed; this will give a much better chance for the production of fine heads upon those left. Sow early in the month for a fall crop, continue to plant out those raised in hot beds. When heads appear, break the leaves and cover them, which will protect them from the sun.

BEETS.—Towards the end of the month sow for a winter supply. Thin out those already up, and if there are any vacancies in the rows fill up by transplanting.

CELERY.—Plant out the more advanced that were pricked out last month, and transplant those sown in March, when sufficiently advanced.

ENDIVE.—About the last week make a sowing for succession. Endive makes an excellent summer salad.

PEAS.—Sow for succession, Champion of England, and Dwarf Marrowfat; these will be benefitted by soaking in water a few hours previous to sowing. Advancing crops will be much benefitted by occasional application of liquid manure.

Plant out tomatoes, egg-plants, peppers, and anything that may be strong enough from the seed beds.

Sow, for succession, pole and string beans, turnips, radish, lettuce, (the Silesian) prickly spinach, parsley, squash, cucumber, melon, water melon, sweet corn, okra, and martynia, for pickles, and do not omit the sweet herbs.

Thin out, in due time, every kind of crop where there is anything like crowding; beet, spinach, parsley, &c., are never as good when left standing thick. When potatoes are above ground, as is now the case with all forward sorts, have the ground between the rows well cultivated, or deeply hoed, which will prove of great advantage to the crops. Now, that most of the seeds scattered over the surface of the garden last summer will have germinated, let every part of the garden have a deep hoeing in dry weather. The neat appearance of the garden for the summer will depend, in a great measure, on a complete destruction of all weeds at the present time. Spade up every vacant piece of the garden as opportunity offers, for the first plantation of winter crops; spade deep in the first instance, after which give a good coating of manure, and spade it in, when it will be ready for planting with cabbage, brocoli, Brussels Sprouts, Scotch Kale, &c. Should we have a spell of hot dry weather during the month, we would advise all our readers to do, what we would like to do ourselves—that is, to give cauliflowers, lettuce, peas, celery, &c., a good soaking of manure water; the liquid manure tank well managed becomes a mine of fertility.

Cost of Cashmere Shawls.—The best Cashmere shawls, the long shawls with plain ground, crimson, purple, blue, green, or yellow—green are best—never cost less than £135 a pair, and are never sold singly. The next kind, or square shawls, much more frequently imported into Europe, are either loom-worked or needle-worked, needle-worked being the more original, and they cost from £30 to £50 in the Paunjaub, without freight or interest or profit to the importer—little facts which we commend to the attention of women who think they can buy the best Cashmere at £15 or even £10 a shawl. What they do buy is either an imitation which never was in India at all, or a Delhi shawl, very good in its way, but no more approaching a Cashmere shawl in beauty than in durability. A man might lie on heather in a black Cashmere for twenty years, and it would be as perfect as on the first day, while every imitation whatsoever will die out.—*English Paper.*

The Fruit Garden.

The beautiful weather, which we may now expect, will produce a most delightful change in the face of Nature. We cannot look upon this marvellous change without the most pleasurable emotions, feeling that all nature is rejoicing in the name of its great Creator, and proclaiming "the hand that made me is divine." The present state of the weather by which we are now surrounded, combined with the fine autumn of last year, and our comparatively mild (though prolonged) winter, may reasonably lead us to hope for abundant crops of all kinds of fruit. As regards peaches we do not remember to have seen fruit blossoms in a more promising condition. (April 15.) Where fine peaches are a desideratum, disbud (remove soon after they have burst into leaves such buds as, if allowed to grow into shoots, would be misplaced, or overload the two with young wood) the trees as soon as possible, as the shoots will be crowding each other, but be careful not to overdo it at once as the leaves shelter the young fruit, and there may be frost during the first few days of the month sufficient to injure it. Circumstances permitting, we should be careful to regulate the shoots of all our peach, and nectarine trees, so as to give all the light and air possible. Soon as the roots acquire consistency, we are careful to remove them with a sharp knife, as breaking them off would very much disfigure and injure the trees.

All fruit planted during the late fall and spring, should have timely and careful attention. After a tree has been transplanted, however well done, the first step has only been taken as to its ultimate success. Much will depend upon the treatment it receives during the earlier stages of its growth, more particularly the care bestowed upon it during the first summer. As soon as the hot weather arrives, or sooner, the ground around the trees for several feet should be well mulched with old straw, which we have found to be about the best material for the purpose; our practice has been to put it on some four or five inches thick, which keeps the top soil throughout the dryish time in summer quite moist, thus preventing the trees suffering from drought. It moreover prevents the weeds giving any trouble during the summer months, and artificial water, ing for a tree thus mulched has never to be resorted to. We remember a friend who had a quantity of young peach trees, which had been so much injured by drought as to cease growing, and assumed a very sickly appearance, but by stirring the soil in early spring, and mulching around them for some six feet, in a very few

weeks they commenced to grow, and in the succeeding summer were in a very healthy condition, notwithstanding it was a very dry one. We believe that keeping the ground in young orchards well cultivated is very essential to success. This system we have not failed to advocate for many years, and have heard many exclaim, we cannot afford to give all this attention to fruit trees; it will not pay! Not pay! to give proper attention to trees after having paid a good price for them. The best orchards in this country, those that are celebrated for their uniform magnificent fruit, and which are paying orchards, we find to be those which are kept clean by cultivating, harrowing, &c., in connection with a system of "thorough drainage," and application of manure whenever necessary, with no vegetable or cereal crops permitted between the rows. It is not unfrequently that there is much difficulty experienced in cultivating between the rows of fruit trees; a two-horse team, with double whipple-trees are generally used for the purpose, the result of which is lacerated bark, and broken branches. Upon level ground, and where it has not become hard, one horse, with a very short whipple-tree, and the traces considerably lengthened, will be found quite sufficient, and with this the work can be very easily and well performed. Strawberries ripening under glass should have a comparatively dry air, and plenty of ventilation, or they will lack flavour and colour. If a few fine strawberries are preferable to many, let the first take the lead and swell off, removing the greater part of the later ones. This practice we consider of the greatest importance in growing the fruit for its seed, wherewith to raise new varieties. Where strawberries have been grown in pots and the fruit picked, instead of consigning the plants to the rubbish heap, plant them in some well prepared soil; keep them well cultivated and free from weeds, give occasional waterings of liquid manure during the summer, and note the result. Run the hoe through the rows of strawberries that no weeds be left; soon as the fruit commences to swell cover the ground with straw or grass to keep it moist, and the fruit clean. Make frequent applications of manure water to grape vines, strawberry beds, fig, and other fruit trees in pots and tubs. We have made it a practice to apply liquid manure to all kinds of fruit trees, and growing crops, and with the most satisfactory results. We advise varied and frequent applications rather than a few strong doses. House sewage in its full strength is too strong for some crops, but with from two to three parts of water added, it will answer admirably. In no other respect whatever have we a word to say against liquid manure. We have before stated that by looking after the soap-suds, house sewage, &c., many of our crops *might be doubled*: we hope to be able to soak our strawberry beds with it, and expect our labor will be rewarded tenfold. In all such waterings we are careful not to wet the foliage any more than possible. Now is the time to look well after the weeds, and not allow them to obtain a footing; the best way is to destroy them before they are one inch high, which may be done with one-fourth the labour required when they are more advanced. The easiest and most *economical* way is to keep the surface clean of them at all seasons. Complete all work in this department, as indicated for the last two months, early as practicable, more especially the planting of fruit trees. We close our remarks with the advice of the old laird of Dumbedikes, (in the "Heart of Mid Lothian,") to his son just before he shuffles off his mortal coil: "Jock, when ye hae naething else to do, ye may be aye sticking in a tree; it will be growing, Jock, when ye're sleeping."

The Flower Garden.

SPRING FLOWERS.

"A bunch of violets, culled when first
The showers of spring unfold them,
May be of small intrinsic worth,
And fade while yet we hold them;
Yet are they types of modest truth,
And may become a token
From friend to friend of kind regard,
That never shall be broken."

From the first to the end of the month all the summer bedding plants may be planted out, such as scarlet flowers, and other geraniums, verbenas, salvias, heliotropes, petunias, &c. There may be a certain number of the above named plants left after the beds and borders are well filled, which will do for making good any vacancies which may occur. A few cuttings of geraniums taken now, and potted in small pots, and placed under glass, will soon fill the pots with roots, and make fine stout plants for fall bloom. Any plants (of the above named) from spring cuttings, will be the better for being kept under a hot-bed frame for the next two weeks. There is nothing gained by planting them out until they are well established. Planting out before the plants have been properly hardened in their pots, by full exposure to the atmosphere for some days previous, is not unfrequently, "love's labour lost." Continue to sow, and thin out the annuals sown in beds; they should never be al-

lowed to smother each other by being too thick, from three to six plants, depending upon the habits of the plants, will be quite sufficient. Should the weather be dry, roses will be greatly benefitted by abundant supplies of manure water. Green fly is sometimes very troublesome upon rose bushes at this season of the year; a good washing with the syringe upon two or three successive evenings, with diluted tobacco water, will greatly contribute to destroy this pest.

Rhododendron, and azalias, in old plantations, would be much benefitted with a top-dressing of well decomposed cow manure. Those planted within three or four years are better without artificial manure. Our practice has been to remove all the trusses of bloom from the rhododendron, as soon as they lose their colour. Attend to recently planted evergreens, by keeping the soil moist about their roots, but not to saturation. We have found watering overhead in the evenings of bright days, to be of more service in repairing the loss sustained by evaporation than over-watering at the root, while there is a deficiency of rootlets to absorb it. Plant out the dahlias that have been kept in the the cellar, or grown in pots; fill up the holes with good compost and place a good stake to each plant.

That everything may appear to the best advantage, activity and attention must be the order of the day; keep the hoe unceasingly at work till all weeds are destroyed; remove everything offensive to the eye from all beds, pathways, lawns, &c.

Supply of Country Milk to London.—The monthly supply of milk from the country into London is 508,000 gallons. The western counties contribute 140,000 gallons, the eastern counties 125,000 gallons, and the northern counties 95,000; Hants and Berks send 55,000; and from other districts the daily supply is augmented by 18,500 gallons. Kent and Sussex are the lowest contributing counties; and at the present daily average, 6,604,000 gallons of milk are annually brought from the country to London; and this is increased by metropolitan dairymen to an extent of another third, and is daily retailed out to about 260,000 customers. The aggregate supply of milk consigned to London is the produce of 20,000 cows in the country. The wholesale prices charged are at an average of 2s. per barn gallon (eight quarts), and the value of milk brought to London for consumption represents a sum of £660,400 per annum.—*Mark Lane Express.*

For the "American Farmer"

Stalling Cattle.

(A LETTER TO A FRIEND.)

Virginia, March 23, 1867.

My Dear Sir: I have but little experience in keeping up cattle the year round, being confined to one single experiment, *forced* upon me some years ago under very disadvantageous circumstances, and never repeated because a like necessity did not occur, and my other engagements required for years my absence from my farm. I regret very much that I do not possess the information (you seem to think I have) requisite to a *positive* response to your enquiry, "can cattle be safely and economically housed the year round?" Yet I have so much faith in an affirmative answer that I shall repeat the experiment next year, and if I find it successful shall adopt it as a system. In England, and in many parts of the continent, it has been practiced for years—especially in Silesia—a province in Prussia, where fences are unknown. With partridge pea—oats—grass from an old meadow, and two acres in green corn, broadcast, I summered my stock of horses and cattle, sixteen in number, big and little, and they were never more healthy nor do my teams ever perform their work better, without an ounce of grain, or pound of straw or hay. I had but recently taken possession, and no crops had been grown the preceding year. I can hardly conceive of an experiment made under greater disadvantages. I did not measure the land cut over, but I am satisfied that it was less than an acre per head. It occasioned me so little trouble or extra labour that it was not noted. A middle-aged man, by no means an active one, occupied about two-and-a-half hours per day in cutting the green food, which was hauled up at mid-day, and at night, as the teams returned from the fields. The stock were fed three times a day. The cows had three airings a day when taken to water, and the teams were worked only half time. Had I been prepared, I have no doubt that I should be perfectly satisfied that the system is practicable and profitable.

The great amount of humbug with which the soiling of cattle has been developed, has deterred our brother farmers from even experimenting on a subject of so much interest to them. To what may be required for the dairy farm, or the fattening of cattle for the shambles, I can make no response, for I have no personal knowledge, but I do know that for all its practical purposes of the farm, where cattle are mainly kept for the improvement of the soil, that the summer feed-

ing of cattle is about the simplest piece of work performed, and is fully within the capacity of the most ordinary negro.

It is very true that the same care is not required for common farm stock as is for milch cows or beef cattle, yet I presume much more care and attention than I gave would meet with profitable returns, especially when given to the winter keep. Roots and hay are almost essential if we regard the order of the stock, or the quantity and quality of the manure. Our cattle have rarely had, during the winter and spring, other food than such as was afforded by wheat straw, corn stalks, and a few shucks. Our aim seems to have been confined to keeping the poor animals *alive* rather than to bringing them to the pasture in full condition. The character of the manure made under such management, of course, was correspondingly indifferent.

For a stock of eighteen cattle, and two hundred sheep, I should deem five acres in turnips and rutabagas amply sufficient (with the help of the pumpkins raised in the corn-field,) for good winter food, added to what is usually given. The additional expense would be the cultivation of the turnip, more, much more than compensated in the improved condition of the cattle. All of the rough food should pass through the cutting box, and the corn stalks through the masticator, the cost of which will be returned in the enhanced value of the manure. The very best market for straw and hay is afforded AT HOME.

For the summer feed—rye, sown with the corn at its last working, clover, oats, grass from the meadows, and broadcast corn, three-fourths of an acre to each head. There is no loss in having too much, the surplus can be converted into good winter food. The expense of the broadcast corn and cutting, with the necessary attendance, will be repaid by the great bulk of manure which will be made. Green weeds will aid you much. Cattle kept stabled will eat much coarse, green food, which in the fields they would not touch.

This system, properly carried out, will require a vast supply of litter, and since the most of our woodland has been cut down by the contending armies, we must rely on the straw we can raise. How much straw will be required for each head I cannot say from my own knowledge, but I find in the *Practical Farmer* that three loads of 1400 pounds each is a full littering for an ox. I suppose this would be found to be an ample supply. How many acres it will be required to supply this quantity, I am equally unable to state from personal experiment, though I have been informed that an acre of land yielding twelve bushels wheat, will yield also 1500 pounds straw. This I am rather inclined to doubt, but in the absence of more reliable data, it may be assumed to be correct. By calculation you can determine upon this basis, the number of cattle which your land ought to carry, comfortably to them, and profitably to yourself.

I have seen it stated that the cattle on a farm should be in the proportion of one to every three acres of *cultivated* land, but this was said in reference to the Norfolk acres in England, with which ours will hardly yet compete. Yet I think you might risk one to five, especially if you will afford a moderate allowance of hay, and avail yourself of the litter you can get from your woods, which I am glad to know have not been despoiled. I shall have no present occasion to test this point, having very few cattle left to me, but I would be glad to have your experience after a year's trial.

I am unprepared to state how much manure may be manufactured, "*per head per annum*," where the animals are fully fed and littered. But I have with me a very intelligent and experienced Prussian, in whom I have great confidence, who informs me that in Silesia, where the cattle are stalled all the year, a well-fed and littered work-ox will yield ten or twelve four-horse wagon loads of rich manure per annum, a cow from eight to ten, and that the work-horse will yield six to eight, but he says it will require much more straw for litter than above stated.

The *Practical Farmer*, before referred to, says that three loads of straw, of 1400 pounds each, will yield, when littered, to a stalled cow, nine four-horse wagon loads of good manure, which nearly accords with the Prussian's statement, though, in my ignorance, I confess myself a doubter. At least, I have never reached the point claimed for horses, though I have diligently looked after their being at all times fully littered. I defer, however, to the experience of others.

In Silesia, by the same authority, eight four-horse wagon loads is deemed a full manuring. I believe that in England and Scotland the average is about the same. But, in Silesia, as a general rule, all the manure from the horse and cattle stables are composted with rich earth and other materials, systematically collected in the proportion of two to one, and, when so composted, one-half more is applied, *i. e.*, twelve wagon loads per acre. Manure, in the process of preparation in the compost heaps loses, it is said, about one-fourth its bulk.

If then each head will manufacture nine loads of manure, which shall be composted with twice its bulk of other materials, and the bulk of manure is reduced in the process one-fourth, we will have, say twenty-four loads of rich fertilizing matter equal, some say, to pure manure. This will manure, under the Silesian system, two acres of land, which is hardly credible. I would be perfectly satisfied if I could make one head manure one acre. Such, however, are the claims by the advocates of stall feeding, and they deserve to be mentioned for refutation or confirmation.

It has been stated that it will require three acres of good pasture to carry a cow through the summer, and that the same acres will carry fifteen sheep, and herein lies the great argument of the advocates of stalling. They claim that one-half of the quantity for grazing will soil a cow or ox. If this be true, (it is almost beyond my credulity) then if the confinement shall not prove injurious to the cattle, there can be no room for questioning the propriety of adopting the system as soon as practicable. The wool and lambs will be a clear money profit. But when we look to the improvemements to the land by keeping a good flock of sheep, the benefits of the stalling system are astonishing. In Silesia, when folded on the land, two hundred sheep will manure an acre in fourteen nights. We may fold in Eastern Virginia at least thirty weeks during the year, equal to fifteen acres. In England, a flock of four hundred sheep will manure forty-five acres, if folded all the year. A flock of one hundred and sixty sheep penned six weeks, with a load of straw per week, and fed on drawn turnips, produced twenty-eight large loads of rich manure, equal to one hundred and twenty-one loads, or thirty four-horse wagon loads in six months. These, I infer, were penned day and night. Six loads of sheep manure are deemed of equal value with eight of cow-pen.

To sum up this astonishing statement:

18 head of cattle will manure	.....	36	acres of land.
200 " sheep " "	.....	22	" "
		58	" "

Now, if one-half be only true, still we have the strongest inducements to give the system a fair trial. I shall feel compensated if I realize one-fourth of fifty-eight acres per annum without the sheep.

But the advocates of this system go a little farther, and say that in addition to all that is stated, more money can be realized in this way than in any other. They say that the quantity of milk is increased, and that the yield in wool and mutton, or lamb, is a clear profit. They advise milch cows, with only such oxen as are necessary to the farm, and that the increase in milk or butter will pay all the expenses of the system, besides having enlarged the capacity and consequently added to the value of the land manifold.

I believe I have sufficiently responded to your inquiries, and again express the regret that my own personal experience would not allow me to speak by "*the card.*" That the system is valuable is clear, but whether it reaches the high point claimed for it is *more* than PROBLEMATICAL.

Truly yours, S. B. F.

For the "American Farmer."

Marl and Lime.

Editors American Farmer:

In several of your late numbers, the use of lime has frequently been discussed. Forty years ago the use of marl was generally introduced in Europe. Every farmer, claiming intelligence and being able to obtain marl, even at great expense and labor, applied it to his land. The results were astonishing. Where, with much labor and manure, only a middling crop had been obtained, the crop flourished *after* marl in an absolutely astonishing degree. Barren, sandy soil produced clover knee deep and more. Other land, which produced good crops of grain, but where no clover would grow at all, produced from three to four tons of clover *after* marl had been applied. These facts, established by practice all over the country, proved that marl, on most every kind of soil is, in combination with manure, the *greatest* fertilizing agent. But, at the same time, it is a dangerous and tempting agent. Marl applied by itself, without the aid of manure, in a year or two after its application will, if you continue to crop the land, leave your soil prostrated, and a prey for poor, wild grasses. The reason is, that marl is no manure, but only serves to dissolve and bring to life substances resting inactive in the soil. This being the case, it is natural that the increased activity of the soil can only be sustained by the application of manure. Where it is not done, the soil will wear itself out, like a spirited horse, if not kept back by a prudent driver. The great benefit of marl is, that you may take a crop or two after its application *without* manure, *this crop enabling you to produce the manure required for the same land in a year or two*, whereas in the common course of farming it is the *reverse*, the land requiring the manure BEFORE the crop is made.

Marl ought never to be applied oftener than

every sixteen to twenty years, except if the land is *trench*-ploughed, when it may be repeated in ten years. The principal agent in marl is *lime;* its contents of lime regulate the quantity required per acre. There are two kinds of marl, such where the lime is incorporated with clay, and such where it is incorporated with sand. If choice is left, always bring clay marl on sandy or light soil, and sand marl on clay soil. But even if there is no choice, and clay marl is to be applied to clay soil, and sand marl to sandy soil, still it remains the great benefactor to the soil. I, for my part, would give twenty dollars per acre more for land where marl is found, than for the same soil without marl. The amount of marl to be used per acre depends, as I have stated above, on its contents of lime. Of marl containing fifty per cent of lime, twenty-five cubic yards per acre will do. But, generally, marl does not contain more than from twenty-five to thirty-five per cent. The proper way to apply it is, either to throw it up during the winter and cast it out in spring or summer, or to cast it out on the field at once in the winter and spread it. Through the agency of frost, rain, wind, and sunshine, it will pulverize, and in spring, before you want to plough it under, harrow it well, roll it, harrow again and roll, if necessary, until you find it well pulverized and distributed It is the PRINCIPAL object to have it *well* pulverized before it is ploughed under. Marl will act under all circumstances, except where surface water is allowed to remain on the land. Water, in undue quantity, neutralizes the effect of marl.

In Maryland, and some parts of Pennsylvania, I understand much land has been ruined by too frequent marling. The only course to redeem this land is by *trench* ploughing, and careful culture in future. L. A. HANSEN.

Clifton, Fairfax co., Va., March, 1867.

BEET-ROOT SUGAR IN FRANCE.—An official return shows that the quantity of beet-root sugar made from the beginning of the season (1st September to the end of December) was 155,338 tons, being 27,208 less than in the corresponding period of the season preceding. Adding the quantity on hand on 1st September to the make, the total to be disposed of was 170,179 tons. Of this 105,579 tons were taken for consumption, export, distilleries, or entrepots. In 1865 6, the quantity so taken was 46,830 tons. The stock remaining on hand was consequently 64,000 tons, in round figures. There were, besides, 40,654 tons in the entrepots.

For the "American Farmer."

Hints on Grass Culture and Dairy Farming.

Messrs. Editors:

Believing in the idea of learning from one another, which implies teaching one another through the agricultural press, I will tell your "subscriber" in Cumberland county, N. C., how he may seed his impoverished land to grass, and make the production of butter at thirty cents a pound a profitable business. He says: "The land on which I propose farming is river bottom, originally of only medium fertility, and exhausted almost to the point of unproductiveness by careless and improper cultivation."

The fact that this land has been cultivated for years shows that it is not naturally too wet for herds-grass, timothy, and other grasses. How to obtain a good stand of these in the cheapest and best manner, is the first question to be considered. First obtain the several grass seeds to be sown, sufficient for all the ground to be plowed and seeded in one year. The surface to be gone over depends on one's capital, teams, laborers, and confidence in pushing a new enterprise. My confidence is such that I expect to seed in grass between eighty and one hundred acres in the current year. Herds grass grows well on pretty wet land, makes good pastures and meadows, fine, nutritious hay, and yields seed in great profusion. The latter is cheaper and more abundant in the market than any other. By going to the barns of farmers in Cumberland county, who raise and feed hay, "a subscriber" may find fresh seed, which probably may be bought at a low figure in the chaff, and sown as found. The writer raises most of the grass seed sown on his land as a matter of economy, and to avoid seeding his farm with pestiferous weeds bought (their seeds) in grass seed. To check the growth of weeds in the soil, it is important to sow grass seed with a liberal hand, and evenly over all the ground. One may get a fine set of grass and clover by sowing seed in the standing corn immediately after the last working of the crop. On land rich enough to bring a fair crop of oats, or wheat, grass seed may be sown with either of these cereals to advantage. But on poor land, if anything is sown with grass seed, it should be some fertilizer or manure. With me, grass seed, mixed with yard and stable manure, never failed, but it is impossible on poor land for beginners to have a tithe of the stable manure, needed for seeding land by the one hundred acres, or even in ten acre fields. Hence one should resort to *thorough tillage* in preparing a seed bed, and wait patiently for

time to develop the latent fertility in poor soils, well supplied with grass seed, aided by such help from plaster, wood ashes, lime, marl, bone dust, or chips, or guano, as one may be able to give. Grass culture is very simple, and pays a larger interest on land and labor than any other crop of equal value. Care should be taken to mow all weeds and sedges before they ripen any seed. Dig up all sedge roots with a hoe, as they are generally perennial, and apt, ultimately, to spread and take the ground to the exclusion of all better grasses. When sedge gets largely the advantage, the field should be plowed, planted to corn, or sown to some small grain, and re-seeded to grass. In this way sedge may be exterminated for a few years at least.

To secure a reliable income from grass, one should make the raising of grass seeds needed on his farm a part of his business, that he may have a plenty that is both fresh and clean to use at all times, for filling vacant places in meadows and pastures. In this way fields quite free from weeds, bushes, briars, thistles, sedges, and mosses may be formed, with an abundance of nutritious herbage for all farm stock. Fight bravely and exterminate all injurious plants, while kindly treating such as put money in the pocket. It would be easy to name a score of different genera and species of grass, which the writer has cultivated and tested in the South, but it is not necessary. Orchard grass, meadow fescue, tall oat grass, and blue grass, (both *poa pratensis* and *poa compressa*) are most worthy of extensive propagation in addition to those above named.

There is probably but little difference between Ayrshire and Scotch hornless cattle for dairy purposes. As dairy cows and working oxen need no horns for hooking sheep, and one another, the hornless breeds should have a preference on every farm. The Galloway, Angus, and Aberdeenshire breeds are best known in Scotland, and the polled Suffolk breed in England. It would require an extended essay to do justice to the polled cattle of Great Britain and this country. With judicious selection and management, common herds will give a fair lot of dairy cows. To be profitable they must be well-fed or or grazed every day in the year. They are machines for converting grass into money. A thorough knowledge of these machines is important to the dairyman and stockraiser. One of the most enduring benefits that accrue from the large production of butter is the facility it affords for improving a landed estate. Suppose "a subscriber" makes ten thousand pounds of butter a year, and sells it at thirty cents a pound, or for $3000. This crop, made on grass has not, like corn, wheat, tobacco, and cotton, required any ploughing to pulverize the soil, and expose fine particles of clay-mould and sand to be washed into brooks, creeks, rivers and the ocean to the injury of the tilled ground. Tillage also favors the leaching of all arated fields, to a greater or less extent, and promotes that nakedness of surface and burning of the sun, which greatly damage a good farm. Besides these objections to the excessive use of the plough, hoe, harrow, and cultivator, there is raised less grain, cotton, and tobacco on impoverished land, with little stock, grass, and manure, than might be grown on half the surface with proper attention to grass, stock, and manure. English farmers greatly excel us in raising large crops of grain by a better balanced system of husbandry. The agricultural statistics for the year 1866, of the United Kingdom of Great Britain and Ireland, have recently appeared in a Parliamentary paper, from which the following statement is taken. In England there are 22,261,833 acres of land under every kind of crops, bare fallow and grass. The proportion of live stock is fifteen cattle, and sixty-eight sheep to every one hundred of these acres. About one-third of this area (7,400,170 acres) is devoted to grain crops, yielding, the writer is confident, more than three times the amount grown on any equal surface in the Southern States. Agricultural history is philosophy teaching by example. In selling ten thousand pounds of butter from one's farm a year, not one ounce of nitrogen, potash, phosphoric, or sulphuric acid, is lost to the plantation. The little salt sold comes not from the soil. Pure butter is carbon and the elements of water, which abound in the air. The sale of butter is the selling of organized gases of the cheapest kind known to science. To organize air and sell it at a large profit, and at the same time enrich one's farm, by the steady accumulation of agricultural salts in the soil, is to-day the true measure of the best skill in the art and science of agriculture. In England, a farmer pays as much annual rent for the use of an acre, as will buy the fee simple title to two acres here, sells butter at thirty cents a pound, and then makes money. So soon as a "subscriber" gets grass to keep twenty cows well, he should have a first rate dairyman to work under him till the art is learnt, or longer. Broadcast corn for soiling and winter forage will pay handsomely.

D. Lee.

Gap Creek, Knox county, Tenn.

☞ Litharge mixed with lard is recommended as a cure for chilblains.

For the "American Farmer."

Green Sand and Copperas Poisonous to Plants.

In the last number of the *Farmer*, page 201, there is a paragraph which asserts that "*copperas can do no harm.*" Allow me to correct this error. Copperas, or sulphate of the protoxide of iron is injurious to vegetation; nevertheless, it is used very frequently by the manufacturers of manures, and especially poudrette* in destroying the sulphuretted hydrogen, or offensive gases, that make them otherwise unmanageable, and do not add at all to their virtues, although ignorant persons think that the value of a manure is in proportion to its strong odor. The copperas is not added to the manure for any other purpose, as it is much more expensive than plaster, which is the proper source of sulphuric acid, and the protoxide of iron, or the base of copperas, is injurious to vegetation, unless it is "weathered" for about one year, or exposed to the air. It is thus converted into the colouring matter of yellow clay, or that of the "chocolate soil" of Virginia, or the colouring matter of red bricks, viz., the anhydrous sesquioxide of iron, the former being hydrated or combined with a certain portion of water, which constitutes their yellow colour, just as the beautiful green colour of copperas is dependent on its water of crystalization. Green sand and other marl is often injurious to vegetation, because copperas is formed in it out of the iron pyrites that it usually contains. In illustration of this, the following quotation from the very interesting circular of "the West Jersey Marl Company" will suffice. On pages 52 and 53 they advise: "drab the marl on to the ground *in the autumn.* * * * *To part with deleterious properties*, which (marls) often possess while drawn from the pit." Why is this marl used almost exclusively in Jersey, although they deliver it on tide water, at three dollars per ton? It may be rendered immediately available for any crop at a trifling expense, and without heat, and it can be concentrated so as to authorize its more extensive application. By the way, the the analysis of their geologist, on page 5, *seems* to overlook *entirely* one of the most important elements of these marls-nascent or soluble silica, which I have regarded as one of the most valuable elements of leached ashes, and one of the most important products by the application of caustic lime to the soil. For, at least, fifteen years I have taught the doctrine in the *American Farmer*, and elsewhere, that silicic acid, or quartz, or sand, however fine the powder, is useless to plants, unless reduced to the nascent or soluble form, and a quotation from one of the recent lectures of Baron Liebig, on page 272, of the March number of the *Farmer*, calls "the cereals, silica plants," whereas, "potatoes and turnips are potash plants." On page 5, of the circular referred to, one geologist gives about six per cent. (6.311) as the proportion of potash in Jersey marl; whereas, on page 58, from twelve to twenty per cent. is said to be the estimate of Prof. Rodgers. If either of these are correct, this marl should be rendered available to all of the lower portion of this peninsula, including the counties of Delaware, Maryland, and Virginia, embraced therein where ashes seems to be the specific food of plants, and THE regenator of the soil.

DAVID STEWART, M. D.

Port Penn, Del., March 12, 1867.

Our correspondent has misunderstood our remarks on the subject of "copperas." We understood A. C. S., whose question we answered in our March number, to inquire whether the application of this salt to fix the gases could be injurious to vegetation. Of course we did not expect him to drown his manure heap with copperas, so as to leave an excess of that substance in the manure. If he applied it, however, simply to deodorize, or even to keep down the odor of ammonia, it is impossible that it should do any harm. The carbonate of ammonia generated during decomposition found with it, sulphate of ammonia and protocarbonate of iron, and the latter salt, as no one knows better than Dr. Stewart, passes rapidly into the state of sesquioxide. There is no probability that the occasional sprinkling of a manure heap with copperas, can introduce enough of that salt to do any mischief.

As for the deleterious character of iron pyrites, we are aware that that is generally conceded. There are some exceptions even to that rule. We once knew a man who spread iron pyrites from a neighboring mine over his gravel walks, with a view of killing the grass, but the result was that it grew there more luxuriantly than elsewhere. Probably some potash mineral, mixed with the pyrites, had been decomposed by the sulphates generated from it, so that its deleterious influence was more than neutralized.

* N. B Although copperas is added to poudrette it does not exist in it *as copperas* unless added in excess.

D. S.

☞ The Eureka Mills, at Houston, Texas, are turning out drills and sheetings of good quality. The machinery for the Houston City Mills, which will be built in the spring, has been bought at a cost of $80,000.

For the "American Farmer."

Old Peach Trees.

The renovation of old trees is a subject of much interest. Many methods have been suggested, but it seems doubtful whether it is good policy to apply the more costly and troublesome, which alone can be efficient to peach trees that have suffered any material decay. We cannot be sure of success; and, besides, may not a feeble, superannuated tree, offer a weak point for the entrance of some disease, which will pervade the whole orchard?

I have pursued a plan differing from any I have seen described, by the introduction of a new feature, the renewal of the tree by a sprout from the root. Cultivation and manuring are matters of course. Then I prune away almost the whole head of the tree, leaving only a very few of the most thrifty branches, the number left depending on their size and the condition of the tree. This usually results in a small yield of fine fruit, and a vigorous growth of shoots from all parts of the tree. Of these one or more may be left, springing from the crown of the root; the rest must be removed.

When these shoots are two years old, cut away the old trunk at or below the level of the ground, and raise the earth over the stump, around the young tree, which will then make the most vigorous growth, taking firm root quite independently of the old stump, and bearing a profitable crop to the third year. I was led to adopt this plan by observing that, in a natural instance of this process, the stump had, in three or four years, so approximated entire dissolution, that its successor was, virtually, a new tree. "But why not buy a scion, at once, and use it by, or in the place of the old tree?"

The advantages claimed for this method are: that the supply of fruit is never totally cut off, or, at worst, for but one year; that the growth of the shoot is far more rapid and its maturity earlier, that it is within the reach of those to whom money and nurseries are both difficult of access. I need scarcely remark that in budded trees, care must be taken to secure a shoot from above the point of union, or, if from the stock, to bud or graft with any desired variety.

The choicest fruit of my own orchard, has been grown from the seed of other *seedlings*, which will always produce a fruit approximating the original; sometimes not so good, but rewarding judicious and diligent culture by progressive improvement. But only the seed of perfect fruit, from healthy, vigorous trees, should be planted. L.

Fluvanna county, Va., March 11, 1867.

P. S. My experience in pruning young trees is in favour of beginning in the first summer with a knife, continuing annually, and rarely using any other instrument. These trees are not allowed to waste their energies in producing branches merely to be lopped away. L.

Large Farms and Associated Capital.

Messrs. Editors:

Under the above heading I find an article in your February number, signed H. H.

Mr. H. H's suggestion, to concentrate a large area of land under conditions proposed by him, is certainly valuable, although the execution will be *very* difficult. The principal obstacles would be: first, to find an *able* and *honest* superintendent, for although there would be a board of directors, still the management must be left *entirely* in the hands of one man, if he has to be *responsible*. It will not be very easy to find able overseers, but to find a superintendent, capable of directing and overlooking the planting of thousands of acres with cotton, rice, or tobacco, possessing the *talent* of properly controlling a number of overseers, and *sufficient* knowledge of men to manage hundreds of hands, will be a *very, very* difficult matter. If, in spite of all possible precaution, a mistake is made, the loss will be very great before it can be remedied. The second principal difficulty would be hands. True, the disposition of the negro is social, but in opposition to this disposition he has another, and that is, of *rambling about*. Let us look at Jamaica. The negroes there have been free since 1835, and, although they have had every opportunity to educate themselves, and although the present generation is free-born, with very few exceptions, still the negroes, as a whole, are entirely worthless, adhering to the principal trait of their character, to ramble about. It is worse than useless, in our fanatic time, to explore this matter, but let us live for ten or fifteen years more, and the fact that the negro, with few honorable exceptions, is worthless as a laborer, will be proved.

You may succeed in obtaining the required number of hands, but, although you bind them by contract, still you cannot depend on them from one day to another. Now, loss of time at certain periods in cotton and rice planting, cannot be redeemed by any other after work. I beg it to be understood that what I have stated above, both in regard to Jamaica and the state of things here, are the results of *personal experience*, and no statement by mere hearsay.

But, in spite of all this, my hearty wish is, that the experiment may be tried. If it should

succeed, it certainly would become a blessing to our country. L. A. HANSEN.

Clifton, Fairfax county, Va.

Editors of the American Farmer:

You will find enclosed three dollars, the amount of indebtedness to July 1st, 1867; I would have forwarded it before had not the account been mis-sent, and but lately come to hand. In consequence of the recent change in our system of labor, the division of our farms into fields, the proper rotation of crops, the quantity of team to the acre, and the number of hands to the team are, at present, the subjects of most interest and vital importance to the farmers in this section. I would be glad if, in your journal, you would enter more fully into these subjects, *especially* the quantity of team necessary to each acre in cultivation; this subject is one of great importance, and yet I have never seen any journal give it its proper consideration and attention.

There are some farms in this section, that the lands are well adapted to grain as well as tobacco. if we could introduce such a rotation of crops as would interfere but little with tobacco, and yet gradually enrich the land, it would much increase the profits of said farms. In attempting to sow wheat on corn land, the wheat crop is put in too late, and this has been the cause of our continued failure in that crop. I never, in this country, saw any wheat crop fail that was seeded early on good ground.

I am about to make a division of my plantation, and would like a reply to them in your next number, if convenient.

Yours respectfully,

Caswell county, N. C. E. HUNT.

We have not been able to give the matter attention this month, as suggested by our correspondent, and shall be very glad if some of our experienced readers will take them in hand.

We would say briefly, however, that we would under no circumstances sow wheat after corn, unless the land were very fertile, or we had command of abundant fertilizers. Much less should we do so with a crop of tobacco on hand. We should aim to manure heavily the tobacco land, and sow that in wheat as fast as the crop is cut off—without breaking the ground, except so far as necessary to cover the seed. Other wheat land wanted should be a clover fallow, or the corn field of the preceding year, broken at any time in summer when practicable, and got in order for seeding before the time of housing tobacco. There is no greater folly than to undertake to make wheat on poorly prepared land, or when it cannot be seeded in due time.—ED. FAR.

GRAPE VINES FOR TEMPORARY BEARING.—Geo. L. Pratt, Orleans county, N. Y., writes the *Rural New Yorker* as follows on planting out grape vines for temporary bearing:

"I would advise setting double the number of vines in the row that you intend to let permanently remain. Fruit the temporary vines the third, fourth, fifth and sixth years, and then dig them out of the way. You can thus favor the permanent vines by not fruiting them until the fourth year, and then but lightly, giving them an opportunity to get well established for a long-lived vineyard. The past season I set two and one-half acres to Iona, Israella, Delaware, and Clinton, planting the vines ten by twelve feet apart. Between each vine I set an Isabella, at a cost of five dollars per hundred, with the intention of fruiting the latter heavily for about four seasons, then removing them and leaving the first-named vines in full possession of the ground. With my experience I am satisfied that ten feet by twelve is near enough together to have strong growing vines when they are seven years old.

☞ About the first of May and after for two weeks, Flowering Seeds should be sown, and a dollar spent in procuring the best varieties, unless they should be on hand from the previous season, will afford twenty dollars' worth of pleasure. These varieties should include, among others, the Asters, Phlox Drummondii, Sweet Allyssum, Blue Grove, Mignonette, Portulaccas, New Golden Chrysanthemum, (summer flowering.) Sweet Peas, Double China Pink, Convolulus, Burridgis, Flowering Larkspur, Lupias, Sulpiglossis, Erysimune, Peroffskyanum, Scabiosa Major, &c.

The ground for flower seeds should be light and rich, and made as fine as possible. The seeds should be sown very thin on the surface, and carefully and lightly raked in. Of course no one must attempt to cultivate flowers without keeping the ground perfectly free of weeds, often stirred, and if needed, watered —*Ex.*

DOGS AND SHEEP.—The Commissioner of Agriculture says that according to the returns from 413 counties, 73,601 sheep have been killed by dogs within the last year, of the value of $331,609; the loss in Ohio from 1858 to 1863 inclusive, was $704,758, and that 3,936,812 sheep in Ohio gave an annual loss of $117,459, the 32,695,796 sheep in the northern states would suffer an annual loss of $975,514.

Philadelphia and Baltimore Butter.

The subject of butter-making is of universal interest; and of especial interest to a large number of our readers. A vast amount of the article is made, but comparatively little is good, and very little such as it might be; yet what a luxury good butter is, and what a waste there is of material, which, with good management, might supply the largest demand. There is some good butter made around Baltimore, which rarely gets into market, but is bought up in advance, at large contract prices, by families who will have the best. Philadelphia butter has a fame which takes it fresh by express to Washington, New York, and other remote places, and gets for it a very high price; but we learn, on excellent authority, that there is really little good butter in the Philadelphia market. That our readers may become acquainted with the processes of manufacturers of the very best butter that can be made, we have brought together the material parts of several articles, which contain, we suppose, all that may be said on the subject.

The first was communicated, some years ago, to the *American Farmer*, by Philip Physick, of Germantown, who had taken, for several successive years, the first premium of the Philadelphia Agricultural Society. He says:

I am not aware of anything new or uncommon in my formula, and perhaps my success is more attributable to a well founded system, and entire cleanliness than to any other cause; but however that may be, here it follows.

About one week before the day of exhibition, I turn all hands that can be spared from other work, into the spring house to wash, to scrub, to white-wash, &c., in short to purify and clean the floor, the walls, the shelves, the doors, &c., as perfectly as human means can prevail in extinguishing everything of a filthy nature or unpleasant smell. Do not suppose from this that my spring house is neglected during other portions of the year; on the contrary, it is kept in more neatness and cleanliness than any other one I know of. The tin pans are then put into a large boiler and boiled for one hour, then taken out and scoured with white silver sand and pure hard soap, then rinsed off in pure clean water, and put away for use. Three days before the exhibition, the cows are brought into a clean pen near the spring house; at day-break their udders are washed with plenty of water and wiped with a clean towel quite dry. Their milk is then drawn into a tin pail that has been cleansed as the pans were. The milk is then strained through a perfectly clean muslin strainer into the pans and placed in the spring house; the same process is to be gone through at night, the next morning and evening, which will make four milkings; on the next morning the whole of the contents of the pans—*milk and cream, unskimmed*—is thrown into a churn, (this churn is one of the common barrel kind, it has been rinsed out with boiling water, with about one-quarter of a peck of hickory ashes and live coals taken directly from a burning fire; this was stirred about for some time by turning the crank—after which the ashes and water were thrown out and the churn rinsed several times with boiling water,) the cows are then to be washed and milked as before, and this milk strained and poured warm into the churn, the operation of churning is then commenced; it must be performed very, very slowly; the tenacity and hardiness of the butter depends entirely upon slowness in churning, to produce a first rate article; it should take at least three hours. When the butter has thoroughly come, it should be collected together with a clean wooden ladle and laid upon a clean linen cloth, spread out as flat as possible, and not more than two inches thick; then take a clean coarse cotton bag, large enough to hold a half peck or more, fill it with ice, and with a mallet smash it down flat, and about four inches thick; upon this place the linen cloth with the butter on top, let it remain until quite hard, then place it, if possible, upon a clean white marble slab, add very finely pulverized salt to taste, and then work out the buttermilk with the wooden spoon or ladle, spreading the butter flat again and again, and sopping up the buttermilk with the linen cloth. This operation must also be performed very slowly; when entirely divested of all buttermilk, make it up in forms of pounds or half pounds.

I am well aware that all this is very troublesome, but what good thing can we have in this world without care and attention?

As regards the best kind of cows, I am sorry to differ with most of my Agricultural friends, inasmuch as that, after an experience of more than twenty years, I find that the beautiful and stately Durhams do not produce butter or cream to compare at all in quality with the humble, and, I must admit, very mis-shapen and ugly Alderneys. I have had no personal knowledge of Devons or Ayrshires, never having owned one. My Alderneys were imported some years ago by Mr. Sarchette, from the Island of Guernsey—a different animal altogether from the English Alderney, or rather from the Alderneys that have been imported from England. I have frequently had sweet cream upon my table from these Alderneys so thick or rich, or whatever you please to call it, that it could not be poured

from a small mouthed pitcher without the aid of a spoon. The milk of one good cow of this breed will impart a most beautiful yellow color to the milk of four or five cows; they are exceedingly hardy, and stand our climate better than any other imported breed. Should you deem this communication of sufficient interest to publish it, please correct any inaccuracies, as I have not time to write it over.

I am very truly yours,

PHILIP PHYSICK.

N. B. New milk is the most effectual absorbent of sulphuretted hydrogen gas, "et id omne genus," that I am acquainted with, which can be added to old milk and cream for the purpose of purifying it without injury to the butter; this is my reason for adding the last milking quite warm from the cows to the old milk in the churn —I do not require my people to skim our milk, because it is a waste of time for one reason, and for another because I think the milk washes all offensive matter out of the butter; besides the buttermilk is sweet and not sour as is usual, for I maintain that perfectly pure and sweet butter (let the test be a chemical one) cannot be made from sour cream.

For the following we are indebted to Morris's *Practical Farmer*.

We took an opportunity recently to pay a visit for information to the dairy farm of Albert Darlington, in Middleton township, Delaware county, about twenty miles from Philadelphia, who is one of our most celebrated butter makers, whose butter last winter was all engaged before taking to the city at $1.00 per pound, who is now delivering it to regular customers at eighty to eighty-five cents. The details of his process, so far as we can recollect, are, that in the first place butter making with him is a *matter of business*, and all the minutiæ receives *his personal attention*. The quality of his butter would appear to depend on a number of very small but very important minute processes, not one of which is allowed to be neglected. The doing everything in the *right time* and the *proper manner* is made a system, which he thinks cannot be done by proxy. One thing we learned, which we did not know before, *that butter made from sweet cream will not keep well*. Our friend Darlington fully demonstrated this when he first commenced business as a dairyman, complaints being made on this score by his customers, and the reason of which he found out only after considerable loss. Thirty-six hours is the average period for the pan of milk to stand before being skimmed. Till the milk sours, all the cream cannot be obtained, and if left longer, rancidity ensues. A small quantity of sour milk is usually put into each pan to hasten this process, and to bring it within this period. If, however, the weather is such that the souring of the milk takes place within the thirty-six hours, this addition is not necessary. The skimming requires to be done exactly at the right time. In winter the milk pans are kept on shelves, in a small room, usually kept dark, in the main dwelling, built for the purpose, and adjoining a stove room. The temperature, 62°, is regulated by a thermometer. The cream, when skimmed, is put into tin vessels thirteen inches deep by twelve and a half wide, and holding about twenty-two quarts. These are kept in the spring house in water at a low temperature. *Regularly, twice a day*, these cream pots are stirred round thoroughly with a wooden spatula. It is considered desirable to keep them at a low temperature, no matter how low, if above the freezing point. This, of course, is to prevent mouldines or rancidity. At churning time these cream pots are plunged into a boiler of hot water, and stirred rapidly around with a stick, till the temperature of the cream reaches sixty degrees, ascertained by a thermometer, when they are immediately emptied successively into the large horse-power churn. This matter of a *regulated temperature* for the milk, previous to skimming, and for the cream at churning time, are, no doubt, important. When the churning has progressed so that the butter begins to break, or appear in small lumps, about the size of shot or small peas, a quantity of cold water is poured in, which tends to harden it, and cause a more thorough separation of the buttermilk. This is then drawn off and more water thrown in, to wash any still remaining. When the butter is finally taken from the churn, there would not appear to be much buttermilk left. The butter is put on the working table and salt applied at the rate of one ounce to every three pounds of butter. This is thoroughly incorporated with a plain paddle with two handles, about twenty pounds at a time, any remaining water or buttermilk being allowed to run off. After the working, the butter is laid in the water on a clean cloth, spread for the purpose, for a couple of hours, when it is again gone over with the paddle and weighed and printed into pound and half pound lumps ready for market. This, in a general way, is his process of making a very fine article of butter, not only tempting to look at, but delightful to taste, and on cutting through a pound of it with a knife, presenting a smooth, perfectly solid section, without the trace of water, buttermilk or streakiness. There would seem to be many

small matters of detail which can hardly be described, and which nothing but *experience* and *practice* suggest. It is indispensable that butter should come hard in the churn. If it does not, no subsequent manipulation can make a good article out of it. This is secured in warm weather by ice, pounded fine in a bag, being thrown into the churn exactly at the proper time. This mixes through the freshly granulated particles of butter, compacting and hardening them. We learned here also that butter may be worked too much, and enough to spoil it. The smallest amount of handling or working so as to extract the water and buttermilk would appear desirable, and in point of fact, his butter gets but comparatively little working because it does not need it. Here perhaps is *one* of the secrets. At the last churning before our visit, which yielded seventy-two and a half pounds of butter, the amount of buttermilk worked out was but one quart. At a previous churning, when the temperature of the churn being accidentally too high, owing to the water with which it was scalded having remained in rather long and the butter consequently *came soft*, the same amount of butter yielded, on being worked, over six quarts of buttermilk, and then was not up to the regular standard quality. Other things being properly attended to, it would seem as if the turning point of a decided hit on churning day was that the butter should be taken out of the churn exactly at the right time and in the proper condition.

In answer to our inquiry we were informed that the seventy-two and a half pounds of butter were obtained from one hundred and thirty quarts of cream.

The number of cows is about thirty. We could not ascertain at the time of our visit the average yield of each for the past year. They were of what is called common stock, but occasional crosses were observed of Durham blood. They are kept to their milk as much as possible through the winter, and the feed for twenty-two cows now in profit was prepared while we were there. It consisted of three and a half bushels of pure corn meal, mixed with six baskets of cut hay. To this was added six large buckets of boiling water, and the whole thoroughly forked up. This feed is given twice a day in addition to hay, which is cut with a Telegraph Cutter, No. 3, placed in the mow immediately over where the cows stand, and operated by a one horse power underneath.

Last season twelve hundred bushels of corn meal and eight tons of bran were used. Purple top turnips are sown thick in the fall so as to make only a small size, and these are hauled out to the cows in the field with the tops on, when pasture is getting short in October and November, by the cart load, care being taken to do it in the *morning of the day and after milking*, so there will be no taste given to the butter. For the two succeeding months ruta bagas are preferred, and subsequently sugar beets and parsnips. These are never fed immediately preceding milking. Our friend Darlington is not yet, we think, quite up to the mark in root culture, but on the limited scale he has tried them, thinks there is *some* benefit, but is not yet so enthusiastic about it as we would wish. He designs experiments with them on a larger scale, and more accurately made.

Craig Biddle, Esq., writing on the same subject, (Philadelphia Butter,) in the *Field* and *Farm*, gives us the following:

In our climate Indian meal is the perfection of winter food. Plenty of good hay, and a peck of Indian meal every day, mixed with parsnips or carrots cut up in small pieces, if fed to your cow, will give you as fine winter butter as can be produced. Of course, this food can be modified with fair results; but the more you deviate from it, the less satisfactory will be the product. You may substitute for some of the meal, ground oats, or middlings, or chaff; you may substitute turnips for the roots we have mentioned; you may give second class hay, and yet have butter which is marketable. If you wish, however, really fine butter, don't be seduced from the path we have indicated; resist the flattering notices of oil cake; do not be deluded by cotton seed; scorn turnips and repudiate musty hay.

Having now a good cow, well fed and well taken care of, we are prepared to say a few words in regard to the comparatively unimportant process of converting cream into butter. There is a secret connected with this operation which we now wish to confide to our readers, for upon it the whole success of making fine butter depends. It is *cleanliness*. Not that cleanliness, the absence of which would be a reproach; not the cleanliness attending most household operations, but cleanliness to a degree of intensity almost bordering on the absurd. The churn, the pans and the butter bowl, should be scalded after every use of them, and all towels and straining cloths boiled thoroughly before being used again. In cleaning, use soda in preference to soap. When the milk is brought in, fresh from the cow, the first thing to be done, is to strain it through a cloth or wire sieve, or better, through both. It should then be poured into shallow milk pans and placed in the milk

vault. At the end of twelve hours it should be carefully skimmed, as little milk being taken up as possible, and at the expiration of twelve more hours skimmed again; twelve hours later it should be skimmed for the third and last time, even more carefully than before. Should the milk, however, have turned sour before the third skimming, it would be better to omit it. The cream from the various skimmings should be placed in a vessel and stirred thoroughly twice a day until churned; this preserves a uniform consistency throughout. As soon as you have sufficient cream collected, churn—the sooner the better. In no event, keep cream longer than three days. The length of time required to produce butter depends a great deal on the temperature of the milk; if allowed to become very cold it will take some hours. As soon as the butter is formed in small lumps, work the dasher back and forth until the pieces become united into lumps of some size before removing them. As soon as your butter is taken from the churn, work it thoroughly with the spoon in the butter bowl, salting it at the same time to your taste. Let it now remain two hours and work it thoroughly again; by this time the salt will cause the butter milk to run freely. After two hours more, work it thoroughly for the third and last time; form it into shape and print it. The object of such thorough working is to get rid, entirely, of the butter milk; the smallest quantity of which, remaining, makes your butter rancid, Don't wash it out; it is easier, but it injures the flavor of your butter.

There may be cheaper ways of making butter—there may be other ways quite as good as the one we have described—we have only undertaken to tell our readers of one mode; by pursuing which we can guarantee them butter of the very highest quality.

A Hint in Breeding.—Mr. Torr, the well-known breeder of Short-Horn cattle and Leicester sheep, in the course of some remarks at his recent letting of the latter, touching on breeding in general, he said: "The way to establish uniformity or family likeness is to begin by putting the best male to the best female, and to continue to put *the* best *to* the best;" secondly, "not to put opposite characters together, or the traits of both will be lost; but if any fresh characteristic is required to be imparted to the issue of present stock animals, this must be done by degrees, or by that discreet selection which will yield a little more wool, or size and substance, the first year, and a little more and more the second and third generations, and so on."

Reason Why Bees Work in the Dark.

A life time might be spent in investigating the mysteries hidden in a bee-hive, and still half of the secrets would be undiscovered. The formation of the cell has long been a celebrated problem for the mathematician, whilst the changes which the honey undergoes offer at least an equal interest to the chemist. Every one knows what honey fresh from the comb is like. It is a clear, yellow syrup, without a trace of solid sugar in it. Upon straining, however, it gradually assumes a crystalline appearance—it *candies*, as the saying is, and ultimately becomes a solid lump of sugar. It has not been suspected that this change was due to a photographic action; that the same agent which alters the molecular arrangement of the idoine of silver on the excited collodion plate, and determiues the formation of camphor and idoine crystals in a bottle, causes the syrup honey to assume a crystalling form. This, however, is the case.

M Scheibler has inclosed honey in stoppered flasks, some of which he has kept in perfect darkness, whilst others have been exposed to the light. The invariable results have been that the sunned portion rapidly crystalizes, whilst that kept in the dark remained perfectly liquid. We now see why bees are so careful to work in perfect darkness, and why they are so careful to obscure the glass windows which are sometimes placed in their hives. The existence of their young depends on the liquidity of saccharine food presented to them, and if light were allowed access to this the syrup would gradually acquire a more or less solid consistency; it would seal up the cells, and in all probability prove fatal to the hive.—*Quarterly Journal of Science.*

English and French Horses.—Englishmen are justly proud of their horses. The superiority of their breeds of race and draft horses has long been admitted by other nations. Indeed, the French and Italians, Germans, Prussians, &c., have been for more than a century among the best customers of the English breeders. This has been ascribed to peculiarities of climate, by some, but agricultural writers generally find a sufficient cause for the great excellence of English horses in the care and skill of the British farmer, in respect to selection, rearing and feeding. "By these means," says Mr. William Percival, a lecturer and writer of note, "we have progressed from good to better, losing sight of no subsidiary help, until we have attained a perfection in horse-flesh unknown in the whole world beside." With such claim to acknowledged superiority in breeds, the late victories of French horses on English ground have been exceedingly mortifying to English pride.—*Ex.*

Experiments in Manuring.

In view of the fact that France obtains fifty per cent. more wheat per acre than the United States, and England more than a hundred per cent. greater crops, it is time that facts concerning fertilizers and improved modes of culture should be more carefully noted and better heeded.

Mr. J. B. Lawes, who has been making wheat experiments in England for twenty-three successive years upon the same land, reports the result in the year just closed, with comparisons with three preceding years, and the average for fourteen years as follows:

BUSHELS OF WHEAT PER ACRE.

How manured each year.	Harvests.				Average for 14 years—1852 to '66.
	1863	1864	1865	1866	
Unmanured	17¼	16	13¼	12⅛	15½
Farm-yard manure	44	40	37⅛	32⅝	35⅜
Artificial manure	53⅝	45¾	40¼	29⅞	37¼
Artificial manure	55⅝	49⅜	43⅜	32¼	39¾
Artificial manure	55½	51⅛	44	32½	36½

WEIGHT PER BUSHEL OF WHEAT.

Unmanured	62.7	62.0	60.1	61.3	57.3
Farm-yard manure	63.4	62.5	61.6	61.7	59.8
Artificial manure	62.6	63.1	61.0	61.0	59.0
Artificial manure	62.3	63.5	61.1	60.1	58.5
Artificial manure	62.1	62.6	61.5	60.6	57.8

Mr. Lawes says: "From the progressive decline in the produce from year to year, since 1863, it will, perhaps, be supposed that the result is in a great measure connected with a gradually declining condition of the land, and therefore not mainly the effect and the indication of variation in the productive character of the seasons. That the results are not due to the changing condition of the land, but to the changing character of the seasons is, however, evident from the fact that several times during the last fourteen years the crops on these same plots have been as bad as, or worse than, in the present season."

The following statement shows the result in the most unfavorable seasons, the worst being in 1853:

	1852	1853	1860	1866
Unmanured	13⅛	5⅜	12⅜	13⅛
Farm-yard manure	37⅝	19⅛	32⅜	32⅝
Artificial manure	26¾	23⅝	27¾	29⅞
Artificial manure	27½	33½	31⅜	32⅛

"The variation in amount of produce from year to year, may, therefore, safely be taken as almost wholly referable to the season. The quality of the grain, as shown by the weight per bushel, is seen to be considerably above the average of the last fourteen years.

"Turning from these experimental results to those obtained on my farm under ordinary management, I may mention that three separate fields gave this year 40, 42 and 46 bushels per acre, respectively, against 38, 48, 48 and 51 bushels obtained in the four last years, thus indicating a considerable decline in amount of produce. On the other hand, the weight per bushel is somewhat higher in each of the three cases this year than in either of the four last years.

"Upon the whole, I conclude that the wheat crop of 1866 will prove to be decidedly below an average, and, judging from the produce of both my experimental and ordinary crops, and the relation which has been observed between them and the crops of the country generally for many years past, I should estimate the deficiency at not less than 10 or 12 per cent."

Late vs. Early Colts.

In conversing with some of the gentlemen practically familiar with the subject of breeding, who were in attendance at the recent exhibition of horses in this city, we found it to be the opinion of many of them that it was far better to have colts dropped late in the season than in the spring, as is now the almost universal practice, and in some sections of the State the former is fast gaining ground. It certainly has many advantages. Where colts come in the spring and are taken off at the approach of cold weather, they are poorly fitted to withstand the severe season of winter, are obliged to be kept on dry forage, if given a little grain as an extra feed, they are often injured by it, as their system is easily thrown out of order thereby, and they almost invariably come out in the spring very poor. Now it seems to us these disadvantages can be most completely overcome by just reversing the general order. Have colts come in the fall, say about the last of August, and let them remain with the mare through the winter. Provide a large stall, have the floor well furnished with straw, sawdust or fine shavings as a litter, and turn them in together loose. Feed the mare well, giving a moderate quantity of grain. This will make the milk richer, and consequently the colt will receive full benefit of the grain without the ill results attending the feeding it directly to them when young. Then in the spring, with the fresh starting of the new, tender grass, the colt can be taken off and enclosed in some spot where he can have a choice "bite," where, in a short time, he will be all ready to go on growing, and by fall, will have attained sufficient age, and practice in "foraging" to withstand the winter well. The matter is worthy of attention by all who are engaged in breeding.—*Maine Farmer.*

The American Farmer.

Baltimore, May 1, 1867.

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NOTICE.—Will our friends who address us in regard to *subscriptions*, please always name the *post office*—the old one as well as the new, if a change has been made. Our mailing lists are kept by post offices, and not by individual names.

☞A correspondent from Pittsylvania Co., Va., says:

"Why do not your manufacturers give the prices of their implements in their advertisements? It would be a convenience to the farmers who might wish to purchase, for while we have but little to pay with, yet we must use that little in the purchase of labor-saving machinery, or plod along as of old, and finally die poor and leave our children to do the same."

J. H. H., TARBORO', N. C., inquires: "Would it be safe in this climate to cut the stalks of corn at the ground, and to leave them in the field in large shocks?" We can only say that this is the common, almost universal practice, in the well cultivated portions of Maryland and Virginia. There is little risk of damage to the corn if the work be carefully done. The weight of corn is increased by it; the fodder is well preserved, though not in the convenient form of blades and tops, and it is an expeditious mode of clearing the ground if grain is to be sown.

THE BLACKBERRY.—A correspondent, from Huntington, Calvert county, inquires as to best time and manner of planting the blackberry.

Plant in spring or fall, eight by six feet apart, in rich and moist soil.

Influence of Various Substances on Germination and Vegetation.

Mr. M. Carey Lee has published in the American Journal of Science and Art, an account of experiments on vegetation, which led to no definite results. The agents were sulphuric, nitric, and hydrochloric acids, bicarbonate of potash, carbonate of soda, ammonia, bromide of ammonium, galvanism, sulphate of soda, and chlorate of potassa. It is difficult to perceive the reasons for the selection of these reagents. All of these excepting bicarbonate of potash retarded vegetation, which grew in it at the same rate as in plain water What the writer means by plain water, whether ordinary hydrant or distilled water he does not say.

In another series with water, cane sugar, gum, glycerine, sulphuric and citric acids, sulphate of soda, permanganate of potash, and nitrate of ammonia, the results were equally meagre. Gum retarded germination but promoted growth. Citric acid and permanganate of potash prevented the formation of roots. In sugar also the roots were short.

The experiments appear to have been conducted without definite aim, and with little or no reference to the natural order of growth and nutrition, and these few trials could hardly be expected to lead to any definite conclusions. Neither the vegetable physiologist nor the chemist are likely to learn much from them.

E. M., SOCIETY HILL, S. C., inquires whether flour of bone would not be made "more *immediately* available, if composted with stable manure." It would be, but with so costly a material as flour of bone, it is not advisable to lose the advantage its fine condition offers of equal distribution over the surface to be fertilized.

Also, "How can lime from gas works be used on crops to advantage?" Do not use it on crops, but on grass land, or unoccupied land, a year in advance of cropping it.

PERCHERON NORMAN HORSES.—We have from S. W. Ficklin, Esq., near Charlottesville, *Some facts about Percheron Norman Horses*, of which we may give further notice hereafter. Mr. F., an experienced breeder of horses, has made valuable importations of this breed, believing them to be best adapted, particularly, to "mail coach, heavy diligence, and farm work."

S. M., LEESBURG, VA., describes a remarkable case of death of a young steer, from the effect of "wolf worm." We have handed over his letter, with description of the case, and inquiries, for professional advice.

The Agricultural College.

It should be understood, that whatever opinions we may express at any time, as to the direction, control, or government of the *Agricultural College*, do not assume to be "official." As a journal, devoted to the interests of agriculture and agriculturists, the *Farmer* desires to hold no relation to any Institution, Society, or Interest, which may in any manner, or degree, compromise its independence. It is, and has always been, the earnest advocate of the College, as a noble instrument for the advancement of agricultural science in our midst, and, as a consequence, of the interests of the agricultural community, and to raise the standard of culture and enlightenment among those who till, and own the soil.

We make this explanation lest what we said last month, as to that which, *in our opinion*, should be the general tendency of the course of learning at the College, might be so misinterpreted as to intimate a modification of the present course, or to depreciate the degree and character of classical instruction now given. We had no design of this sort. The curriculum as laid down in the College circular, indicates a full classical course, open to every student who may wish to pursue it, and the gentleman recently re-appointed to the head of the Department of Classical Literature has a reputation for learning, and for success in his profession, which he, no doubt, eminently deserves. We say, moreover, in passing, that, in our opinion, it were well that every student could take this course for its advantages of general culture, and postpone a special, professional course, till it be finished.

But we must consider the fact, that much the larger proportion of our young men have not the time, or think they have not, for the two courses. Necessity too often, and inclination very generally, urge them to enter upon the business of life at an age which does not admit of the training we would give them. Hence arises a necessity for a course of instruction, not exceeding in length an ordinary college course, which will combine general instruction, with the special instruction demanded in the principles underlying the industry, or pursuit, which the student may design to follow. What we meant, therefore, to say was, that an institution in which such a course becomes important and prominent, becomes, necessarily, a scientific, rather than a classical school. As its more essential features become developed, it will be rather after the model of West Point than of Yale. Such an institution, substituting agricultural for military science, our College must, we think, become. If it is to follow, with unequal steps, in the old paths which all our earlier Colleges took, it may become a very successful and very valuable institution, but not such a one as an agricultural journal need concern itself about.

The Sulky Plough or Stafford Cultivator.

George W. Gift, Esq., of Memphis, criticises very sharply in the *Southern Cultivator*, this new "labor saving" implement.

We have said, in reply to inquiries on the subject, what the testimony at our command seemed to justify as to this cultivator, and have recently a letter from an intelligent farmer of Anne Arundel county, Md., as follows: "I used a sulky plough last year with perfect success, and consider it a great improvement over the old cultivator—doing the work of at least two cultivators, with the work quite as well done."

Mr. Gift says: "It is an agricultural humbug. It is a retrograde in the science of agriculture; it is an inducement to slovenliness and over-cropping, and as such should be cast out as an evil spirit.

"We do not want any such tools for the South. On the contrary, we want implements which will *force* us to contract. Use heavy, well-modelled, easy working steel ploughs—to be followed by the subsoiler—*every year*, and don't spare the manure; save it, gather it, *buy it*—by all means have it. Plant small, very small, areas, be pains taking and careful, patient and industrious, and do not go astray after those teachers who would persuade you, that a man may cultivate fifty or sixty acres in corn, and carry an umbrella during hot weather."

☞ Mr. James J. H. Gregory, of Marblehead, Mass., has favoured us with a package of valuable selected seeds, for the *Agricultural College*. We appreciate this act of courtesy, and assure him that the seeds are placed in careful hands, and will, in due time, give a good account of themselves. Mr. Gregory, we have reason to think, is one of the most reliable as well as one of the most intelligent and enterprising seed growers of the country. This remark must be qualified, however, by the fact that we do not find an advertisement of his business in the pages of the *Farmer*—a failure which he will, of course, find it necessary to rectify.

A correspondent from Smithfield, Va., inquires: "What is the best fertilizer for the peanut crop? I wish to plant ten acres." Will some of our Southern friends give our correspondent the information he wants, and us at the same time, the mode of cultivation, &c.

The Use of the Field Pea.

We can hardly say too much of the value of such crops as have a well established character as fertilizers of the soil in which they grow. The method of improvement, by such means, is so cheap, and, in all respects, economical, gathering so largely, by the expanding foliage of the plants, from the slow bounty of the atmosphere, and pumping up from the depths of the sub-soil what lay far below the range of the roots of common plants, it illustrates that prudence which uses wisely the means at hand, rather than seek, in the ends of the earth, what is very costly and not so effective.

Many of our cultivated plants have been highly commended, at different times, for their value in this respect. Lucerne, buckwheat, Indian corn, rye, oats, clover, and the Indian pea, have all, in turn, had their advocates. Lucerne, sometimes called French clover, does not seem so to adapt itself to our soil and climate as to answer the purpose. We have found that such land as needs the improvement of a fertilizing crop will produce much more certainly and abundantly of our common red clover than of lucerne. Buckwheat we have used, turning under heavy crops, with indifferent results. Oats, rye, corn—neither seems to have commended itself to general use. We fall back, therefore, on the red clover, and the field pea of the South.

On all limed lands, and on such as have been brought to a certain stage of improvement which insures a prompt germination and growth of the seeds, clover commends itself on every account, and is pre-eminent as an improver. Its peculiar fitness for the purpose may be the reason that other plants have not been more diligently sought for. It may, and should, be sown on the ground with the crop of wheat, or other small grain, and requires no special preparation of the soil. The cost of seed is small, not exceeding the average of a dollar per acre. It makes no growth which will interfere with the crop with which it is sown, but springs up quickly after harvest, making, before winter, a good covering for the ground. The year following it comes early to perfection, makes a dense mass of foliage, which preserves on the surface that combination of warmth, and moisture, and shade, which observation teaches is of itself very fertilizing; while the plant itself, perishing where it grows, supplies, when it finally rots, all that its tap-root has sucked up from below the range of ordinary roots, and that its wide spread leaves have gathered from the atmosphere; a rich store of plant food, to be brought by quick decay into condition for ready use.

The Southern field pea, or Indian pea, is, perhaps, quite as rich as clover in the elements that make a good improver, and its value has been as fully tested in Maryland, and in the Southern States, where it has been for a long time applied to this purpose. It has these drawbacks as compared with clover—it is an annual, and does not continue so long its good offices, and does not form a sod; it is more costly in seed, and above all it requires, except in the more Southern States, a special plowing of the ground for sowing; there, it is sown broadcast among the corn at its last working, and has time to mature, which it has not in Maryland. On the other hand there is some advantage in the early maturity of the crop; the seed may be economised by allowing a sufficient portion of the crop to mature for the purpose; and the pea is applicable to the improvement of poor and sandy lands, where clover will not grow.

The chief obstacle to the use of this crop, for improvement, is in that extra ploughing needed. This difficulty may, perhaps, be overcome, and we purpose to make now a seasonable suggestion, which we have already made in a private note, in answer to the inquiries of a friend in Virginia. It is known that in the South some of the hardier sorts of the pea will lie all winter on the ground, and being ploughed in when oats are sown, come up and take possession after harvest. This fact is not available generally, and especially in more northern latitudes. Long before our connection with the *Farmer*, we made a successful experiment of this sort, which was communicated to *The Plough, Loom and Anvil*, when edited by Mr. Skinner, with the suggestion that further experiments be made. It failed, we believe, generally, when tried, because the pea does not admit of being sown so early as the oats. The seed would rot before germination, or perish with the cold after. But if the seeding could be postponed so late that the earth would be warm enough to ensure the safety of the seed, we think that the purpose might be accomplished of having the pea come on as a secondary crop, make little progress till the oats should be harvested, but be in position then to take the start of everything else, and cover the ground early with its mass of vine and foliage.

The suggestion we would make in this connection is, that after the oats have made some growth, but still so early that they need be little damaged by the operation, the peas be sown among the crop with the wheat drill. Experiments may be made on a small scale at little cost, and if they shall determine that this method of growing the pea is practicable, a great good will have been accomplished.

Book Table.

SOUTHERN REVIEW.—We are in receipt of No. 2. of this publication, and heartily commend it to the favour of reading and thinking men. The contents of the number are: Origin of the Late War; Southern War Poetry; The Teaching and the Study of Geometry; De Tocqueville on the Sovereignty of the People; The Legend of Venus; Recent Histories of Julius Cæsar; Life, Character, and Works of Henry Reed; Agricultural Chemistry; Victor Hugo as a Novelist; The New America of Mr. Dixon; Book Notices. Each quarterly number contains about two hundred and fifty pages. Price $5.00 per annum in advance. Bledsoe & Browne, Baltimore.

DE BOW'S REVIEW.—In noticing this valued exchange, we have to lament the recent untimely death of its eminent chief editor, Mr. J. D. B. De Bow.

The contents of March number are: Memories of the War; England and the English; The Southern Pacific Railroad; Miss Evans' St. Elmo; Monarchy in America; The Harmony of Creation; Virginia, her Internal Improvements, Resources, &c.; Department of Commerce; Department of Agriculture; Department of Freedmen; Department of Miscellany; Department of Education; Journal of the War; Editorial Notes.

EDINBURG REVIEW FOR JANUARY, AND BLACKWOOD FOR MARCH.—We are in receipt from the Leonard Scott Publishing Company, of their very valuable and cheap re-publication for the months named. Contents of Blackwood are: *The Army*—Part II; Ferrier; Hymns of the Populace; The History of Scotland; The Innermost Room; Co-operative Societies; Cornelius O. Dowd; Brownlows, Part III; The Ministerial Resolutions. Contents of the Edinburg—Foreign Policy of Sir John Lawrence; Adam Ferguson; The Private Business of Parliament; Rawlinson; Ancient Monarchies; Modern Glass Painting; Tenant Compensation in Ireland; Early English Texts; Meteoric Showers; Position and Prospects of Parties.

THE AMERICAN NATURALIST.—A popular illustrated Magazine of Natural History, Salem, Mass. $3 00 per annum. This makes a handsomely printed volume of more than 600 pages in the year.

Mr. Wm. B. Smith, late editor of the *Field and Fireside*, of North Carolina, announces that he has formed a business connection with the extensive and well known Publishing House of A. S. Barnes & Co., New York, and proposes to devote, in that city, his special attention to the interests of those in the South who may require books, or other articles connected with the trade.

An Important Mission.

A few days ago we were shown some beautiful specimens of the Cashmere or Angora and Asiatic (shawl) goat fleece by Hon. Israel S. Diehl, late U. S. Consul in Asia. Mr. D. has collected specimens of these animals from most all the flocks and States in this country to exhibit at the Paris Exposition. He has been commissioned by the Agricultural Department at Washington to go to Asia and investigate the mode and manner of the manufacture of those valuable and costly fabrics made from the Asiatic goat's fleece, with the view of introducing this branch of wealth and industry into this country. For the past eighteen years the raising of these goats in America has proved a profitable and eminent success, therefore the object is a worthy one. Mr. Diehl also has been commissioned by the United States Stock Importing Company—of which Charles L. Brown, Esq., President of the American National Bank, 80 Broadway, N. Y., is President—to select the most valuable and beautiful of these animals with other valuable Asiatic animals, and import them to this country, for more general introduction and breeding. Mr. Diehl having spent three years in Asia, and investigated the subject, which is shown by his article on the goat in the Agricultural Report of 1863, and having been practically engaged in raising these animals for a number of years, is well commended and qualified for the mission. We shall look for his reports on the subject with great interest. Mr. D. will correspond with the *Turf, Field and Farm* during his tour through Europe, and his letters will prove a valuable addition to our paper. He sailed on Saturday last from New York for Liverpool.—*Turf, Field and Farm.*

We had the pleasure recently of a visit from Mr. Diehl; and the opportunity of inspecting the specimens of wool here spoken. We wish him all success in his important mission. [ED.]

☞It is said that in no single instance has a northern man made enough this year in growing cotton or anything else down south to pay expenses. Some mistake, or else something wrong about it.—*Stock Journal.*

It cannot, of course, be the fault of the "northern man," and it must be owing to what Mr. Greeley would call "the general cussedness" of the land.—*American Farmer.*

Sowing a Meadow.

A correspondent, writing from Halifax Co., N. C., inquires as follows:

"The land which I wish to use for a meadow is low ground on a branch, pretty well drained, clear of stumps and shrubbery, and was cultivated in corn the last year. Please give me some information on the following points:

"1. The best plan to break up or fallow the land, whether in *beds* or not?

"2. What condition ought the land be left in to receive the seed?

"3. What kind of seed to sow to make me a good meadow to mow for hay?

"4. How many seed to the acre?

"5. The best time to sow the seed?

"6. Would it not be best to apply some guano or phosphates, and how much?

"7. What implement would you use after the seed is sowed?"

To the 1st question we reply, put the land in beds if it does not get rid of surface water freely.

To the 2d, make the surface very fine to receive the seed.

To the 3d, 4th and 5th, sow a bushel to the acre of Herd's grass (Red-top) seed, early in fall.

To the 6th and 7th, use guano or superphosphates, two hundred to four hundred pounds per acre, according to the requirement of the soil.—Ed. Farmer.

Farm Wages.

The following suggestions, as to rates of labour in Baltimore county, are commended to us by a friend as coming from "good authority."

Subjoined I give statement of what I think is about right. For managers and gardeners, that thoroughly understand all branches of their business, $40 per month; second rate, or ordinary managers, $20 dollars per month; best farm hands, per month, $15; second rate, $8; female laborers, best, per mouth, $6; female laborers, second rate, $4. I make a wide difference between first and second rate hands, but think I am correct; it costs as much to board an inferior hand as it does the best, and his services are not half so valuable to his employer. I recommend for all farmers to hire by the month or year, and board their own hands, it certainly is the cheapest and most economical: by boarding your own hands, it is selling your farm produce at a good profit.

Yours, respectfully,

April 5, 1867. R. S. C.

Cutting hard wood, per cord, $1; cutting soft wood, per cord, 75 cents; grubbing, fifty feet square, from $2 to $5; mauling oak rails, per hundred, $1; mauling oak posts, per hundred, $2; mauling chestnut posts, per hundred, $1.50; mauling chestnut rails, per hundred, 75 cents; making new post and rail fences, including digging, boring, mortising, and pointing rails, per pannel, 30 cents for three rails; cleaning out old ditches, three feet wide, one foot at the foot, and a half spit deep, $2.50 per fifty yards; other width of ditch in proportion. What are freedmen worth comparatively? From $10 to $15 per month. By R. S. C.

Circular of the American Pomological Society.

Whereas, the meeting of this National Association was to have been convened last September, and *whereas*, this meeting was postponed to the present year, therefore, the undersigned give notice that its Eleventh Session will commence in the city of St. Louis, Mo., on Wednesday, Sept. 11, 1867, at 11 o'clock A. M., at Mercantile Library Hall, and will continue several days. All Horticultural, Pomological, Agricultural, and other kindred institutions in the United States and British Provinces, are invited to send delegations as large as they may deem expedient: and all other persons interested in the cultivation of fruits are invited to be present and take seats in the Convention.

And now that the rainbow of peace has again spanned the arch of our Union; now that our Southern brethren, after a painful separation of years, are again to be united with us in full fellowship and communion; now that our meeting is to be held for the first time on the "Father of Waters," in the Great West, we invite all the States and Territories to be present, by delegation, that the amicable and social relations which have heretofore existed between the members of the Society may be fostered and perpetuated, and the results of its deliberations, so beneficial to the country at large, be generally and widely diffused.

Among the prominent subjects which will come before the Society at this session, will be that of the revision of the Society's Catalogue of Fruits. The special committee appointed for this purpose are now, with the various State and Local Cammittees, actively engaged in collecting such information as will aid in determining what varieties are best adapted to the different sections and districts of our country; and this information, in the form of reports, will be submitted to the action of the Convention. In compliance with a resolution passed at the last session of the Society, the several State Pomological and

Horticultural Associations are requested to compile lists for their own States or Districts, and forward them, at as early day as possible, to P. Barry, of Rochester, N. Y., Chairman of the Committee on the Revision of the Catalogue.

Members and delegates are requested to contribute specimens of the fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of Society and the science of American Pomology; and as the fruits of the South and South West will then have attained their size, it is especially desirable that a grand display from these sections be made.

Each contributor is requested to come prepared with a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as soon as practicable.

All persons desirous of becoming members can remit the admission fee to Thomas P. James, Esq., Treasurer, Philadelphia, who will furnish them with Transactions of the Society. Life membership, ten dollars; biennial, two dollars.

Packages of fruits, with the name of the contributor, may be addressed as follows: "American Pomological Society," care of C. M. Saxton, corner Fifth and Walnut streets, St. Louis, Mo.

MARSHALL P. WILDER, *President.*
JAMES VICK, *Secretary.*

Supply of Water.

It is often a matter of great importance on the farm, in the absence of abundant supplies of water, to preserve for dry seasons the water which falls upon our farm-buildings. It is not difficult to calculate the quantity that may be sufficient for the live stock for a given time, and cisterns of size to hold what may be needed may now be made to catch the spring rains. A barn of thirty by forty feet is estimated to supply annually from its roof 864 barrels, or enough for more than two barrels a day yearly. If this were collected and kept for the dry season only, it would afford a supply of twenty to thirty barrels daily.

A cistern ten feet in diameter and nine feet deep will hold, it is said, 168 barrels, and this is considered large enough for one. If the barn be large, and more water wanted, two may be made.

A cistern five feet in diameter will hold 5⅔ barrels to each foot of depth; seven in diameter, 9½ barrels to each foot; eight in diameter, nearly 12 barrels; nine feet, 13½ barrels; ten feet, 18½ barrels per foot of depth.

It is well always, when the expense can be afforded, to have a job of work done well, and so it is advisable to get a workman familiar with such work, and where brick and water lime can be commanded, there is no difficulty in the case. Moderate sized cisterns may be very well made of inch and a half plank, jointed together and hooped like a barrel; the bottom to be overlaid with coatings of cement, sufficient to make it perfectly tight.

In many localities, where the subsoil is of good clay, a less perfect job, but one that will be a useful make shift, can be made, by simply digging the cistern of any required size, as indicated by the above figures, and having the bottom and sides well puddled with the wet clay, and left smooth. Let the covering be not less than two and a half feet in depth.

But a far better method than this, and still adapting itself to the present state of extravagant prices, as being within the power of very unskilful workmen, is as follows: In excavating the hole or pit, dig it some six or eight inches on each side, more than the diameter of the intended cistern when finished, that space being allowed for the wall. Six feet diameter and eight feet deep is a good size for an ordinary family. With light, inch plank, make a wheel or circle, with a tread or periphery one foot broad, the diameter of the wheel or circle being that of the proposed cistern when finished. The cistern having been dug six or eight inches on each side, larger than the mould wheel, place the wheel on the bottom, exactly in the centre of the excavation, so that there is a space of six or eight inches between the wheel and the bank of the excavation. Have ready a bed of grouting, made thin, of gravel, mixed with one part sand, and two parts of hydraulic cement or water lime; fill the space around the wheel with this.

If gravel cannot be easily procured, sand or free-stone broken into pieces about the size of nutmegs may be substituted for it, and if neither of these, any rock broken into pieces of about two inches will answer the purpose. Fill the spaces around the wheel with them, and grout with one part sand and two of cement. In the course of fifteen or twenty minutes, or while preparing another bed of grouting, the first layer will have set or conglomerated. Then raise the wheel ten inches, leaving a lap of two inches on the first layer, fill up as before, and so on till finished. When the circular wall six or eight inches thick is thus made and dry, remove the wheel, and fill the bottom of the cistern with the same grouting six or eight inches thick. Plaster the whole with two good coats of mortar, made of one part sand and two parts cement; when this is dry finish with one smooth, thin coat of cement only. This will make a very tight and durable cistern. If drinking water is wanted, make a division in the cistern by a 4½ inch wall of brick, laid in mortar. Let the water enter into one division, and it will ooze through the wall into the other, making a perfect filter.— *Weekly Sun.*

Alderney Cows.

The following extract is from Dr. Twaddel's report of his late visit to the Channel Islands—will be read with interest by many of our stock-breeders:

Three thousand Jersey cows and heifers, and about 1200 Guernseys are exported from the Islands every year.

The Jersey cow is of a medium size. Her peculiar deer-like aspect distingnishes her from the Guernsey. Her head is long and slender, the muzzle fine, and usually encircled with a lighter color; the nose is black, and the large, dreamy eyes, encircled with a black band, occasionally the nose is of a buff color, when there is a buff band around the eye; the horns are usually short, small at the base, tapering, and tipped with black.

The limbs of the Jersey are very slender and fine, her hips broad and developed, her neck is slender and rather long, and the body in the best specimens rotund and approximating to the Short Horn model somewhat, yet with sufficient angularity to insure milking properties.

The abdomen is well-developed, giving evidence of sound nutrition; the external abdominal or milk veins convoluted and prominent; the udder broad, running well forward and well up behind; tents squarely placed, rather short than otherwise, and of a fine yellow tint.

The Jerseys are of all shades of color, from a pale yellow fawn, running through all the intermediate hues, even occasionally to a red, an intermixture of black or gray, known as French gray, and that merging into black with an amber colored brand along the back, the muzzle invariably shaded with a lighter color; and individuals are often seen, black and white, or pure black, unrelieved by any other color.

A yellow brindle is sometimes seen, but this is by no means a favorite.

The darker colors are the most popular in England, from the belief that they are hardier in constitution and bear the climate better, but this opinion does not accord with our experience in America, where the alternations from heat to cold are much more decided and severe. Here I think I may say with safely, that no difference has been observed in constitution or ability to endure our burning summer heats, or the cold of our Northern winters.

The care of the cows and dairy devolves entirely on the female members of the family, whilst the farmer attends to the growing crops, or busies himself in the other duties of his little farm.

The cows are tethered with a rope passing round the base of the horns, with a chain and swivel attached, and are fastened to pegs driven in the ground; they are moved to fresh grass two or three times daily. Should they be pastured in the orchards, an additional rope passes from the halter to each fore leg, and thus tied down, they are prevented from regaling themselves with the tempting apples which load the low hanging boughs, under which they graze.

The method of milking the cows is somewhat peculiar, the milking and straining the milk being done at one operation; the milk-maid with her tin pail, linen strainer, and sea shell, proceeds to the pasture; seating herself beside her cow, she soon completes her arrangements; the linen strainer is securely tied over the narrow mouthed tin bucket, and placing the large shallow shell on the strainer, with vigorous hands she directs the milky streams into the shell; quickly overflowing the shallow brim, the milk passes through the strainer into the receptacle beneath. This primitive method has been in vogue for more than a century: they claim for it the merit of perfect cleanliness.

Whilst overlooking the operation, I could understand the use of the strainer clearly enough, but the employment of the shell rather puzzled me, until the milk-maid informed me that it was to prevent the attrition of the streams of milk from wearing a hole in the strainer; this solved the mystery.

The calves are kept stabled during the first year, and fed on green food during the summer, in the second year they are tethered out.

The heifers are allowed to have calves at about two years old, and come in about April or May, when there is more demand for them in the English market.

The bulls are kept stabled all the year; in a large number that I saw not one was ringed, and I understood that it is never done in the Islands; not one of those I examined was in any way vicious. M. Le Gailez (the owner of the prize bull of Jersey, for 1865,) an excellent judge, told me that in his opinion it was due to their being constantly tied up and daily handled.

The bulls are slaughtered at three years old; the opinion prevails there that the offspring of young bulls have more vigor and stamina.

In the year 1849, the Royal Jersey Agricultural Society established a scale of points for Jersey cattle as a guide to the judges in awarding the premiums. Thirty-six points established perfection. No prize can be awarded to a cow having less than twenty-nine points, nor can one be awarded to a heifer having less than twenty-six points. A cow having twenty-seven points,

and a heifer twenty-four points, without pedigree, are allowed to be branded, but cannot win a prize.

The Guernsey is a larger animal, coarser in the head and heavier in bone; the horns are longer and thicker at the base, not usually crumpled; the rump is more apt to assume that peculiar droop which seems a characteristic of the breed, and there is a want of that symmetry and neatness of form that mark the highly bred Jersey, but as a dairy cow she is fully her equal; for quantity of milk and butter she cannot be excelled; the skin is of a splendid rich yellow hue, and the udder and teats are tinted with chrome.

The head of the Guernsey is larger, and the muzzle broader, and the eye not so prominent as the Jersey; the nose is usually of a rich yellow or buff; the eye banded with the same color.

The colors of the Guernsey are fawn, running through the various shades to a deep red, an umber brown, and a peculiar yellow brindle, which is a favorite here.

Although larger than the Jersey, I do not think they fatten quite as kindly as the latter, which has the advantage of a smoother and more rotund form.

This thinness and want of condition, may be owing, in a great degree, to the fact that the pasturage is less luxuriant in Guernsey, and also, that the Guernseymen are less solicitous about the figure and style of their animals, being satisfied if the animal is a performer at the pail—where she seldom disappoints.

The cattle of the Island of Alderney, (which is the third in size of the Channel group) have a want of uniformity, attributable to the fact that they are the offspring of stock brought from Jersey and Guernsey, crossed and recrossed until all individuality as a breed is lost.

Some are neat and deerlike: others are larger and heavier, approaching the Guernsey type.

The island is small and rocky, the pasturage scanty, very few cattle are bred, and as a consequence the breed does not receive the care and attention that is given on the other islands.

It is as a dairy animal that the Channel Islands cow puts forth her claim for consideration.

Coming into notice after several of the leading British breeds had acquired a world-wide celebrity, her advocates had to contend with prejudice of English stock growers and dairymen, who could not be made to believe that anything not English bred could have merit. And forsooth, this stock, French bred, with true John Bull antipathy, they at once decided must be worthless. But latterly this feeling toward their French neighbors has been wonderfully modified, and as the *entente cordiale* is now firmly established, anglo-Norman cattle, among many other products from across the channel, have found favor in England. The English dairymen have been induced to try them, and finding they produce more and better butter than the much vaunted English breeds, have looked at the pound sterling side of the account, and, per consequence, have substituted the despised little Channel Islands for the queenly short horn.—*Stock Journal.*

A Remarkable Cow.

Much has been written and said in regard to the Alderney stock of cows not being the friend of the dairyman. I have a heifer, bred by myself, that will be but three years old the latter part of this month. She is a grade Alderney, and was the first calf of a heifer whose dam was, from her appearance, part Devon, and had but little to recommend her at the pail. I kept her until she had her second calf, and then sold her to the butcher, not considering her to be a profitable cow. Her first calf, that I now have, was sired by a pure Jersey (Alderney) bull; and before she was two years old, after her first calf, made eight-and-a-half pounds of butter in seven days. This season, after her second calf—say four weeks since—we tried her again; and in seven days, or fourteen milkings, she made sixteen pounds and one ounce of butter. She is a small cow, much under the average size, and fearing an error, after the lapse of one week I had her again tried, this time weighing the milk at each milking. The heifer was, during this trial, given extra feed, which consisted of four quarts of ship stuff and fine corn meal, mixed in equal quantities, night and morning, being turned out at pasture during the day and at night. At the expiration of three-and-a-half days, or seven milkings, we found she had given one hundred and forty pounds of milk, and the butter made from it weighed nine pounds and scant one ounce, equal to eighteen pounds per week, which I am now well satisfied is correct, and have not a doubt but that, had the extra feed been continued she would have made eighteen pounds in the week of fourteen milkings; which, taking into consideration the size of the cow, is greater than I ever knew.

The cow shows her Alderney stock very much. She is a dark fawn and white, very rich yellow skin, small head, and tapering muzzle, not at all inclined to flesh, and, as I before stated, below the medium size, being a very small cow. With

the exception of the extra food, there was nothing done to obtain the greatest yield of butter; the cream was skimmed every third milking as is usual. I call it extra feed, as our usual practice is to give but two quarts of ship stuff only, night and morning; in many dairies double that quantity is given.

Do you know of a better heifer not three years old? If so, where is she, and what can she do? Yours, &c,

JOHN R. PENROSE.

—*Morris' Rural Register.*

ANOTHER EXTRAORDINARY COW—CHALLENGE TO OWNERS OF COWS.—I have an Ayrshire cow, ten years old last spring, that has given a little over eight hundred pounds of milk in ten days. In seven days, during the month of June, we made from her milk twenty-eight-and-a-half pounds of butter. At that time she ran in a pasture with five other cows, and every night I gave her four quarts of meal, and the average quantity of her milk was forty quarts per day. I have two heifers from this cow; and one of them, during the months of December, January and February, averaged fifteen pounds of butter per week, and was fed and watered but twice a day. I think we shall make seven hundred pounds of butter from her this year.

I challenge any one in America to match the old cow for butter or milk, for the term of one year, in a forfeiture of five hundred or one thousand dollars, at the election of the person accepting this bet.

All publishers interested in the improvement of our stock of cattle, are requested to give this notice an insertion in their papers.

STEPHEN SCAMMON.

Stratham, N. H., Dec. 22, 1866.

FOOD FOR CHICKENS.—A writer recommends for chickens, for the first week after hatching, a hard boiled egg, to be given, chopped fine, at least twice a day, wheat steeped in milk, and coarse Indian meal, bread crumbs, &c. A change of food is necessary twice a week, substituting cracked corn for wheat.

☞ A female farmer writes from S. W. Missouri as follows: "Myself and two daughters, besides doing all the other work of a 160 acre farm, have harvested and sold this year $1700 worth of wheat at $1.25 per bushel—not a man about the place.—*Exchange.*

And none needed when women are so manly. *American Farmer.*

Value of Clover.

Analysis of Clover.—If evidence is wanted of the nutritious qualities of clover hay, let us examine its chemical indications.

Prof. Johnson analyzed a first crop of clover from an acre of land, and found it to contain the following ingredients:

Albumen, glutein and casein	430 lbs.
Fat, oil, &c.	143 lbs.
Starch, sugar, gum and dextrine	1,825 lbs.
Fibre and husk	1,156 lbs.
	3,554 lbs.

According to Boussingault, the elements of a first and second crop of clover from an acre of land are:

Carbon	2,757 lbs.
Hydrogen	288 lbs.
Oxygen	2,211 lbs.
Nitrogen	118 lbs.
	5,374 lbs.

The clover plant leaves a large per cent. of ash on burning, the whole being 11.18 per cent; the leaves give 10.69, and the stems 8.62 per cent.

The value of the ashes may be estimated by the following percentage of its several elements:

Potash	12 164 per cent.
Sodium	2.414 per cent.
Soda	30 757 per cent.
Lime	16.556 per cent.
Magnesia	6.262 per cent.
Phosphate of Iron	.506 per cent.
Chlorine	2.159 per cent.
Phosphoric Acid	2 957 per cent.
Sulphuric Acid	.801 per cent.
Silica	1 968 per cent.
Carbonic Acid	22.930 per cent.
Sand and coal	1.244 per cent.
	99 718 per cent.

Clover as a Fertilizer.—These analyses show the value of clover as well in its character as a fertilizer as in its qualities for feeding. Opinion varies very much as to certain practical points in the application of the crop as a fertilizer, but especially as to the propriety of plowing it under, or leaving it to perish on the surface of the ground. It will be remarked that the percentage of carbonic acid is very large, exceeding the sum of all the other acids. When green clover is first turned under, heat is evolved by the action of carbon, and the fermentation begins; carbonic acid gas is formed, and, passing off, forms a chemical combination with the mineral as inorganic elements of the soil, rendering them fit to be assimilated and appropriated by the succeeding crop.

Some think that positive injury is done by plowing under a full grown crop of clover, arguing that such a mass of green substance passes rapidly into a state of fermentation, and becomes so far decomposed as to produce the acetous fermentation; acid is formed before the crop can

receive any benefit from the vinous fermentation. It is also claimed that the clover may be pastured off, and half, or more, of the mass of herbage be converted into manure, and left upon the soil by the droppings of the stock, and this will be equivalent to any supposed loss of the clover fed off, and a saving be, so far, made of the amount of food taken from the field, and a farther saving of the labor required to turn under the full crop.

On the other hand, it is maintained that the full grown clover, containing the largest proportion of sugar and the largest amount of herbage, must yield the greatest amount of fertilizing matter.

While very little has been done in the way of experimenting, as compared with the great importance of the topic, it cannot be denied that the great weight of opinion favors the feeding off of the crop to at least a great extent, and treading the remainder so close to the surface that the moisture will very soon induce decay.

As this method accords, too, very greatly with the convenience of feeding the farm stock economically, it is not likely to be soon superseded, at any rate until the contrary practice is shown to be very decidedly better. It is for wheat that its great fertilizing qualities are peculiarly valuable, and the wheat grower may have the benefit of his summer's grazing for his stock without any loss, it is maintained by practical men, of the value of fertilizing matter; and diminution of quantity, which is small in any case, being more than compensated by the covering of the surface during the heats of summer, and the better condition of the fertilizing material for immediate effect on the following crop. To get the greatest benefit, it is thought desirable not to turn upon the clover any considerable number of cattle until it comes into bloom. Then they will, of course, trample down much more than they will consume. That which is thus trod down and the droppings of the cattle together, will make such a dressing of the surface in such condition as will peculiarly suit the requirements of the crop of wheat.

Clover Soil.—While clover is the peculiar fertilizer of wheat, it suits, too, especially the best wheat soils. Boussingault says: "Clover delights in clayey soils; it thrives generally in good wheat lands; in light and sandy ground it gets bare and frosted." Any soil, indeed, which may be considered good wheat land may be considered good for clover, but there must be present, in considerable quantities, lime and other alkalies. Even sandy lands, after being well dressed with lime, become capable of producing good crops of clover. An analysis of the ashes of clover by Prof. Horsford, gives, of potash, 16.101; soda, 40.712; lime, 21.714; magnesia, 8.289; showing clearly how important to its successful growth must be a full supply of alkalies. To act upon these alkalies, so that these essential ingredients may be made readily available, the presence of sulphuric acid is important, and this may be the secret of the value to the clover crop of sulphate of lime, commonly called plaster. Of all fertilizers, none equals this in its magical effect upon the growth of clover, and the marvelous improvement brought about, in some districts, by a mere sprinkling of this fertilizer, is well known. Another thing is, that sulphate of lime fixes the ammonia that it comes in contact with, the sulphuric acid being disengaged from the lime and combining with the ammonia, preventing its escape. Ashes furnish potash, and salt chlorine, and soda, and therefore benefit the crop. The starch, sugar, albumen, gluten, &c., are composed of carbon, hydrogen, oxygen and nitrogen, which are supplied, for the most part, from the atmosphere. It is the capacity of the clover plant for foraging lagely on the air, that constitutes its great value as a fertilizer.

Fish as a Manure.

The editor of the *Culturist*, Philadelphia, recently, on a visit to Cape May county, New Jersey, had his attention specially directed to immense quantities of king crabs or horse fish which the farmers along Delaware Bay had secured for manuring purposes. During the summer season numbers of these shell fish visit the shores of the bay for the purpose of depositing their eggs in the sand. The farmers watch the opportunity, and while the crabs are on the sands making their deposits of eggs, capture them and throw them into large pens made of rails, where they die, and are permitted to remain until wanted for use. Scarcely a thousandth part of the crabs that visit that locality are taken. This is not because of any difficulty in securing them, but the want of force sufficient to gather them.

The Delaware shore of the bay is, if possible, more prolific of them than the New Jersey, and, within the past year or two, the attention of the Delaware farmers has been specially directed to their value as a manure.

The method of preparing them for use is very simple. After lying in the pens until thoroughly dried, they are beaten to pieces with flails; though a more expeditious and effectual method is to run them through a machine similar to a thrashing machine, only more powerfully built, and so ar-

ranged as to be easy of transportation from farm to farm. A large mill has recently been erected on the shore, where the crabs are purchased by the proprietors, ground and sold to those who desire them, or they are ground for those who gather them.

The price per ton of the ground crabs, which is known as Cancerine, is $16 at the mill. It is in continual and ready demand—all being sold that the mill is capable of grinding. The crabs in their unground state now command from $2.50 to $4 per thousand. From two to three thousand are considered a sufficient quantity for an acre—they being applied broadcast, after having been ground, of course. They produce remarkable effects upon the wheat crop—no other manure ever tried in that section equalling them. The effect produced by cancerine upon the clover crop is most singular. While it seems to promote germination, the clover is almost certain to die after it has attained its third leaf. This is always the case when the crabs have been composted, but is readily obviated by the use of lime.

Uses of Lime in Gardening.

Of all the mineral and earthy substances employed in agriculture and gardening, there is not one, probably, about which there exists, in the minds of most persons, more doubt and uncertainty as to its real value and action than in respect to the simple article *Lime*.

Lime is a very important auxiliary to other manures. It is in more ways than one a real fertilizer, and it *produces*, sets free and organizes fertilizing qualities in other matters; but it is by no means a universal manure or fertilizer.

I propose to set down, in a series of paragraphs, the most evident and important uses of lime in gardening, and to call attention especially to two actions which it possesses, which are not generally recognized or understood.

1. Lime is an alkaline earth, (a sort of salt,) and its first and most evident use is to *sweeten our soil*.

2. Lime furnishes a substance which is present in considerable quantities in the ash of nearly all our cultivated plants and fruits. For this reason, partly, lime is especially useful to potatoes. The tuber of the potato shows but a trace of lime in a ton, and hence, some writers have hastily concluded that lime, in quantity, is not essential to this crop. But look at the analysis of the straw or tops; there you will find nearly three hundred pounds in the product of an acre.

3. Freshly slacked, or caustic lime, acts as a *powerful decomposing agent*, when in contact with masses of earth or vegetable matter, setting free many substances which before existed in forms insoluble in water, and causing the natural decay of organic bodies to be hastened.

4. Lime causes cold, dense soils, to become more open and porus, and renders light sandy soils more close in texture, or more adhesive.

5. Vegetable matter (that is loam, soda, stable-manure and straw) is the food of lime. By its decomposing power, it may almost literally be said to eat up vegetable matter and loam. It effectually decomposes and drives vegetable matter and manure out of the soil, when in the caustic state. Hence where there is little loam, there lime should be used sparingly.

6. Not only does lime decompose vegetable matter, but when used in excess it renders the results of decomposition *insoluble* in water.

7. Lime, in close proximity with decaying nitrogenous matters in the soil, (as horse manure, hair, leather, &c.,) becomes a real ammonia-producing agent; the lime and nitrogen uniting to form nitrate of lime, is fully equal to ammonia as a fertilizing agent, while potash and nitrogen from nitrate of potash, (saltpetre,) the money-value of which as manure, needs no explanation.

8. Lime, when it has been burned and slacked, and again becomes a mild carbonate, is then a store-house of carbonic acid for the use of plants, and in a certain degree, has the same action upon vegetation as carbonic acid evolved from decaying vegetable matter. You will ask, how is this carbonic acid set free? I answer, in one instance, by the action of carbonate of lime upon silica or sand (which is chiefly an acid,) silicic acid is liberated, which in its turn acts upon th carbonate of lime, and large quantities of carbonic acid are let loose. Other changes, of a similar character, take place in the soil, caused by the actions and reactions of acids and alkalies, which result in the liberation of carbonic acid, held in combination by lime, and thus it serves, in a measure, the same purpose of vegetable carbon, in its relation to plants.

The last two sections (7 and 8) are those to which I wish to direct the attention of the reader, as they describe the least known and more important uses of lime.

My rule is to use lime in the garden constantly, but moderately; and especially to use it in combination with hair, leather or any slowly rotting nitrogenous matter;—and thus I secure two or three important points in "terra culture."

—WM. BRIGHT, *in Gardner's Monthly*.

Advantages of Pulverizing the Soil.

The effects of pulverizing or stirring the soil are numerous:

1. It gives free scope to the roots of vegetables, and they become more fibrous in a loose than in a hard soil, by which the mouths of the pores become more numerous, and such food as in the soil has a better chance of being sought after and taken up by them.

2. It admits the atmospheric air to the spongioles of the roots, without which no plant can make a healthy growth.

3. It increases the capillary attraction or sponge-like property of soils, by which their humility is rendered more uniform, and in a hot season it increases the deposit of dew and admits it to the roots.

4. It increases the temperature of the soil in the spring by admitting the warm air and tepid rain.

5. It increases the supply of organic food. The atmosphere contains carbonic acid, ammonia, and nitric acid, all most powerful fertilizers and solvents. A loose soil contracts and condenses them. Rain and dew also contain them. And when these fertilizing gases are carried into the soil by rain water, they are absorbed and retained by the soil for the use of plants. On the other hand, if the soil be hard, the water runs off the surface, and instead of leaving these gases in the soil, carries off some of the best portions of the soil with it.

6. By means of pulverization, a portion of atmospheric air is buried in the soil, and it is supposed that ammonia and nitric acid are formed by the mutual decomposition of this air and the moisture of the soil, heat also being evolved by the changes.

7. Pulverization of the surface of soils serves to retain the moisture of the subsoil, and to prevent it from being penetrated by heat from a warmer, as well as from radiating its heat to a colder atmosphere than itself. These effects are produced by the porosity of the pulverized stratum, which acts as a mulch, especially on heavy soils.

8. Pulverization also, as the combined effect of several of the preceding causes, accelerates the decomposition of the organic matter in the soil and the disintegration of the mineral matter, and thus prepares the inert matter of the soil for assimilation by the plants.—*Journal of Applied Chemistry.*

☞Pre-maturity of understanding is a bad sign; a man-boy is very apt to be a boy-man.

Underdrainage.

WHY IT MAKES SOIL MOISTER IN DRY WEATHER.

Every one can understand why the drainage of land should leave it dryer after rains. It is because the excess of water is carried off through the tiles. Farmers experienced in the cultivation of drained lands, who have drained extensively and tried the effects, agree *nem. con.* that it makes the soil moister in times of drouth. But why this is so, they cannot exactly see. If we can make the following understood, they will see that, by the laws of nature, an increase of moisture in dry times, is just as much a natural consequence of drainage, as a diminution of water in wet times.

All soils have, in different degrees, a retentive power over water; that is, they hold a certain portion of water, after all has drained out that will. Sands hold the least. A moderately compact loam holds twice as much as sand; a stiff clay three times as much, and some peaty soils four times as much. When you supply a soil with water beyond its capacity to hold it, the excess flows off, if unobstructed, and leaves the soil with only so much water as it has a capacity for—in other words, leaves it saturated, and no more. Thus, if you pack four pails, each with a hole in its bottom, one with sand, one with a common loam, one with clay, and one with peat, each of these soils having been thoroughly dried, and then by slow degrees pour a pailful of water on each, you will find that nearly all the water will pass through the sand; less through the loam, still less through the clay, and very little or none through the peat.

In a heavy rain any soil is more than saturated—has in it for a time more water than it can hold—but the water soon drains off, in case no obstruction is presented, and leaves the soil with its appropriate quantity of water; that is, so much as it can hold and yet be in a sound condition, such as to feel solid under your feet, and not to poach when the cattle walk over it.

But while the soil remains full of water, as while a heavy rain is falling, the air is pressed out; and then, as fast as the excess of water settles away into the earth, the air follows and occupies its place. The soil examined in this state would appear to be made up of particles, each particle moistened with water, and air circulating through the intervening spaces. The difference between this and a soil that is water soaked, is that the spaces in one case are completely filled with air, in the other with water.

It is a well established fact, that air always contains more or less watery vapor, varying

from half to one and a half per cent., and averageing about one per cent. The more air is heated, the more water it can hold in solution; and if it is suddenly cooled, it gives up a portion of its water to any object it comes in contact with. For illustration, you set a tumbler of cold water upon your dinner table, on a dry summer's day. You may wipe the outside as dry as you please, but soon it will be wet. The children say the tumbler sweats. But the truth is, the heated air coming in at the door and windows, as it passes by the tumbler, is cooled; its capacity for water is lessened; and it deposits a portion of its water on the cool surface of the tumbler.

Just so, when a soil is open and porous, with a free circulation of air among its particles, the air coming into the soil in a heated state, is cooled by contact with the particles, and deposits on their surface a portion of its watery vapor, precisely as on the tumbler, in the other case. It will not do to say that these particles of water, thus deposited, are too small to amount to anything. On the millions of particles in a single spadeful of soil, they amount to a great deal, equal, throughout the body of the soil; in the course of a day, to a pretty good shower, and this is the reason why farmers who underdrain, and plow deep, and stir the soil often, seldom or never suffer from drouth.—*Ind. Farmer.*

A New Southern Staple.

A new plant has been added to the resources of our tropical and semi-tropical regions—a new textile, which will furnish the world with clothing and the means of knowledge. We have seen, within a few days, long skeins of a cotton-like fibre, cotton-like in whiteness, softness, and fineness, but much stronger, which is now produced at the rate of five crops per year in the State of Vera Cruz, Mexico, where it has been cultivated for five years by a Belgian naturalist and botanist, who went there to pursue his favorite studies and occupations in a soil and climate which favor them.

This plant, called the ramie, is a native of Java; was introduced thence into the Jardin des Plantes, at Paris, by some French savan, in 1844; was regarded then as simply exhibiting the wonderful advantages of the tropics, being too delicate for open-air culture in cold climates. But having been planted and tried in warmer climates than that of France, yet not so equatorial as that of Java, it has been found to do as well in them.

It is due to M. Benito Roezl, formerly chief of the Horticultural Institute of Belgium, now of Santocomapram, San Andres Tustla, State of Vera Cruz, Mexico, that we can now pronounce it a naturalized plant of this continent, and to his present visit to this city will speedily owe its introduction into the field culture of the Gulf States, to which it will permanently pertain.

The ramie (its Javanese name) is a plant like hemp, contains in its stalk the fibre for which it is raised, and which is grown like the sugar cane, from being planted in lengths or from its stubble; with this advantage over the stubble of the cane, that each succeeding year it grows better, and that in Cuba and Lower Mexico it will furnish five, and here at least three, cuttings in the year.

By a new process and same simple machinery invented by Mr. R., the lint can be prepared from the stalks, taken fresh from the ground, in twenty-four hours. We all know that months of labor and the entire discoloring of the fibre follows the treatment by the ordinary process of flax and hemp, while the ramie comes out white, clean, pure, and unhurt.

Eight hundred pounds of lint to the acre is to be expected from each cutting of full growth in fair land. The culture is similar to that of cane; but as the plant, when once set, is hard to eradicate, grows vigorously, and defies the influence of grass or rival plants, cultivation is only needed to promote its growth. When ripe, it should be cut; but neglect to do this causes no special damage; so that it may wait days or weeks the will of the free republicans of Mexico and the Union. The fibre is long, fine and strong; the plant easy to raise, and hardy in a southern latitude; its preparation for market is simple and cheap in cost. Under these circumstances, we may safely pronounce that it will at an early day take high rank among our staples.—*New Orleans Picayune.*

Immense Strides in the Progress of Agriculture and Horticulture.

Calomel for Fruit Trees.—A gentleman of this city was lately in Saratoga county, and was there shown an apple tree in fine, healthy condition, which had been ill, subjected to treatment with calomel, and thoroughly cured. This tree was afflicted with insects, which were destroying it, and rendering it unproductive. A hole was bored into the body of the tree, nearly through the sap, and two grains of calomel inserted. As soon as this calomel was taken by the sap, the vermin on the tree died, and it began to bear fruit, and has done so for three years, to the entire satisfaction of the owner. We are told that camphor may be mixed with the calomel, and

with good effect. It may not be new to them, but it is new to us. Homœpathists and Thomsonians may object to the calomel treatment, but if they do not like it, they may find among the sugar pills of lobelia and red pepper a substitute. —*Rochester* (*N. Y.*) *Union*.

There can be no doubt concerning the correctness of this theory—of course not. The Farmers' Club of the American Institute, New York, will endorse all of the above, and considerable more of the same sort. We understand that a plum tree belonging to Dr. Brandreth, covered with that dreadful disease, the black knot, which has so raged in the plum tree family, was "bored into" and a couple of boxes of his pills poured in. The result was, that in ninety days every knot had disappeared from the bark, and the tree in its trunk resembled a sapling; so smooth was the cuticle. There is another instance on record of an old apple tree that had gotten past its prime; shedding its leaves every year as early as August, and was so feeble withal, that it could not set the fruit, not having borne a single apple in the past ten years, though each spring it was filled with blossoms. The owner of the tree, General Bombshell, purchased a bottle of Jones' Immortal Invigorator, bored into the trunk, and poured its contents therein, and the result was, the next season fourteen bushels and one peck of the most splendid fruit ever seen in Monroe county. General Bombshell sent a specimen of the fruit to the Farmers' Club.—*New York Day Book*.

The Quality of Eggs and the Rearing of Chickens.

Few people ever think there is any difference in the quality of the eggs they eat. Yet there is quite as marked a difference as there is in the flesh of the fowls. Fowls that are fed on the finer kinds of cereal grain furnish much better eggs than those that subsist on grass and oats and buckwheat. Wheat, or wheaten dough or bread always makes the richest eggs. C. N. Bement writes on this subject: "Though most farmers keep fowls and raise their own eggs, there are many who have not learned the difference there is in the richness and flavor of eggs produced by well fed hens, and those from birds that have been half starved through our winters. There will be some difference in the size, but far more in the quality. The yolk of one would be large, fine colored, and of good consistence, and the albumen or white clear and pure, while the contents of the other will be watery and meagre, as though there were not vitality or substance enough in the parent fowl to properly carry out and complete the work nature has sketched. In order, therefore, to have good eggs, the fowls should be well fed and provided with an abundance of fine gravel, that they may be able to grind and prepare their food for digestion.

In regard to raising chickens, Mr. Bennett says: "It is a fixed fact that most old women who live in cottages, know better how to rear chickens than any other persons; they are more successful, and this may be traced to the fact that they keep but few fowls, and these fowls are allowed to run freely in the house, to roll in the ashes, to approach the fire, and to pick up any crumbs or eatable morsels they may find on the ground, and are nursed with the greatest care and indulgence. By warmth and judicious feeding, a hen may be made to lay as many eggs in two years as she would, under ordinary circumstances, in three; and every one knows, or ought know, that a fowl fatted at two years old, is much more tender and palatable than one that is older.

Insects on Fruit Trees.

The editor of the *Entomologist*, in speaking of a work on entomology, issued by authority of the New Jersey State Agricultural Society, says:

It may be briefly stated here, that in the case both of the curculio and the apple-moth, it is recommended to destroy as quickly as possible all the infested fruit that falls from the tree; that, in the case of the curculio, jarring (not shaking) the infested tree upon white sheets, and killing all the "little Turks" that fall thereon, is the approved remedy; and in the case of the apple-worm, wrapping hay-bands round the trunk of the infested tree, and destroying from time to time the insects contained in the cocoons formed on and in the bark beneath those hay-bands.

On the subject of these same hay-bands, I cannot resist the temptation of quoting a short passage, illustrative of the vein of quaint, dry humor which crops out every now and then in the course of the work.

But some people will say, "It will take a great deal of hay to go over a large orchard in this way, and hay is very dear just now." I have had a long fight with the insect enemies. There has been a good deal of wear and tear of patience. Job was a patient man—he bore all those boils with commendable resignation. I am patient myself. A man who has fought the curculio for so many years, must be patient. But when I meet a man who counts the cost of a yard of hay-rope, when he sees the ground covered with worthless fruit under each of those trees which he has worked at so long and so faithfully, and with no apples, no pears, and no fruit of any kind—why, then I lose my patience, and say—no, I won't say what I would say.

THE

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DEVOTED TO

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JUNE.

"O, there is blessing in this gentle breeze,
A visitant that, while it fans my cheek,
Doth seem half conscious of the joy it brings
From the green fields, and from yon azure sky."

Editorial Gossip from the Farm.

Good Farmer: Happy in being away from walled up streets and narrow alleys, abroad in the wide fields, and green meadows, I propose to write to you from "out here," in free and easy style, not up, perhaps, to the dignity of the Chair Editorial. But country-men take off their coats to dig and to plough, and why not lay aside dignity, if it be an encumbrance? Why should a farmer, when he makes a note of his doings, be mewed up in a stiff-backed chair, and not rather write from a stump, or the shade of a tree, or perchance, if it suit him, "a sittin on a rail?" Let me then drop the conventional "we," and take leave to be personal and singular; and free of thought, and free of speech, *currente calamo*, I shall, at least, harmonise better with my surroundings, with bees and birds, and gentle breezes and babbling brooks, and all this May day life around me, humming and singing, gay and happy, going freely their own ways, doing busily the work that is set them, very obedient to law, and very careless of opinion, or of admiration.

And now of my work—late work it is—for do you know how during March, it rained and rained—"water, water, everywhere," and up to April 8th, no plough could touch the land. Then we went into the sod ground, and soon, with glorious, drying weather, into the lighter parts of the oat field, breaking well with two mules, and harrowing both ways after sowing the seed. Then into the sod ground again, turning a tough turf full seven inches, and wishing all the while for a subsoiler in the tracks, but too poor. With short occasional delays, we come to the 7th of May, and are ready to plant corn. Ground in fine order, fertilizers at hand, and just ready for a start, when again, such a rain, and such a blow—no corn to be planted for a week to come.

This reminds me of these drains which I ought to have, but have not. The corn-field slopes well, with ample fall, but a close subsoil forbids the sinking of the water; so the soil proper is thoroughly saturated by the rain, which weeps slowly away from it, or is evaporated sooner or later (especially later) by the winds, while the surface is baked into indifferent bricks, and so I have a wet soil, a cold soil, a late soil, and a hard soil to work, all for the want of drains to take the water quickly away. "But why," you ask, "have you not made the drains?" Ah, Old Farmer, why indeed! You give us good advice and wise instruction; you gather up the newest and best ideas that are going around, and tell us of the progress of science, and the improvements in implements and machinery; all very good, and very necessary, but they go not to the matter of making drains, because the first step there is to drain somebody's exchequer, and ours is drained in another direction, and hasn't a fall this way; and you have'nt introduced us to your bank directors, who wont trust country people, at any rate, because their crops don't grow fast enough, and don't mature, like their notes, in sixty, or at the most, ninety days. Or to come closer home, *Old Farmer*, you'll remember, that when the war began you stopped work: you "laid down the

shovel and the hoe." Like Chief Justice Chase, you stood upon your dignity, and would'nt hold court in District No. 1. Indeed any attempt to cross the "lines" to your general field of labour, would have subjected you to arrest for giving "aid and comfort to the enemy." This is only a *sample* of the reasons—their name is legion, all South of Baltimore—why our drains are not made, and the waters loiter here in mischievous idleness, that should be ten miles away, helping the Potomac to keep the Chesapeake agoing.

What's to be done as we wait for the waters to subside? Throw up the manure in the yards in preparation for removing, and haul when we can. Too much water again; make a note of it, and see how this matter can be arranged to give the manure moisture enough to rot, and not enough to drown it, and save, hereafter, the expense of carting surplus water to the fields, where there is already too much,—folly upon folly.

Then, we grind up the grass scythes, for there is pert and forward grass upon the lawns and the headlands, that needs taking down; Orchard grass it is, where it should'nt be. We are not answerable for introducing so coarse a grass, where only the finest should have place; and the cock's-foot is a game old fellow that will not be put out, by any gentle means. If we do no more, we can cut his comb to-day.

There are vacant spaces for evergreens on the lawn which we may take the opportunity of filling up. Why do not our country-ladies have small nurseries of these on their grounds, from which they may plant on all suitable times, and increase a growth which tends to cheer so much the aspect of the winter scenery. Ours are at hand, and to-day we profit by it.

In the garden, Irish potatoes are breaking ground—early Goodrich, Harrison, Peach blow; we will have something to say of them by and by.—Beans are of a golden hue, as well they may be, when the thermometer has been down to 34. The corn is *yellow* corn. The peas are all right; sweet potato plantings ready for the hill; tomatoes not crowded into long, spindling pipe-stems, but growing strong in pots, and ready for the open ground, &c., &c.

Strawberries are in full glory, with richness of leaf, and wealth of bloom, that is rare to see. Hovey, and Triomphe, Jucunda, Wilson, Filmore, Agriculturist, Russel, and what not. What a serious discussion I mean to have with these parties, on the topics of quality and quantity. A committee of Maryland ladies—men are incompetent—must be called on for help, and these matters must be settled without reference to the "Farmer's Club" of the city of New York.

And so of grapes—Delaware, Iona, Israella, Concord, Rogers' Hybrid, Ives' Seedling, Clinton, Harford, Prolific, &c., &c.,—we must try all and hold fast the good: the good to eat, and the good to drink; for, with all deference to our abstinent friends, I reject not that which in this "vale of misery," helps to make a "glad heart," and a "cheerful countenance;" I do not yet understand that a good gift used temperately causes intemperance. With this sentiment we close our first instalment of "Gossip from the Farm."

Farm Work for the Month.

THE CORN FIELD.

The crop of corn must be now an object of especial care. Let the young farmer be warned against the evil of what is technically called "Getting in the grass." Every thing is growing that has the power and the opportunity, and grass especially, in all cultivated lands. A long spell of wet weather, when the grass wont be killed, may give great trouble, so be sure that if such a spell come, there be none that wants killing. When the planting is done, keep cultivators, and as far as necessary, hoes busy, quite up to wheat harvest, when the working should be so well done as to be safely stopped.

THE TOBACCO FIELD.

This is the great month of the tobacco crop. Every hill set by the close of the month will probably ripen well before frost. But to finish by the end, the planting must begin in the early part of the month—which is hardly to be hoped, however, in this untoward season for sowing seed. The earlier in the month the plants are fit, the more sure of planting seasons and prompt growth. Be sure that the ground is in readiness, and if the planting must be late, give the land an extra working before planting.

If the season of planting must be protracted long and late, especial care must be taken of the plant beds, keeping clear of weeds and grass. Use great care in drawing the beds, that the plants be not mashed or bruised, or have the roots much broken, and have enough baskets to avoid the necessity of throwing large heaps into the body of a cart. Give particular attention to having the plants properly assorted in drawing, to secure uniformity in size on the same lot of ground. This is very needful both as to growth and ripening. The careful setting of the plants is very important, and becomes daily more so as

the sun gets more power. Allow no racing or emulation in this work. Some hands can move rapidly and do their work well, and others that would rival them in speed, crowd in, and double up the roots, or leave them with no hold on the ground. In either case they perish, and the ground must be re-planted at great disadvantage.

As soon as the plants show that they have begun to grow, as they will by their centre leaves, weed the hills, by carefully scraping away with the hoe the whole surface from around the young plants, leaving no vestige of weed or grass.

POTATOES.

The longest day in the year is the day to plant the principal crop of potatoes, or about as near that as may be convenient. Good sward land is best, and better if manured on surface last year, making nothing more necessary now, than a little ashes and plaster thrown on the plant as it comes out of the ground. Have ground in readiness, and if it need manuring as is most likely, a good dressing of rotted manure or compost, or long fresh manure if need be, thrown on the sets after they are placed in the drill—or a dressing of super-phosphate, not less than three hundred pounds to the acre, put on in the same way. Cut the potatoes, if large, a week or more before planting, and spread them in a cool place to dry and heal. Let them not be exposed to the hot sun while planting. Open the furrow fresh, *drop and cover immediately*. Potatoes planted in hot, dry weather, often fail to grow for want of these precautions. Beware of seed out of the hold of a vessel.

HAY.

Orchard grass and clover must be cut this month and made into hay. Cut too early, rather than too late, but try to get just the right time. It is said that the bees are good guides in this matter, as they know best when the sugar is developed, and the sweetest hay is to be made. The common sign of fitness for cutting clover is when a portion of the blossoms have turned brown—some say a third, some more. We think that too often the error is committed of beginning too late—when the stems are hard, and the leaves damaged by moisture. It is very desirable to have the clover as free from water as possible when cut. Let it lie but a few hours in the sun; then throw it into cocks where it may finish curing. Before taking it to the barn, throw these open for a few hours, when it may be safely housed. Orchard grass should be mowed when it comes into full bloom.

HUNGARIAN GRASS OR MILLET.

Sow on well prepared and fertilised land, early in the month. It grows rapidly and draws heavily on the soil, and needs therefore plenty of food at command.

FIELD PEAS.

These may still be sown, up to middle of the month.

RUTA BAGA.

Get ground for this crop broken, but it need not be put in before middle of July.

WHEAT HARVEST.

Make early all needful preparation for wheat harvest. Engage hands sufficient for your purposes. Secure at once a good reaper. This is an easy matter among the many in the market, and the price is soon saved in a harvest of any extent. If the cradle must be used, see that you have a good one, in good order.

But, especially, be in readiness, by pressing forward with all other needful works, happy in the pleasant summer weather; for though old Sol makes his most direct advances now, good mother Earth receives him yet awhile with a refreshing coolness.

The Vegetable Garden.

Prepared for the American Farmer, by DANIEL BARKER, Maryland Agricultural College.

JUNE.

Much may be done in every department of horticulture and agriculture by carefully considered, systematic action, so that there shall be no doing and undoing; no twenty weary steps, when five would do; no tugging and toiling at weeds, day after day, with the bush hook, when the dash of a sharp hoe would enable a man to do more in one day than he can accomplish with the bush hook or scythe in a week. We have been led into this train of thought by having been at work endeavoring to root up some briars, &c., which we are gravely informed have had the entire control of the ground they stand upon for several years. Where they were, is of no moment, they are not there now. Question—would it not be well, under such circumstances, for proprietors to cultivate a smaller space, and cultivate it well? We are inclined to believe that, in reference to the garden, a small one, well cultivated, is far more satisfactory than a large one in a neglected state. We know, from years of practical experience, that so long as hope remains, a man can, and will, accomplish a good deal, and surmount many difficulties; but let hope die, and he becomes discouraged, and succumbs to the feeling of the impossible at once.

It may be said, what has all this to do with the management of the garden? As the labor question is now an engrossing one, we answer much —very much, as in our jottings for July we will endeavor to show.

Embrace every opportunity, whenever the ground is sufficiently moist, for thinning out the early sown crops of beets, carrots, parsnips, &c.; and, as it is presumed they are all sown in rows, let the cultivator and hoe be kept at work between the rows, not merely cutting the tops of the weeds, but stirring the ground from two to four inches in depth, which will effectually destroy the weeds, and check rapid evaporation. If former directions for draining, subsoiling, &c., have been carried out in this department, it will now present many agreeable and interesting features. There should now be continual hoeing, forking, spading, &c., going on, which, continued with a favorable season, will tell well upon the various crops, which we hope will be abundant in the garden of every reader of the *Farmer*.

Spading and planting vacant ground should not be neglected whenever required, not omitting to lay on the manure.

Keep all advancing young crops in a growing state, by timely application of water whenever they may require it. Our plan of watering is not to give here a little and there a little, but a good wetting once in four days.

Continue to plant out cabbage, Brussels sprouts, savoy and cauliflowers for fall use.

Prepare trenches for the main crop of celery.

Make sowings of string and pole beans, for succession, and thin out the advancing crops, stirring the soil well about the roots.

Make occasional sowings of the best kinds of summer lettuce.

Continue to sow "champion of England," pea, which has proved with us to be the best to sow the early part of the month, and towards the end we sow for a late crop the "Early Frame," or Dan O'Rouke, after which time there is but little chance of their coming to perfection.

Let tomatoes be well thinned, and kept tied to a trellis.

Thin out turnips, and sow a few early purple-top for succession.

Do not forget the application of liquid manure to the growing crops.

Spinach is an excellent summer vegetable, and should be sown every month from March to September. Whenever spinach begins to run to seed, we never take the trouble to remove it, but merely cut it up and leave it to enrich the ground. For summer use we prefer the round-leaved, and for winter the prickly-seeded.

Potatoes should be frequently cultivated and hoed between until they receive their final moulding up.

Continue to sow and transplant for succession sweet corn, cucumber, melons, eggplant, radishes, lettuce, endive, parsley, tomatoes, &c.

The Fruit Garden.

In the summer management of fruit trees, it will be necessary to look over them carefully and to pinch off or cut out any ill-placed or superfluous shoots, and where there are vacant places, the next strongest shoots should be cut back to three or four eyes, from which shoots will spring and fill out the head during the season. Any shoots infested with insects should be carefully removed, unless much wanted upon the tree, when the insects must be crushed and the shoots well washed, as the remains are about as bad as themselves to the health of the trees.

When the fig trees have made shoots about six inches long, pinch off the points; by which means a more stocky and fruitful growth will be attained than if left to grow.

Strawberries will now be making runners freely, and whatever number is required should be from the strongest only, which should be removed, soon as they have made a few roots, and planted out upon a partially shaded border of rich, light soil. Should the weather be hot and dry, when practicable, the strawberry beds should be thoroughly soaked with water. Many of our friends, who are anxious to grow strawberries, complain that their beds are failures. We think one reason is that the plants have not moisture enough during the time they are in bloom. A good soaking of water in dry weather often makes the difference between a full crop of fine berries and a small crop of poor, insipid ones. Our practice has been, after a good watering, to mulch the plants with short straw or grass, which not only prevents the fruit from being soiled by the storms, but keeps the roots cool and moist.

The hot weather, which is now likely to prevail, will bring out the insect tribe in great abundance; and they must be met with timely remedies. To this end the best thing to do is to subscribe for the *Practical Entomologist*.

Fruit trees, in pots or tubs, will be greatly benefitted by frequent applications of manure, water, and powerful syringings overhead.

Grape vines will need looking over, in order

to keep the young growth tied up to stakes, we do not allow our young vines to produce but one cane, and are careful not to remove the laterals before the latter part of August. Upon the appearance of mildew, we dust the part affected freely with sulphur, give a surface dressing of about a handful of super-phosphate in a radius of about three feet to each young vine, and mulch with straw or half decomposed manure, and during dry weather, a good soaking of manure water or soap suds, about once in ten days, will be of great benefit to them.

The Flower Garden.

Roses should have the garden engine or syringe played upon them frequently, which will drive away the fly as effectually as any method we ever tried, and do the roses much good. Newly made gardens can be planted with roses now as well as at any time during the year. The florists supply good, strong plants, in almost all the classes, in pots, at reasonable rates, and these, planted out with care, in good, well trenched ground, and liberally manured, will grow with vigor and flower well during the fall. We prefer planting roses, upon their own roots, (from pots) in May or June, to any time of the year. Roses, for flowering well in the fall, should now be cut back to about one-third of their new growth. The shoots then cut back will throw out side shoots, and produce fine bloom late in the fall. The rose is a gross feeder, and is much benefitted by liberal application of manure water.

Geraniums, verbenas, and other summer bedding plants will require constant watching and looking over, as under the best management failures will sometimes occur, which should be immediately made good. When display is not immediately required, we pinch all the early flowering buds off the verbenas, geraniums, heliotropes, &c., to encourage the plants to cover the ground as quickly as possible. The strongest shoots of chrysanthemums may now be layered, which will produce fine dwarf flowering plants for autumn flowering.

Plants growing in rustic vases, baskets, &c., should be watched and well watered in the evenings of dry days. During the continuance of hot, dry weather, frequent waterings should be given to all recently planted evergreens, shrubs, and bedding plants. Not a mere sprinkling of the surface, but a thorough soaking. Plant out and mulch dahlias with well decayed cow dung, and give plenty of water in dry weather, keeping them well tied up to neat stakes to prevent injury in windy weather. Fuchsias, planted in the open ground, are generally disfigured with a superabundance of ugly sticks; whereas, if planted with care, in good, rich soil, in a partially shaded border, they need but little support, one neat stake for the central stem will be found sufficient. Specimen fuchsias, in pots, will now require an abundance of water, and about once a week a good soaking of manure water. *Tritoma, uvaria*, and varieties. These beautiful plants, in dry weather, will require an abundance of water. The genus tritoma is one of our especial favorites; we have seen and admired it many years since at the Royal gardens at Kew, and many other places in Europe, where it is generally planted in conspicuous places upon the flower garden, and in the Shrubbery, where it forms an attractive and beautiful feature during the autumn.

During a visit to the experimental gardens at Washington last fall, we remember to have seen it in great beauty, and thought, at the time, we had never witnessed it so fine. It is a plant which we can recommend with all confidence to all lovers of handsome herbaceous flowering plants.

The end of the month is a good time to sow hardy annuals for autumn flowering. Ten week stocks, mignonette, himophelias, balsams, &c., flower beautifully in the fall, if sown at that time. Propagate the Russian and Neapolitan violets by division and planting in good, light, rich soil, in a shady border. Soon as the foliage is decayed, take up the bulbs of hyacinths, tulips, narcissus, crocus, &c., and to make sure the bulbs are well ripened, lay them in a shady place and sprinkle earth upon them. The common practice of laying them in the hot sun soon as taken up, is one cause why so many are worthless ever afterwards.

☞"J. R. Glover writes to the New York Farmers' Club, that he has been so engaged in his experiments in hatching eggs artificially, that he has not had his clothes off more than two and a half hours, in any of the twenty-four for the last three months. The results of his persevering labors, he sums up as follows: "I have used up about sixteen hundred eggs, and I have now on hand, in good condition, sixteen chickens—just one chick to one hundred eggs!" Still he believes the thing can be done if we only knew how."

J. R. G. would have succeeded better if he had been an old hen, instead of the goose he appears to be.—*American Farmer.*

For the "American Farmer."

A Young Farmer's Work—Land Improvement.

[LETTER TO A FRIEND.]

VIRGINIA, April 22, 1867.

My Dear :—Our colored fellow-citizens having taken holliday to themselves, affords me an hour's chat with you. I pray you let politics alone—in the name of all that is worthy have we not had our quantum suff?—and strive now to build up the material interests of your State. There is no danger of Virginia losing her prestige—it would be safe with the negroes, who claim alliance only with "the hots" as they call them. The glory of our ancestry has been too lately vindicated by our brethren and sons to fear any loss of caste. Be content, therefore, in the knowledge of the fact that we can never be robbed of *our* birthright, and go to work like a man, and show yourself worthy of your high estate. You have fair land—a reasonable capital—are free from debt—have a young and admirable wife; and doubtless will imitate your forefathers in giving considerable increase to the population of the State, and have therefore, altogether, as fair a prospect for prosperity and happiness as any other unlucky devil whose lot is cast in "Cis alpine Gaul," alias District No. 1, formerly known as Virginia. Then turn your back on court-houses, public meetings and race courses, and devote your health and mind to the improvement of the talent which has been committed to you. I will do you the justice to say that I have no reason to find fault with your zeal and energy, tho' I am somewhat inclined to fear that you are too sanguine in your expectations. This results, I am inclined to believe, from a rather willing mind to run off with the theories of agricultural writers, and to assume that *all* that come from *respectable* sources are entitled to be followed *implicitly*. This will wear off in time, and if you exercise a small degree of prudence, the lessons you will have by experience will be rather beneficial than otherwise. Among others, I think you have placed too high an estimate on the "rotation of crops," and have claimed for it more even than your authorities have ever demanded. I am very sure, however, that you did not mean to be understood as going to the length, your letter would seem to indicate, that the mere rotation would eventually bring your land to a high state of fertility. I am not a scientific man as you know, and have less than no chemical attainments, and I can only answer you by what I have seen myself and learned of others. In the rotation of six fields I believe it is universally acknowledged by the best writers available to me, that in England one *full* manuring on rich land is necessary to *keep the land up* to its grade; hence on land not fertile, and not manured, we may readily imagine the result of cropping on any kind of rotation. If we cultivate (without manuring) for six years, although in different crops, it is clear to my mind that your land will be rendered materially of less value that if you had cultivated for the like period in the same crop. In the one case you rob the soil of the ingredients necessary to that *crop*, in the other, of the ingredients necessary to *six* crops.

Do not misunderstand me—I am entirely convinced that it is necessary to our ultimate success that we should adopt a rotation best suited to our respective soils—and I feel assured that if we will exercise the same zeal, industry and skill we used to exhibit as politicians, we will in a few short years be enabled to cope with the lands of any other part of the continent. I do not know your land sufficiently well to lay down a special rotation for you. I can only say, that, from your description of your soil, the six fields would suit you better than a less number. I would commence it in the rotation of six years with corn *heavily* manured—peas—wheat—clo. clo. wht. This rotation will give you one full manuring from your stables and barn yard, and two green manurings, upon which lime would act like a charm, and in a few years you will have your farm as rich as you can well make it. You will observe further that I avoid my own *execrable* practice of letting one grain crop succeed another. *You* can afford this—I cannot—for, unlike you, I have no money, and am in debt. You must not neglect to drain and lime. By heavy manuring you *may* make a fair crop, but nothing in comparison to what you would make if you let off all the surplus water, and give a good dressing of lime. Situated as you are, twenty-five dollars per acre to thoroughly underdrain, will be doubly repaid you in the *increase* of crops in the rotation of six years, and then you will have so much more satisfaction in your after cultivation. The outlay I know is heavy, but the return will be certain, and prove the very best investment you can make. Why can't you be Alderman Mechi, Jr.? There is a gentleman near Baltimore who has demonstrated that a wise application of money to the fertilization of land pays handsomely. He was called "a book farmer," "a high-pressure farmer," &c., was pitied and laughed at alternately. His scoffers had their day—now he has his. For every dollar expended by him—and he

spent it freely—he has drawn cent per cent., and he had about the most unpromising patient you ever saw. It *was* in the *last stages* of consumption; *now* it is in the best condition imaginable. Stop your politics therefore, and "go do likewise." Yours truly, S. B. F.

For the "American Farmer."

Notes of Western Travel.

On Monday morning I left Chicago, regretting my inability to remain longer and see more of this great city of energy, enterprise and magic growth—and particularly to see and attend the Illinois Agricultural Fair to come off that week—and for which preparations commensurate with the vastness of the great interest of which it was to be the type and illustration were going forward upon a scale and liberality such as Chicago might be expected to provide. But the urgency of my call westward forbade my lingering to enjoy what to me would have been a source of so much pleasure and satisfaction. To have seen here as in a nut-shell, the corn, rye, wheat, oats—roots and the sorgum—the cattle, horses, mules, sheep and swine—the great plows and harrows—planters, drills, mowers, reapers and threshers—teams, wagons and carts—wielded and directed by the skillful hand of industrious and well directed LABOR—as it must have been to draw from good old mother earth, such wonderful results and productions as are here presented in the comparatively brief space of time that this second Egypt has been under the subduing hand of civilized man. I say *subduing*—because man is literally called upon here to obey the first great scriptural command to "Subdue the earth." He appears here to be called upon to do nothing else. Nature has bountifully supplied and held together under the tough and tenacious sod, covering those almost boundless prairies, such apparently inexhaustible fertility, that man has only to break the sod, and a rich harvest will most certainly follow the sowing of the seed.

In my enumeration of the great variety of Illinois productions to be on exhibition at this wonderful gathering of Illinois farmers, I omitted to mention that delicate fibre, *cotton*, the innocent cause of so much bloodshed and waste of treasure; but yet so necessary to human comfort—and the loss of which during our unhappy civil strife has quadrupled the cost of clothing to our whole population—but which is most severely felt by the great laboring class of our people. To the laboring man, cheap food, cheap clothing, and cheap shelter are his three first wants, and the lawgiver who sports with or neglects, or destroys either, is an enemy to the labor of the country. Illinois has wisely begun in the southern counties of the state the cultivation of this important staple. May her experiment prove successful, and she be able to contribute to cheapen the cost of clothing, as she so largely has contributed to cheapen the cost of food to the labor of the country.

Starting out on the northwestern train for Prairie Du Chiren, and in the omnibus which took us to the station, I first encountered a tall, fine looking gentleman, whose dress and manner at once impressed me that he was from the south. Having been so long cut off from all intercourse and communication with the south, the temptation was strong to learn the true condition in which war had left it—its present wants, and prospects for the future. A few common place remarks soon satisfied me that I was not mistaken, and that I was in the presence of an open, frank and intelligent southern gentleman. He told me that he was from Memphis—that he had been largely engaged in building and managing the rail roads of the southwest, and that he owned a large cotton plantation in Mississippi—that the rail roads were broken up, and communication with the interior destroyed, and that through the whole country there were great destitution and distress—that he, like most other planters, had lost all of his effective labor, as well as his horses and mules—and that he had had left upon his hands between sixty and seventy women and children, with a few old men, which he had been supporting during the war—but he added, evidently with feeling, "I am unable to do this any longer." To my inquiry as to what would become of this class of people, he replied they will suffer—they must suffer—and thousands are now dying throughout the south for want of care and food—that their former masters, however so disposed, and thousands of them were so disposed, were too much impoverished to take care and provide for them—and the effective labor was so much scattered and demoralized by the war, that there was but little hope from it—that there was very little cotton planted since the war, and the prospect ahead for the south was gloomy in the extreme. I could but regret parting with so frank and intelligent a gentleman so soon, as at the end of our first hundred miles, which with this, then, interesting conversation was swiftly passed over. A glimpse of the country, however, as we passed along, did not entirely escape me. I could scarcely though arouse myself from the reflections this conversation naturally aroused. That a country, whose immense extent I

was then measuring at lightning speed, with resources and productions almost sufficient for the whole human family, with fields unexplored and capable of yet greater productions, should, by the wickedness and folly of its politicians, and against the will and wishes of the great producing class and labor of the country, be involved in such a war, with such direful and yet unmeasured results, did seem to me to be beyond understanding or comprehension. It shows, and conclusively proves, that when passion and ambition get control, prudence, wisdom and patriotism are entirely dethroned and destroyed.

But, to my journey. Soon after leaving Chicago, westward the country became more elevated and rolling. Here I saw the first hay rick worthy of the name. Immense corn fields, which my southern acquaintance assured me was the case all the way from St. Louis to Chicago—indeed, he said the country almost presented the appearance of one immense corn field. Sugar cane was also growing to a considerable extent upon nearly every farm. The Illinoians are thus struggling to be independent of the south for "sweetening," as well as for cotton. The true bond of union, however, is mutual dependence and reciprocal benefits. Nature has, undoubtedly, in the varied soil, climate, production, navigable streams and water power, presented to us this condition of mutual dependence and benefits. May we never again, in the weakness and foolishness of man, attempt to violate her laws. For some distance the country way meets the same aspect—until rising higher and feeling the atmosphere to become cooler and more bracing, I was informed by a gentleman near me, a returned federal officer, who was about to exchange his sword for the pruning hook, that we were in Wisconsin—and in Rock county, the richest and best county in the state. A more beautiful farming country my eyes never rested upon. Clear, open, rolling, without being hilly, well improved, for the west, better than I had before seen, with rows of fine Lombardy poplar—reminding me of old Virginia hospitality, of which they were the beacon and true ensign. But my paper is full, and I must reserve a further account for my next.

A MARYLAND FARMER.

For the "American Farmer."

Sassafras and Persimmon Bushes.

I see in the April number of your *valuable Journal*, that some one wished to know how to destroy "Sassafras and persimmon bushes." The best way that I have tried is, to grub them up during the months of May and August, and cultivate the soil.

S. S. N.

MACKEY'S FERRY, N. C.

For the "American Farmer."

Clover as a Fertilizer.

Messrs. Editors: In regard to the above article in your May number, I cannot refrain from giving some facts which apparently are not fully understood, or which have not been sufficiently appreciated. In 1852, Prof. Nesbitt, in England, (a high authority in agricultural chemistry,) showed by a series of experiments, that clover must NOT be *pastured*, if the field is intended for wheat. He established the facts, that clover pastured leaves over fifty per cent. less roots and fibres in the ground, than clover that has been allowed to blossom and then to be mowed for hay. The fact is, that the amount of roots and fibres correspond with the number of leaves and stems allowed to grow. By pasturing the clover is continually eaten off by the stock, not being permitted to grow to any extent, whereas by mowing, the clover unfolds a multitude of leaves and stems, before it is cut. Consequently the roots and fibres are multiplying to a great extent; and they are fully as much fertilizing agents as the leaves and stems. After the clover has been cut, no stock should be allowed to pasture it, but the aftergrowth left undisturbed to be ploughed under. If too heavy, roll it before ploughing. Should any one doubt the fact, let him dig a square foot of soil, two feet deep, where the clover has been mowed, and a square foot of ground of the same quality of clover, where it has been pastured, take the soil, each to itself, place it in a tub and wash it out, and he will be surprised by finding more than double the amount of roots in the former soil against the number in the latter.

Another advantage is, that the soil remains porous, it being protected by the foliage of the clover during the heat of the summer from the scorching rays of the sun. It still would be a greater advantage to the wheat, if the clover was not even mowed, but the benefit to the wheat would not compensate for the hay crop. The argument by advocates for pasturing, that the droppings of the cattle make up for the amount of clover consumed, would be a very weak one at all times, even if the pasturing did not diminish the amount of roots, as the droppings of stock, exceept sheep, are of next to no value, not being scattered sufficiently, and being exposed to the influence of sun and rain for months

L. A. HANSEN.

Clifton, Fairfax Co., Va., May, 1867.

☞ A National Horse Fair is to meet at Trenton on the 11th of June.

For the "American Farmer."

Trouble about Vine Planting.

Editors of American Farmer:

Allow a subscriber to trouble you with a remark or two on the difficulties of selecting suitable kinds of grape for a vineyard. As the grape is just now engaging considerable attention throughout the country, and as many are disposed to plant vineyards who know but little of the merits of the several sorts of grapes most suitable for wine making, it is important that they should have some reliable source from whence to make sure that what they invest in this species of culture is not lost. To accomplish this end, the horticultural works published throughout the country are resorted to, as well as the books, catalogues, manuals, &c. published and sent out by the nurserymen who have vines to sell. The trouble is, that by the time one kind of grape is well "*puffed*," and its character pretty well established, and the novice has made a selection, and perhaps gone to the expense of planting his vineyard, he finds all his pains as well as expense thrown away, upon seeing in some paper or pamphlet, a notice from the *highest authority*, backed up by a *cloud of witnesses*, that the grape he has selected is good for nothing but to make vinegar. Now how is it that after all that has been said, and *as good as sworn to*, by the most eminent Horticulturist of the country, in commendation of the *Concord* for instance, that we now have it denounced in the manual of one of the most extensive grape men of the country as having no wine qualities, and none of any sort except "*hardiness*." Is it possible that its originator, and so many whose praises of it as a grape of high qualities we have read are so much mistaken as to its general merits? How are we to make a selection when these learned grape doctors so widely disagree? I have only stated a case which has actually occurred in this immediate neighborhood. The grape has recently occupied much of the public thought here, and some ten or fifteen thousand plants have been set out already, mostly of the Concord, Catawba, Hartford Prolific and Clinton Grapes, and we now have it announced that they, (the Concord and Hartford especially,) have no merit, or at all events will not make wine of any value, the very purpose for which they were selected and planted. How are we to know what kind to buy, or to whom are we to look for information? It would perhaps be best to apply to some one of our celebrated wine makers, (the Messrs. Longworths for instance,) who buy the wine from all the kinds of grapes, and who have no "*axes to grind*" of their own in the case. Can you help us out of the difficulty, if so you will confer a great favor.

ISAAC G. MASK.

Moorefield, Va., April 9th.

We appreciate the trouble of our correspondent and will give him the best comfort we can. We think he need not make himself unhappy about the opinion of "one of the most extensive grape men of the country" as regards the Concord or other grapes. We do not charge, as we find is often done, that such an opinion originates in interested motives. It is nearer the truth we think to say, that it is the opinion of one whose taste in such matters is refined to a degree far above that of the great public for whom we propose to work when we plant Concord grapes for the market or for wine, and his taste gets the better of his judgment, just as we see wine drinkers who have so cultivated their taste that they despise, or affect to do so, that which the mass of consumers are content to take as very good, and are glad to get it. In the first place, the Concord is of better quality in Maryland than in New York; but acknowledging as we do freely that it is inferior in quality to the Iona, Delaware, and some others, and does not please the taste of the amateur, yet it is *a good grape*, which pleases a great many people who want to buy grapes, and makes a fair wine, which satisfies a great many people who want pure wine at a moderate price. There is, and is likely to be a good demand for it in market, and that is the first consideration. This demand is likely to be continued because it can be supplied at a much lower price than any now known grape, on account of its hardiness, its resistance of disease, the certainty of the crop, and its great productiveness.

The Catawba has been the chief of native grapes, and might be so still, but for the disease which of late years has so blighted it. We would not now plant it largely for this reason, but if planted would give it the best care in the hope that it might change in this respect. The Hartford Prolific is a good grape, but not superior to the Concord in any respect except its earliness, and does not bear carriage as well. The Clinton is very productive, and a very good wine grape. Suppose that neither the Concord nor Clinton makes as good wine as the Delaware or Iona, if it is produced with a great deal more certainty, and in much larger quantities, it is nonsense to say that for ordinary planting and unskilled grape growers they have no value. For such the *Concord is the Grape*.—[EDS. FAR.

For the "American Farmer."

Proportion of Teams and Hands to Number of Acres.

CLIFTON, FAIRFAX CO., VA., May, 1867.

Messrs. Editors:

In your number for this month, several questions are asked by Mr. E. Hunt, Caswell county, N. C., in regard to number of teams and hands necessary on a farm. I would refer him to an article in March number, headed "Labor question again—change of system," which will show him that a horse is required for about every twenty-five acres. It depends, of course, on the mode of farming adopted, and how teams are worked, to determine what amount of team is required. If rational farming is carried on, twenty-five acres are as much as a horse or mule can attend. If the old mode of farming is followed, a horse may attend from thirty to thirty-five acres. The larger the farm is, the less team is required in proportion, because they can be worked to better advantage, having larger fields and consequently not so much loss of time by going from one work to another. Besides a spare horse for the family is needed as well on the small as on the larger farm. Altogether our farmers are not careful enough in estimating the loss of time generally occurring on a farm. How easy are ten minutes lost every day by starting too late morning and evening. Ten minutes a day by one team, makes fifty working hours per year or five days entirely lost, without the least benefit to man or beast. The same is applicable to other work. Always have a fixed place for your tools and implements, so no time may be lost by *hunting* for what is required when you want to start work. More time is lost by not paying the strictest attention to this point, as most are aware of. With regard to system, I likewise refer to the above mentioned article, which, mean while, can be modified according to soil, climate, location, &c., &c. Finally we come to the wheat question. You are perfectly right in not advocating sowing wheat after corn or tobacco. Wheat, in our climate, requires, under all circumstances, to be sown early to secure a good crop. Sowing wheat after corn and tobacco not only prevents early sowing, but the soil is *too loose* for wheat. Loose soil will bake and wash during the winter, if the wheat has not been sown early enough to cover the ground perfectly. Wheat requires a rough and compact soil. This is best obtained by either breaking clover or timothy sod, or sowing wheat after oats. Strange to say, oats is a very good predecessor for wheat in our climate, although in Europe it is established to be one of the worst. If you grow potatoes or turnips, your corn and tobacco land is the very place for them, as they require mellow soil. After this crop sow barley or oats, with clover and timothy, and you will have the finest meadow or pasture you can wish for. In our farming operations we must not strive *too hard* for an immediate return of our outlay, at the expense of our land, but have an eye to the permanent enrichment of our soil, which we can obtain in no better and easier way than by a good grass sod. A good sod will produce plenty of pasture and hay, the necessary agents to procure manure, and if ever you break this sod, you are *sure* of a *good* wheat crop.

L. A. HANSEN.

For the "American Farmer."

Mildew in Grapes—the Yellows, &c.

Messrs. Editors:

I infer from Mr. Creed's communication, published in the October number of the *Gardener's Monthly*, that the sulphur remedy for mildew in grapes is new and novel to the community generally. I have cultivated the vine, to a limited extent, upwards of twenty-five years, and when I dusted my vines with sulphur, at the first appearance of mildew, I always had an abundance of sound grapes and green, healthy foliage. In my small way I dust by hand or with a dredging box. A properly constructed bellows or a centrifugal disseminator are, no doubt, the best (the latter particularly) to use for expedition and thorough work. I suggest that instead of a round nozzel attached to the bellows, that it be two inches wide and an eighth of an inch at the outlet, thus enveloping a wide instead of a round surface.

The origin of my information relative to the value of sulphur as a preventative against mildew in grapes originated in a conversation I overheard, about half a century since, by my late father and brother-in-law, Dr. Lythe. Although I was then a mere lad, I distinctly recollect the Doctor said his vines were in a very flourishing condition, and that he had an abundance of grapes; he also remarked that he dusted his vines with sulphur, and applied some about the roots.

It is well known that sulphur is an active fertilizer. It is also a certain remedy against mildew in grapes.

THE YELLOWS.

What every one says can't be done all exclaim (except the enthusiast and Sam. Patch) "so say I." As the remedy for the yellows is yet in embryo, and I not being sure what the disease

is, I will simply say that in the summer of '64 I noticed several small peach trees (planted in a clay loam, bearing a northern aspect) were diseased, and, apparently, dying. The leaves were yellow or rather orange color, small protuberances on the leaves, and all curled. I thought of applying diluted sulphuric acid, coal or fish oil, fumigating with sulphur and charcoal, or both united, but on consideration I determined to try mercurial ointment. It was melted in an iron pan, and applied with gloved hands. The summer sun caused the oil to run down the body of the trees. I was apprehensive when winter approached that the frost, united with the ointment, would cause death. A very short time after the application, however, the leaves regained their original foliage, were entirely healthy in the year '65, and are to this day as thrifty as any tree on my farm.

For large trees it would occupy too much time to cover each branch as I did; probably the dose I gave my trees was unnecessailry strong. It may be that highly diluted mercurial ointment will act as well, it ought to be applied by a garden engine. If diluted with (hot) water, frequent or constant stirring will be necessary, which can be done by a plunger attached to the pistern or lever of the engine. For fumigating trees or vines on an extensive scale, a small iron furnace, an iron pot, several rubber or oiled cloths, and two wooden lifters will be necessary. By lifters, I mean two long ash poles with 1¼ inch cross pieces, 6 feet long, studded with sharp pointed nails to hold and aid in placing the cloths over trees or vines. The cloths ought to be large enough to reach below the lowest branches.

Without seriously deviating, I would say that fumigating poultry houses with sulphur and its application to the birds is a sure remedy against parasites. It also acts as a preservative if applied to smoked or fresh meats, mixed with lard, an admirable remedy against the mange, &c.

The C. Disseminator alluded to, may be propelled by horse or manual power. I have made and used them as agricultural machines, for spreading lime and other fertilizers. As an engine of war nothing, I imagine, could be constructed more destructive to human life. A machine made on the same principle (attached to a man's body) for manual power, is valuable for sowing grain and grass seed, dusting vines with sulphur, &c., also, by a quick turn of a crank, a man (a police officer for example) could disable (with round shot) a crowd, thus preventing the disagreeable necessity of taking life.

Now, Messrs. Editors, I have not taken out a patent for these inventions, (if I may so call them,) neither do I intend to; and will allow you to use them and my communications with impunity. I feel quite obliged for the privilege I have enjoyed of a place in your journal for my scribbling. It has afforded me entertainment and profit of which otherwise I would have been deprived.

As the season for active, out-door work has arrived, I must bid you adieu. PLOWMAN.

Balto. Co., Md.

For the "American Farmer."

The Santa Barbara Grapevine, &c., &c.

In the April number of the "Farmer" a correspondent—"Mississippi"—describes a Scuppernong vine, which he insists is of more wonderful proportions than the celebrated vine at Montecito, in Santa Barbara county, California. I think he is in error. According to the description published in the November ('66) number of the "Farmer," the Montecito vine yielded 8,000 pounds of grapes *per annum;* which, in Southern California, is equivalent to eight hundred (800) gallons of wine.

In the spring of 1860 I had occasion to visit Santa Barbara, and went to Montecito for the double purpose of bathing in the hot sulphur springs and seeing the great vine. According to the statements then made to me by parties of undoubted veracity, the yield, *per annum,* was set down at 10,000 pounds of grapes, from which 1000 gallons of wine could have been produced—ten pounds of grapes of the same variety, and identical in quality, producing a gallon of wine throughout the southern counties of California.

If Montecito looked down upon Chesapeake bay, instead of the broad waters of the great Pacific, the produce of this single vine would readily bring *five thousand dollars per annum!* Ye Baltimoreans, who have not crossed the Continent, are yet to see *such* grapes as are borne on "the old woman's vine" at Montecito.

The mention of grapes and wine, carries me back to Los Angeles, where more than fifteen hundred acres are in vines; and to Anaheim, with its thousand acres, and finally to "Lake Vineyard," the splendid place of B. D. Wilson, Esq., with its 200 acres of vines, its plantation of olives, oranges, limes, lemons, figs, &c.; and I read with a smile of derision of the "Hermann settlement" in Missouri, and think how easily the whole concern could be *lost* in Don Matteo Keller's huge vineyard, and how he used to surprise all visitors by the immensity of his cellar, and his own hospitality.

In conclusion let me beg this latter gentleman,

or Mr. Wilson, or Col. Harasthy, to contribute an article to the "Farmer" describing the vineyards and wine interest of California as it is *now*. Tell us of all your fine places, of your millions of vines, how the business pays, &c., bearing in mind that few here have any conception of the immensity of the business.

GEORGE W. GIFT.

MEMPHIS, TENN., April, 1867.

For the "American Farmer."

Immigration.

CLIFTON, FAIRFAX CO., VA., May 1st, 1867.

Messrs. Editors:

In your last number I have read a very able article, "Large or small farms," etc., etc. The views taken therein of our present situation are, I think, correct, with exception of one point, to which I most decidely object. It is this: "*For one, I do not wish to see foreign immigration. I fear it may prove an addition to our already overgrown pauper population, and fuel to the flame of fanaticism, which is now scourging us.*" If the gentleman had had the required practical knowledge of the nature of the laboring class of emigrants without capital who come to the United States, he would not have expressed the above sentiments. Out of one hundred poor laborers who arrive here, *at least* ninety are industrious people, *willing* and *able* to work, modest in their demands, and neither willing nor able to meddle with politics. Who, but the laboring class of emigrants, have built up the West and Northwest? If we could be fortunate enough to obtain a sufficient number of these emigrants, our present troubles with labor would soon be overcome. But although we have an "Emigration Society," supported by the State, still our hopes for relief by this society are very small. *They can* or *will* not realize that they never will obtain a sufficient number of emigrants without having their very active agents, able to speak the different languages, both abroad and in our principal seaports. Every State of the West, Northwest and North, have their agents both abroad and here; but the "Emigration Society of Virginia," has confined itself to obtain a few emigrants from England. The society lost, by not having the required agents, a lot of Danish emigrants, bringing with them $280,000 in gold. Certainly it would have been a benefit to Virginia if she had got them. But so it goes. Things are started and supervised by men not having the practical knowledge required, and too conceited to take advice.

L. A. HANSEN.

BEALETON, VA.

Editors American Farmer:

DEAR SIRS: Enclosed please find two dollars for your valuable assistance rendered me during the past year. Am sorry that I have been so dilatory, but it is the first moment since your *renewal* that I have had the money to spare. Mine is the oft repeated tale of war devastation—houses, enclosures, every thing but my land and timber destroyed. I had to begin "de novo"—and now just begin to see my way out of the woods.

I have now to do my own gardening, and as I have no experience whatever, would suggest to Mr. Barker that he would confer a great favor upon *my class*, by telling us *how*, as well as *when*, garden seed, of all kinds, should be sowed or planted. I find much trouble in not knowing how deep, how thick, &c., seeds should be sowed.

With many wishes for your success, I am

Very respectfully, yours, &c.,

R. H. D.

WHITEWASH FOR OUT-BUILDINGS.—In response to an inquiry for the best whitewash for barns and out-buildings, the Massachusetts Ploughman says. "Take a bushel of well-burnt lime, white and unslaked, twenty pounds of Spanish whiting, seventeen pounds of rock salt, and twelve pounds of brown sugar. Slake the lime and sift out any course lumps and mix it into a good whitewash with about forty gallons of water, and then add the other ingredients and stir the whole together thoroughly, and put on two or three coats with a common brush."

To make a cream color, add to the above three pounds of yellow ochre; a fawn color, four pounds umber, one pound Indian red, and one of lampblack; if a gray or stone color, add four pounds of raw umber and two of lampblack.—*Ex.*

☞ The *New Orleans Price Current* gives a list of the sugar plantations of Louisiana and the products thereof last year, compiled with care, and believed to be very near complete. The estimates for the entire crop range from 40,000 to 42,000 hogsheads. Of the number of acres planted this year there is no positive information, but it is known to be much greater than last year, and the coming crop estimates range from 80,000 to 100,000 hogsheads. As high as $200 per arpent has in some instances been paid for seed cane by parties wishing to resume the business of sugar making. The *Price Current's* estimate of last year's product of molasses is 65,000 barrels.

Labor and Immigration.

Our Maryland readers need not to have commended to them the following able report submitted to the Senate of Maryland by Col. Oden Bowie. The subjects are treated with the good sense of a practical statesman, and the suggestion as to an agent of immigration, abroad as well as at home, is one that has been strangely overlooked. Our experienced and intelligent correspondent, L. A. Hansen, well remarks, on another page, upon the necessity of "very active agents both abroad and in our principal seaports."

The Committee upon Labor and Immigration beg leave to submit the following report:

The Committe have given to the subject the anxious and thoughtful consideration which its paramount importance demands.

Since the sudden abrogation of our hereditary and patriarchal system of involuntary servitude, greatly unsettling and demoralizing, as might have been expected, that hitherto useful and contented class of labor, no subject has arisen of more immediate and pressing importance to the agricultural and planting interest of the State.

The black man, naturally kind, amiable, and submissive, is admirably fitted for the servile condition which for two centuries he has so advantageously occupied in this country, and under which he has been lifted from a state of barbarism and heathenism to one of civilization and Christianity. Whether in his new condition of freeman, he shall be able in the great race of life to cope successfully with the more active and enterprising white man, is a problem which time alone can solve. If we compare his condition in the free States, where for generations no impediment has existed to his moral and intellectual improvement, with rare exceptions, we must conclude that a retrogade, instead of an advanced condition, is his unhappy fate. Truthfully and graphically as he was described by his liberator, President Lincoln, "a houseless, homeless and landless race," instead of bewildering and intoxicating his mind with ideas of learning and literature, and social and political equality, he had been taught that work — honest, faithful work—was the first great lesson of life; and that by work, and work alone, could he gain an honest livlihood, and lift himself from want and degradation to independence and respectability, our jails and penitentiary would not now be filled, as they are, to repletion with colored criminals, and this legislature engaged in the difficult task of seeking foreign labor as a substitute.

As Marylanders, so long and so intimately associated with this class of our community, we cannot but feel a deep solicitude in their future welfare. Their present condition has been forced upon them without any agency of their own. They are not responsible for it. From former services and dependence they demand our sympathy and assistance. and all impediments, if any exist, to such employments and avocations as they are fitted for, should be removed. But to admit the negro to social and political equality is contrary to long established habit—revolting to taste and judgment, and violative of the laws of God, who, in His own wise providence, has placed the two races as far asunder as light is from darkness. The welfare of each demands that they shall move in their appropriate spheres. When forced from it, commotion, agitation and conflict will inevitably follow, and a war of races, ending only in the extermination of the weaker, will be the end of the experiment.

Labor, then, being the key to production, and absolutely necessary to the cultivation of the soil and its full development, it becomes interesting to investigate the nature of labor—what it accomplishes; what are its wants and duties; and how ought it to be dealt with.

WHAT IS LABOR?

According to Webster, labor is defined to be "physical toil, bodily exertion, muscular strength, painful effort, directed to some useful end." In agricultural pursuits, it encounters fatigue, exposure to all weather—heat and cold, wet and dry, frost and snow. It has one never ending round of duty, from sun to sun, from week to week, and from month to month. There is no period of the year at which farm labor may not be usefully and profitably employed. Then, what does labor accomplish?

Labor fells the forests; drains the swamps; furrows and plows the fields; sows, reaps and harvests the crops: threshes, cleans and prepares them for market; makes roads, digs canals, builds houses, towns, villages and cities. From the sowing of the seed to the harvesting of the crop—from the humblest cottage to the palace and full-grown city, this indispensable agent, labor, is always present; always toiling; always necessary. Its wants, then, obviously become the next subject of inquiry.

The wants of labor, primarily, are food, clothing and shelter. But since the system of involuntary labor has been abolished, and we now buy labor like any other commodity in the market, its demands must not be neglected. In this age of scarcity and competition, not only the physical, but also the moral and intellectual

wants of labor must be supplied. The wages of labor, like every other commodity, are regulated by the laws of supply and demand. In this country it is not likely to sink so low as merely to supply the natural wants of man—such only as food, clothing and shelter. It has higher aspirations, and the good of society and the welfare of the State demand that these aspirations should be encouraged and provided for. Hence, schools and churches become a necessity if we would attract and permanently domicile a desirable class of voluntary farm labor. In addition to this, the innocent pastimes and amusements of foreign nationalities should also be provided. Labor must have its relaxations and diversions, or like the bow which is always strung, it soon loses its life and elasticity. If diversions, of an innocent character, are not provided, those of vice and immorality will be sought and indulged in.

The physical nature of labor being understood and appreciated, its great achievements acknowledged and its wants—physical, moral and intellectual—provided for, it follows as a moral, legal and religious obligation on its part that labor should return a faithful, willing and active service to its employer. Not only should an honest day's work be performed for an honest day's wages, but the interest of the employer should be the interest of the employed. This, on the farm, can be shown in a variety of ways, viz, by the care of tools and implements, attention to stock, to fencing, and a general oversight and readiness to assist in unforseen accidents, or to put in place and order whatever may accidentally be out of order. This interest and attention on the part of labor never fails to meet an acknowledgment and due appreciation.

On the other hand, it is the duty of the employer to meet with punctuality and exactness his promises and engagements to his hired labor. "The laborer is worthy of his hire," is an injunction of holy writ, and a curse is pronounced upon him who "keepeth back the wages of the hireling." Therefore the highest moral obligation as well as self interest, common honesty and justice require a scrupulous exactness in the discharge of this part of the contract.

The wants of labor require that the payment of wages should be divided and made at frequently recurring periods, either weekly or monthly, as the case may be. For the employer it is generally easier and better to pay his hired labor in monthly instalments, than in one annual payment; and it enables the laborer to buy for cash, and to keep out of the clutches of merciless venders of the necessaries of life, for which he would have to go in debt, did he only receive his wages at the end of the year's services.

Thus far your Committee has only considered manual labor, because it is fundamental and necessary to give direction to all other kinds of labor. Animal labor has been used, and is destined by the skill and inventive genius of our people, still more to be used, to modify and economise farm labor. The elements of wind and water can also, in many situations, be turned to good account; and steam is being economically applied to too many uses, to doubt that at no distant day it will be made tributary to the toil and labor of the husbandman.

Your Committee having noticed the destruction of involuntary labor by sudden emancipation, its consequent demoralization and unreliability, and as pertinent and necessary to a due and proper consideration of the subject of organizing a system of voluntary to replace the involuntary system bequeathed to us by our forefathers; having considered the nature of labor, its importance, its wants and duties, and also the duty and interest of employers in dealing with employees, it now becomes necessary to inquire from whence a supply of labor can be obtained.

If we for a moment consider the vastness of our common country—the number of States and great variety of employments seeking and competing for labor—your Committee must confess that this a difficult and embarrassing question. And yet, if we remember the character, energy and enterprise of our people, the peculiarly advantageous position of our State—near the sea board—with our great commercial emporium at the head of one of the noblest bays on the globe, and our close proximity to the Capitol of this great nation, we at once see that we have the strongest and most encouraging motives for effort, and a strong probability of success within our reach.

Probably the most fortunate circumstance for Maryland, at this time, is the establishment of lines of steamers directly from Baltimore to and from Liverpool, England, and Bremen in Holland. These steamers are calculated and expected to bring into the port of Baltimore annually from 10,000 to 15,000 foreign emigrants. A large per centage of these emigrants are farm laborers. They have heard of our free government—where freedom of religion, freedom of occupation, and the pursuits and objects of life are before them and open to all. They have also heard of our vast domain and boundless and Western prairies—where farms are cheap, and labor scarce and high—and the attractive West is presented to them before leaving their father-

land by agents from Western States, and large railroad corporations, as the land of promise, and the goal of all their hopes and expectations, so that when landed here no persuasion or inducement can divert them from their original destination, and they hurry off by our railroads for the great West, as fast as steam and rail can carry them. To detain them here and induce them to settle in Maryland we must pursue the same course which has been so successful in attracting them to the West. The Legislature of 1866 has wisely created the office of Commissioner of Immigration, and imposed upon that officer onerous and important duties. The duties are doubtless well performed, but the appropriation and compensation appears to be altogether inadequate to the adoption of a full and comprehensive plan for the reception and accomodation of so large a body of immigrants as is expected to arrive annually in the port of Baltimore; and no provision whatever is made for sending an agent to Europe, which the Committee believe to be absolutely necessary to the successful working of the commission at home. First impressions and predilections are strong and difficult to eradicate—and if the agent is successful in creating an impression upon immigrants before embarking, favorable to Maryland, the first settlers will, by correspondence and otherwise, draw after them a stream of immigration to fill up our sparce rural population—and sufficient to occupy and improve every county and neighborhood in the State. The Committee would therefore strongly recommend the appointment of an agent in Europe under the direction of and to co-operate with the Commission at home.

There is one other point, although not directly connected with the question of labor and immigration, yet so important in its effect upon that subject, and the general wealth and prosperity of the State, that your Committee beg leave to present a few observations upon it. Your Committee allude to the subjects of roads, turnpikes, canals, railroads, &c. These afford the means of transporting the productions of labor to market, and add to or diminish the cost of labor according to the cheapness or dearness it costs to bring it from the place of production to the place of sale. Whatever cheapens the cost of transportation, cheapens the cost of production, and consequently adds to the value of labor; hence the great importance of opening, constructing and making as perfect and useful as possible the roads and highways of the State. These of every description which capital can be found to build, it is obviously the *interest and duty* of the State to foster and encourage by all necessary legislation. It is difficult to find an individual or community that a good road or highway has ever injured. On the contrary, their benefits and advantages can only be counted by millions. Not only millions of dollars have been gained by the introductions of roads, turnpikes, railways, &c., but what is more valuable, the great saving of time they gain for the community.

Who can estimate the days, weeks and months gained in the aggregate by the hundreds and thousands of people that are constantly passing over our railroads? Take, for example, the Washington Branch Railroad, and compare it with the slow stage coach of former days—then it took ten hours to transport ten passengers per coach between the two cities; now forty passengers per single car of a train of six or eight are carried in two hours over the same distance, equal to a loss of time consumed by stage travel per ten persons of one hundred hours—against forty by railroad of eighty hours—or in other words, a gain of eight hours per day for each passenger who passes over the road—or in the aggregate, of the enormous gain of 2,560,000 hours per annum by the use of steam over horse power on one short road of only forty miles in length—which is equivalent at ten hours per working day, to 25,600 days labor.

Your Committee have, in accordance with the views presented herein, reported a bill looking to the sending abroad a commissioner whose efforts shall be directed towards influencing immigration to Baltimore by steamers and sailing vessels. This bill also endeavors to provide a means to detain and keep permanently within the limits of the State the flow of immigration which the establishment of the lines of steamers heretofore spoken of in this report will do so much to attract, but which the cupidity and interest of the great railroad company establishing those lines of steamers prompts to transport out of the State over their long line of railroad, and whose "runners" scarcely allow the immigrant to set foot on our soil for one moment, or exercise any volition in selecting his future residence, but hurry him off to the depot to be moved with railway velocity outside of our own State to the great West, whose prosperity and population he has done so much to increase. If the bill reported does not prevent this, other legislation must be inaugurated to stop it.

Your Committee have but one other suggestion to make.

Immigration will not go where facilities for ready access to market are denied. Fortunately, our State is being checkered all over its beautiful

surface with railroads, either projected or in process of construction. Let the "Maryland system," of which we hear so much, be turned to the improvement of our whole State, rather than to the aggrandizement of an already overgrown and overweening corporation. Let us encourage the construction of *all* works of internal improvement in the interest of Maryland, rather than confine our legislation to the benefit of *one road* for which the State has already done so much.

Let *this* be the "Maryland system" in future, and blessed as we are with soil, climate, water facilities, mineral wealth, water power, geographical location, public schools and places of worship, and a resident population, a nobler than which does not exist in any land, and our future prosperity and pre-eminence will be as great as the most ardent lover of our State could wish.

ODEN BOWIE, *Chairman*
Committee on Labor and Immigration.

An Important Law—Caution to Trespassers.

The following law, enacted at the recent session of the Maryland Legislature, is of importance to farmers, gardeners, &c. To the people of Baltimore county, residing near the city, it is of special interest, and if properly enforced cannot fail to protect them to considerable extent from the depredations of gangs of youths, as well as others, who make it a practice to leave the city daily and roam about the premises of strangers, destroying shrubbery, fruit trees, plants, fencing, &c.

Section 1. *Be it enacted by the General Assembly of Maryland*, That the act passed at January session, eighteen hundred and sixty-four, chapter two hundred and forty-seven, entitled an act to add an additional section to article thirty of the code of public general laws, relating to crimes and punishments, is hereby repealed, and re-enacted so as to read as follows:

That any person or persons who shall enter upon the land of any other person or body corporate or politic in this State, and shall wilfully and maliciously injure or destroy any house, take and carry away any growing tree, vine, plant, shrubbery, root, vegetable, fruit or grain, or any fencing, cord-wood or hoop-poles, shall, on conviction thereof in any of the courts, or before a justice of the peace of the State having jurisdiction thereof, be adjudged guilty of a misdemeanor, and be fined not less than five dollars, nor more than one hundred dollars, or be imprisoned in the city or county jail not less than one month nor more than two months, or be both fined and imprisoned, as aforesaid, in the discretion of the court or justice of the peace aforesaid, and that this act shall apply to Allegany, Frederick, Prince George's, Harford, Washington, Baltimore, Kent, Queen Anne's, Talbot, Caroline, Cecil, Somerset, Carroll, Worcester, Anne Arundel, Montgomery, St. Mary's, Charles and Howard counties.

Sec. 7. *And be it enacted*, That this act shall take effect from the date of its passage.

The Hurdle Fence.

In our number of April 6th, Mr. S. H. Hall inquires how the English Hurdle fence (movable) is constructed. We are indebted to the kindness of an English lady for verbal information concerning it, which we give as follows:

It is constructed in sections of different lengths, according to the material at hand; sixteen feet, perhaps, being as convenient as any. To construct a section, take two stout sapling stakes, six feet long, and sharpen one end of each so that it will drive into the ground. Bore five inch and a half holes through each, the upper one six inches from the top, and the other four distributed along down as you wish to arrange the bars. Take oak poles of uniform length (for each panel) sharpen the ends to fit the auger holes, and put the parts together. Place a piece of split sapling across the bars in the middle and nail it to them, and add braces of split saplings, running from the top of the cross piece in the centre to the bottom pole at the stakes both ways, and a panel or length is complete. When you have a sufficient number constructed, set them in this wise. Set the panels end to end in a straight line, with the stakes at the joints nearly touching each other. Drive the stakes into the ground till the panel stands with sufficient firmness to answer the particular purpose intended, and couple them together at the top with withes. When you wish to remove the fence, you have only to slip off the withes pull up the stakes carry your panels where you will and set them up in the same maner, slipping on the same withes.

The same general plan may, of course, be varied to suit the particular purposes for which it is intended. If to turn cattle only, three or four horizontal poles, properly placed, would be sufficient. If designed to turn hogs only, it may be made lower with the bars nearer together. We understand that Mr. W. G. Bartlette, of Windsor, Dane county, will construct these fences for any who may desire his services.— *Wis. Farmer.*

Great Sale at Sudbrook Farm, near Pikesville, Baltimore county, Maryland.

Mr. J. Howard McHenry, the proprietor of the Sudbrook estate, designing to make a prolonged visit to Europe, offered at auction on the 3d and 4th instant, nearly the whole of his remarkably fine stock of horses and cattle. The horses were thoroughbreds and Norman Percherons; the cattle, Alderneys and Devons. As Mr. McHenry has long been noted for the superiority, particulary of his Alderney herds, a brief statement of the prices at which they sold, will interest breeders everywhere.

Among the horses sold was Mars, a superb thoroughbred; foaled 1857; sire, Basil by Mariner, out of Cassandra, by Priam. Col. Edward Lloyd, of Wye, was the fortunate purchaser at $550, about one-third his value.

Dr. Thorn secured the Percheron Norman stallion, Little Corporal; foaled 1859; sire, Duke of Normandy, imported in 1851, by Mr. Samuel Holman, Chester county, Pa.; dam, Snow Drop, imported for owner by late Col. Carroll, Howard county, Maryland. The Corporal weighs 1,300 pounds, and is the most active Norman we ever saw. He would let in any county in western New York at $1,000 per annum, and yet he sold for the trifling sum of $530. This horse should be put to one of the superb mares of the same race, recently imported by Mr. Ficklin, of Albemarle, Va.

ALDERNEY COWS.

1. Custard, imported by J. A. Taintor, Esq., Hartford, Connecticut; calved 1855; sired in Jersey. $91.

2. Peace, calved 1855; Sire, imported Commodore; Dam, imported Hope. $105.

3. Plenty; calved March, 1859; Sire, Reward by imported Commodore out of imported Faith; Dam, Peace. $265.

4. Ceres, calved August 11th, 1860; Sire, Reward, (sired in Jersey; Dam, imported Charity;) Dam, Gazelle. Imported by J. A. Taintor, Esq. $305.

5. Topaz, calved 1861; Sire, Comus; Dam, Pearl, (sired in Jersey; Dam, imported Faith, $305.

6. Highhorns, from the herd of J. A. Taintor, Esq. $165.

7. Cow, calved May, 1863; Sire, Buckskin; Dam, Constance. $230.

8. Pauline, calved December, 1863; Sire, Buckskin; Dam, Peace. $380.

9. Cow, calved November, 1863; Sire, Buckskin; Dam, Constance. $135.

ALDERNEY BULLS.

1. Bull calf, dropped June, 1866; Sire, Potomac; Dam, Dove, by Buckskin, out of Fawn. $85.

2. Bull calf, dropped May, 1866; Sire, Potomac; Dam, Pauline, by Buckskin, out of Peace. $65.

3. Bull calf, dropped August, 1866; Sire, Potomac; Dam, Candour, by Figaro. out of Constance. $75.

4. Bull calf, dropped September, 1866; Sire, Potomac; Dam, Canary, by Comus, out of Custard, $80.

Bull calf, dropped February, 1867; Sire, Potomac; Dam, Constance, by Relief, out of Gazelle, $70.

ALDERNEY HEIFERS.

1. Heifer, calved February, 1865; Sire, Buckskin; Dam, Constance; served in March, by Alderney bull, Earl. $275.

2. Heifer, calved May, 1865; sire Potomac; dam Topaz. $270.

3. Heifer, calved September, 1865; sire Potomac; dam Ceres. $220.

4 Heifer, calved December, 1865; sire Potomac; dam Peace. $210.

5. Heifer, calved February, 1866; sire Potomac; dam Constance. $255.

6. Heifer, calved September, 1866; sire Potomac. $185.

7. Heifer, calved September, 1866; sire Potomac; dam Ceres. $200.

DEVONS.

Three yoke Devon oxen, of which two yokes are in their prime, and the other has not yet reached that stage, brought respectively, $308, $390 and $285.

The reader will remark that the cattle sold better than the horses; this may possibly be attributed to the fact, that the horses were sold before, and the cattle after a magnificent entertainment given by the hospitable owner of Sudbrook.—*Turf, Field and Farm.*

☞ J. W. Brown, Kensington, N. J., makes a calculation of the loss in plowing an acre of land fourteen rods in length by turning the team at the ends. If the furrows are nine inches wide, it will require about four and two-thirds hours to turn the team at the ends. If the acre was 50 rods long, it would require only one and one-third hours to make the turns. He estimates the distance traveled in plowing an acre at eleven and five-eight miles.

The American Farmer.

Baltimore, June 1, 1867.

TERMS OF THE AMERICAN FARMER.

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BALTIMORE.

POST MASTERS.—We take pleasure in acknowledging the many acts of civility and friendly assistance received at the hands of post masters, and beg that all will give us the helping hand, which we know to be so much in their power. Of some we have cause to complain—that they have failed to give the notice that the law requires of them, of the omission or refusal of a subscriber to take the paper from his office.

A HANDSOME DONATION FOR THE AGRICULTURAL COLLEGE.—Good words and good deeds propagate their kind with great certainty, when they fall on good ground. Last month we acknowledged a present of seeds for the College; this month we have growing plants. Mr. John Saul, florist and nurseryman, near Washington, has presented, through Mr. Barker, a collection of very select varieties of herbaceous phlox, verbenas, fuchsias, dahlias, chrysanthemums, geraniums, pinks, lantanas, gazanias, heliotropes, and miscellaneous bedding plants—the whole lot worth, at florists prices, about $40. This is a very acceptable gift, and will, we hope, be a reminder to others friendly to the purposes of the Institution, that they have the opportunity of doing it a kindly and, at the same time, valuable service. In entering on its new life, there will be needed for the garden and farm a very considerable expenditure, in a thorough restocking of all departments, and there are many who might give aid in this at little cost to themselves. Mr. Saul has shown a very commendable appreciation of this state of things.

"A Sorry Story but True."

Dr. R. M. writes from Selma, Alabama, and we make the following extract from his letter:

"Last year it looked feasible that I might indulge in the pleasure and profit of reading your journal, but after the total loss of river crop, and in fact a failure every where, the military, bankrupt, and our own homestead protection bills, the necessary credit for provisions checked, landed property esteemed a burthen merely, on account of taxes, the fall in price of cotton no longer remunerative, the increased and increasing price of provisions, hardly obtainable, we must anticipate nothing short of extreme suffering and destitution. This is a sorry story but true."

There have been very many tales of suffering and woe, which as being more personal, touched more our sympathies, but this summary of our respected correspondent tells in few words all the story of helplessness and hopelessness, which have come over a people numbered by millions.

Never was there a state of things where the words "The poor you have with you always," had so little meaning, as in these southern states before the war; perhaps never until now, has there been in a civilized and cultivated country, a ruin and desolation so general and wide spread.

PLOW, SEEDER AND ROLLER COMBINED.—A trial of this implement, advertised in the *Farmer*, is proposed to be had on the farm of the Agricultural College, on Thursday, 6th of June.

Being very highly commended as a labor-saving implement, by the certificates of many farmers, the proprietors, Messrs. Ewell & Miller, of Louisville and Baltimore, have been invited to make trial of its qualities at the College, and have accepted the invitation. A committee of competent gentlemen will be requested to be present, and report upon it, and others who may take an interest in it are invited to attend.

PRESIDENT OF THE MARYLAND AGRICULTURAL COLLEGE.—Charles L. C. Minor, Esq., of Hanover Co., Va., was, on the 24th of April, elected President of the Maryland Agricultural College. Professor Minor is a Master of Arts of the University of Virginia, and adds to experience in the instruction and government of young men, the qualifications of an accomplished scholar, and a christian gentleman. Gen. Custis Lee declined the appointment of the Board, because he sought occupation of a different sort, and the College is deemed fortunate in having his place so well filled.

Close of the Volume.

In closing up, as we do with this number, the work of the year, we commit it to our readers in some confidence that they will find it, on the whole, worthy of preservation for reference and re-reading. He who would read with most profit, must read over and again, what he has read, and we have aimed to provide for our pages mainly such matter as may claim to be read again. We have not designed to offer to Farmers a very cheap publication. There are others which certainly give more reading for the same money. But in condensing, so to speak, the material at command, (enough to fill half a dozen such monthly numbers,) the judgment of the editor is tested. Sir Walter Scott made three volumes of his Life of Napoleon, because, as he said, he "hadn't time to make it but one." The work of exclusion, where some fifty contemporaries, and very many permanent issues from the press crowd monthly upon the editor, is a real labour. If he has skill and experience to extract the good, and reject the indifferent and the worthless, he accomplishes a great deal for his readers. He saves them much time, and a great deal of mental distraction, to say nothing of the expense of paying for many where one or two may answer all purposes. A venerable gentleman paid us lately this homely, but very acceptable compliment: "I like your journal very much—there is no nonsense in it." We hold that it is no small matter to publish some four hundred pages in a year, and have "no nonsense in it." If we can not claim to deserve the compliment, we are pleased to know that a very sensible man prefers our journal to others for such a reason. To the extent that nonsense is shunned, good sense, it may be hoped, prevails, and we covet for *The Farmer* more than anything else a reputation for good sense and sound discretion in the matters of which it treats.

In the future, no effort will be spared, to maintain its past character, and make it more deserving still of confidence. We have no taste for the sensational in journalism, nor in matters of business, and do not therefore propose any wonderfully taking *new features*, nor to give *The Farmer* away to any one who will vouchsafe to make waste paper of it, nor to offer immense rewards of pianos, melodeons, farms and what not, to drummers, who will worry whole towns into subscribing for what they do not want and have no need of. But we shall be most thankful to friends who may use their influence in inducing to subscribe such neighbours as they think should read the "Farmer," and will gladly give Postmasters or others a commission very sufficient to pay them for any trouble they may take in our behalf.

Subscriptions.

We beg to call the attention of our subscribers to the fact that the present number of the *Farmer* closes the volume, and that subscriptions, payable in advance, will be now due for the coming volume. We have been flattered and gratified at the reception the *Farmer* has met at the hands of old friends and new acquaintances, and the promptness with which payments have been made in the past year—too often, as we know, at serious inconvenience—gives the best assurance of that appreciation which we seek. It is to friends who so demonstrate their good will, and those especially who favour us with useful matter for our columns, that we look for continued support, and an *increased circulation*. We know we do not ask of such in vain, to select some one or two or more, among their friends, and especially the young men, and make known to them the value and claims of our journal.

There are others among the number of our former subscribers to whom we have indiscriminately mailed the *Farmer* the past year, not insisting upon payment in advance, who have not shown any sense of the civility we designed to show them, either by payment or by acknowledging that they could not pay. Some of these we know to be such as, on this reminder, will make due amends, by paying for the past and the coming volume, or for the past at least. Others, who, struggling with the times, have intended and hoped to pay, and have not, really, been able to do so, will, as some have done, frankly tell us so; while other some will still think it harder to part with the little sum they owe us, than to bear the consciousness which these lines are designed to bring home to them, of leaving undone *a small thing* that they ought to do. As we drop them from our lists, they'll "die and give no sign."

☞ Six cases of trichina have occurred in Springfield, Mass, all in the family of Ransley Hall, from the eating of ham; and a daughter of Mr. H. died on Monday, 25th, from this terrible disease. Mrs. Hall is in a critical condition. The ham had been purchased about a week, and was eaten without being cooked.

Should'nt eat their meat raw—very foolish.—*American Farmer.*

☞ Some farmers sell two crops in the winter. In the fore part it is hay, in the latter part hides.

Mangold Wurtzel.

P. S. writing from Monroe, La. very kindly gives us his opinion of the value of this root, which he says is much more productive and more easily cultivated than Carrots, and "makes good feed for Hogs and Cows, without cooking." We agree with him in his estimate of the crop, and hope to see its cultivation increased. Two methods of planting he says are practiced in Germany, one by preparing ground, and marking it with furrows 18 inches each way, and putting several seeds at each crossing, thinning afterwards to one plant, and working with cultivator both ways; and the other to sow the seed early in a sheltered border very thickly, broadcast, and on a rainy day in the latter part of May, or early in June, transplant the plants into the prepared ground. He says, "This mode, I think, is best, as it leaves the main work until after corn planting is over, and the plants have a fair chance to get the start of the weeds."

In conclusion our correspondent says—"Please don't make fun of the manner, style or spelling of this letter, as I am no Yankee repudiating your paper, but only a poor foreigner, without an hour's schooling in your language in his life." We can say of our friend's letter that it is far superior in "style, spelling, &c." and especially in "manners" to that written by a born American, which provoked our criticism. But whether so or not, we are very far from being disposed to "make fun of" any one for the bad spelling, or bad grammar, or for anything else which may be the result of ill fortune or want of opportunity. We yield to no one in sincere respect for good sense and good principles wherever found, without regard to the dress, occupation, or degree of book learning of the man; and we appreciate especially that modesty which goes along with those hardy qualities, and than which "there's nothing more becomes a man." It is the folly which magnifies its little miserable spelling-book learning into "Education," and so takes on wise and virtuous airs, that we hold in contempt. Self-conceit and self-assertion make the stock in trade of a class of people, and when they are blown up like biggest bladders, as a small pin-hole operates on these, so nothing takes down so suddenly such boasters as the simple operation of showing that they cannot even *spell*.

☞J. W. Griswold, of Wethersfield, Ct., informs the New York *Horticulturist* that he has preserved his trees from the canker worm by piling coal ashes around their trunks.

A Housekeeper's Column.

TURNIP PUDDINGS, &c.—We have frequent inquiries for housekeeping items, recipes for preserving, &c., and shall be glad to have a column or more, in future numbers, devoted to such matters, if we can have it under proper regulation. We would preserve our readers from such messes, yea, such *doses* of cookery, as too often crowd the journals that make profession of giving a great quantity of reading matter for very small pay, (as well they may.) Quality is to be most esteemed, both in reading and eating. If we may claim to have some judgment of the former, and indeed of the latter, so far as the eating goes, of the mystery of that art of preparation called "cookery," we presume not "to know anything as we ought to know it." This is a great confession for an editor; but we *will* say it to you in confidence, reader, that when we have so presumed, years ago, we have been constantly and instantly convicted, at head-quarters, of "Flat burglary." As for instance: "*Turnip Pudding a substitute for apple pie.*" We did not originate this idea; but we endorsed, in fact, adopted it; transplanted it from some of our esteemed contemporaries, into our own little plot of recipes. We like simplicity in such matters. Turnips easily raised, very cheap, a little dash of lemon juice, sweeten to taste, a sprinkling of nutmeg, everybody likes apple pie—admirably adapted to those extended regions of our common country, where fruit culture has been sadly neglected, &c., &c. Now a mere man might have taken this in a serious, common sense way, but a woman is another matter. You know how she *can* laugh when she will; and if two or three of them unite, and every brat in the family joins the chorus, "Tray, Blanche and Sweetheart, little dogs and all," it is easy to see how a man may be barked out of countenance, and even out of his own house.

This is what we had in mind when we spoke of "proper regulations," and as we don't care to become responsible again for this particular department, unless we can get some very knowing lady to take charge of it, we can only hope that the lady readers of *the Farmer* will help us out. Will they so oblige us?

☞A Scotch writer, in the English *Agricultural Gazette*, says that superphosphate seems to have lost its power with him, and does not do well on his land, though a few years ago it produced marvellous results. Another says guano does no good now, whilst fourteen years ago the smallest dusting showed a marked effect.

Book Table.

Our Exchanges.—It is matter of regret to us that our columns do not offer room for notice of the many valued exchanges of which we are in constant receipt, and which afford us much assistance in our gleanings for the *Farmer*. The list of agricultural and horticultural journals is becoming very large, and many of them are of a high order. Our newspaper exchanges are greatly esteemed, but so numerous that even a catalogue of them would take a large amount of room. Our magazine exchanges we endeavor to give such notice of as their value seems to demand of our limited space.

The American Stock Journal.—This is a valuable publication, indispensable, it would seem, to those who are, to any extent, interested in stock raising. Price $1 per annum. N. P. Boyer & Co., Gum Tree, Penn.

Southern Cultivator.—This is one of our most substantial and esteemed contemporaries. It is full always of good and useful matter, judicious in its editorial conduct, and well sustained by intelligent correspondents. It is published at Athens, Ga. by William N. White. $2 per annum.

Scientific Journal.—*A weekly record of scientific and practical information on manufactures, inventions, mechanics, the arts, &c.* We are in receipt of first number of this new publication, of which the title sufficiently indicates its character. It promises to be a valuable addition to the number of our scientific journals. No. 411 Walnut street, Philadelphia. $3 per annum.

Blackwood's Magazine, from the Leonard Scott Publishing House. Contents of April number: *Elizabeth and Mary; Hemans' Ancient Christianity; The Moral and Political Revolution in Japan; The Army*, part 3; *Manhood Suffrage, and the Ballot in America; A Letter Never Sent*, Brownlow's part 4; *The Ministers and their Measure.* No. 140 Fulton street, New York.

Richmond Eclectic for May, (April number not received). Contents of this number, from the leading English magazines, *Isaac Taylor; The Tower and its Tenants; Secret Writing*, Richard Whately, D. D.; *The Innermost Room; French Society under the Directory; Sketches of the English Bench and Bar; The Metaphors of St. Paul; Music; The Expression of Character; Science and Art; Miscellanies from Foreign Magazines.*

A Succinct Exposition of the Industrial Resources and Agricultural Advantages of the State of Maryland.

We are indebted to Professor Higgins, the author, for the pleasure of reading this valuable and very interesting exposition, twenty thousand copies of which have been printed for distribution by order of the General Assembly. It will prove, we hope, as attractive to outsiders as it is gratifying to those whose happy lot is cast within the borders of Maryland. We confess to a refreshment of our love for the good old commonwealth, as we reconsider and recount with the author the blessings and comforts that lie openly about us, and the undeveloped wealth and resources yet to be realized. We hope this work will be read by all good people outside, who want a good home and good company, and by all good men in Maryland, that they may better appreciate their own, and entertain again no thought of far off places to rest in, lest that be said of them, which was said by Solomon the wise, "the eyes of the fool are in the ends of the earth." Hold out the hand of fellowship to all who would be of us, and let them have what we may well spare, but let every Marylander "stand his ground" and fight out the present troubles "on this line." And so we say of Virginians, and Carolinians and all true men of the South.

It is not pleasant to be called on to say of the mechanical execution of this document, that it is very disgraceful to the State. Bad paper, worse printing, and such a marring of good English by typographical errors, as no respectable printer could afford to do on his own account. We are in frequent receipt of public documents from other States, and should be very glad to return the compliment in kind, but should be ashamed to send such work as this away from home.

The American Fruit Culturist.—Containing practical directions for the propagation and culture of fruit trees in the nursery, orchard, and garden. This is a new edition, revised by the author, and brought up to the present condition of the science of fruit culture, of the always valuable work of J. J. Thomas, fully illustrated, and tastefully gotten out by the publishers, Wm. Wood & Co., 61 Walker street, New York. Price $3.00.

Eleventh Annual Report of the Secretary of the Maine Board of Agriculture, 1866.—We are indebted to S. L. Goodale, Esq., the author, for this report. It is full of substantial, useful matter, handsomely illustrated, printed well, on white, smooth paper, and issued in such style as becomes a public document.

SOUTHERN FARMER.—This is a new candidate for favor, which we take pleasure in commending to the notice and the friendly offices of all who take an interest in Southern agriculture. It is a handsomely illustrated monthly of sixteen pages, quarto, devoted to the interests of the farmer, fruit grower, gardener, stock raiser, inventor, manufacturer and housekeeper. It is published at Memphis, Tenn., and edited by Dr. M. W. Phillips, formerly of Mississippi. Dr. Phillips is well known among agriculturalists as a very intelligent and experienced writer on rural affairs. In his prospectus he says: "Having labored for the past thirty years for the promotion of the agricultural interests of the country, without price and without pay, and the results of the war having swept away everything I possessed—land and laborers—I have, at the urgent solicitations of friends, commenced the publication of the *Southern Farmer*, at Memphis. I have engaged the ablest pens in the South to assist me, and am determined to make the Farmer a blessing to the South, in this hour of her distress and need." We wish him all success, and are sure he will deserve it. Price $2 per annum.

AMERICAN POMOLOGY—*Apples—By Dr. John A. Warder, President Ohio Pomological Society; Vice-President American Pomological Society, &c. 293 Illustrations.*—To pomologists, a work by Dr. Warder will need no commendation. Though a citizen of Ohio, he is so sure to be at any pomological gathering, be it East or West, that the whole country claims him, and if any one has a right to entitle his work *American* Pomology it is certainly Dr. Warder. The present is the first installment of a work intended to cover the whole ground. In it the author has attempted the difficult task of bringing apples into something like order.

Fruit growers will welcome this book as a valuable and long wished for addition to pomological literature, and it will be found equally useful to the novice and the experienced orchardist. The work has 293 illustrations, is printed on good paper, and well bound. Sent post-paid, price $3.00. New York: Orange Judd & Co., 41 Park Row.

FARM AND FIRESIDE.—Conspicuous among new enterprises in rural literature is the *Field and Fireside*, published at Philadelphia. It is a handsomely printed and ably conducted weekly, published by S. S. Foss. Price $2.

☞A Herkimer county, N. Y., dairyman estimates that 45 cows require 100 tons of hay to winter them through.

"Department of Labor and Agriculture."

Major Giddings, of Anne Arundel Co., offered recently, in the State Constitutional Convention, an order looking to the organization of a new branch of the Government, under the above title. From an able speech in support of the order, which we find in the *Maryland Republican*, we make the following extract on the subject of Labour, regretting that our limits forbid us to give the whole of it:

"Older governments than ours—I will not say better—have found it wise and necessary to organize departments of labor for the mutual benefit of the employers and the employed, and for the augmentation of their national wealth. I don't know whether anything of the kind has ever been constitutionally established in any of the States of this Union; but it has seemed to me, from the brief reflection I have given the matter, that such a branch of the government is now much required for the development of the former slave States, and for their early restoration to prosperity. And no one of them is in a better condition to successfully initiate it than Maryland. The great agricultural interest of those States is now languishing, not from the want of high prices, but for the want of labor. It is difficult to tell what would have been the condition of our farmers if they had been compelled to submit to low prices, in addition to the many trials they have encountered since the war. Thanks to a kind Providence, we of Maryland have not suffered the horrors of famine as have our unfortunate Southern brethren, but as far as my observation extends the area of land under cultivation has become annually less since the act of emancipation.

The great, the paramount want of our State to-day is labor; labor in its many fertile and deserted fields. The makers of the present Constitution, at one fell blow, and contrary to the will of a majority of our people, deprived us of thousands of happy and contented laborers. It was a measure which—as was remarked by the late and much lamented statesman, Judge Chambers, in his protest against the adoption of the 24th article of the Bill of Rights—'inflicted serious injury and suffering on many of them, and was iniquitous and unjust in the extreme to the master.'

It was a paralyzing blow to inflict so suddenly upon the industry of a State; such as madmen only in their demoniac phrenzy would strike. It left many of our people penniless, and thousands with scarcely the means to support their families

and pay the taxes on their lands. For the last two or three years our farmers have struggled with all the difficulties and embarrassments consequent upon so violent a revolution, and so discouraging is the prospect before them at present, that there are but few, in my section, at least, who do not wish to sell or rent their estates.

Some have been anxiously expecting that influx of population from other States, promised us by the President of the last Convention in his farewell address to that body, and which was to take the place of the labor they had destroyed. But they will wait and watch for it in vain. The North and the West have abundant and profitable employment for all their labor and their capital. There is scarcely a State in this Union which has yet seen more than the beginning of the development of its resources.

I repeat that we want in Maryland at present, more than all thinks, labor—abundant and reliable white labor. And we should not wait for it to come to us, but we should seek for it in the populous portions of the world. Individual effort can accomplish but little in this matter. Nor will it be the business of a day to restore to Maryland her lost labor. It may require years of patient and systematic toil to rebuild what was so easily and rashly destroyed.

Our farmers do not expect compensation for their slaves; and their representatives in this body will, I believe, be found willing to extend and guarantee to their former servants, all the rights necessarily incident to their present condition. But it appears only just and reasonable, as the last Convention deprived them of their labor, that the new Constitution should contain some provision to aid them in recovering what is so much needed for their individual prosperity and the general welfare.

Can we not, then, organize a department of the government whose chief business it shall be to so speedily increase the labor of the State, as to make our lands in the future, more valuable than our land and slaves combined, have been in the past? That is the question to which my resolution invokes the consideration of this Convention. We shall have to rebuild, stone by stone, and arch by arch, the fallen temple of our industry. It is a great work, and cannot be begun too soon; once commenced, it should be pressed steadily to completion, and not left to suffer, as great undertakings often do, from legislative neglect, or the want of private enterprise.

The productive labor of a State is the main pillar of its greatness. Let us lay the foundation for it, and let it be of such materials that neither time nor future revolutions shall again so utterly prostrate it."

For the "American Farmer."

Stalling Cattle.

Messrs. Editors: Reading the article on stalling cattle in your last, has tempted me to make a few remarks on this *highly* important subject, although with the risk to trespass on your valuable space. All of us farmers acknowledge that *manure* is the "conditio sine qua non" of farming. It is so more now than ever, as we have lost our reliable labor, and now are restricted to labor as *uncertain* as life. We have now to work a smaller area and do every thing to obtain the largest possible produce. This object can only be reached by *manure* and *rational* farming. To obtain the amount of manure required on a farm, there is no *easier* and *cheaper* way than to stall the stock all year round. Although *S. B. F.* doubts that one cow can be soiled with one acre and a half, still I can assure him, by my experience for years, that it can be done. At the beginning of adopting this method, if your soil is not in tolerable good condition, it may pinch you a little, but after a year or two, you will hardly require the above stated area. It is also a *positive* fact, that a cow fed in this way, will produce manure for one acre, per annum, provided you have the required amount of straw, or other material for litter. Confinement is not injurious to the cattle, but if desired, they can be fed in summer under a shed and have a good sized yard to run in. This yard ought always to be provided with plenty of litter. By feeding them this way, the labor of cleaning the stable is saved. The main obstacle in general by feeding cattle on the stall in summer is, to obtain the required green forage early enough in spring. In northern Europe they often have to turn their cattle out in the beginning of spring, as vegetation starts late, and dry feed in May would diminish the production of milk. But here, in our climate, we can easily obtain it by sowing some rye in August and some in September. This will provide you with green forage from the end of April until the clover is fit for cutting. When you commence feeding the rye, great care has to be taken. The best way is to mix it half with hay and then diminish the quantity of hay gradually. But it is always advisable to feed hay at night to prevent scouring. In case you mow the required quantity of feed for the day at once, precaution should be taken not to mow it with the dew on, as it then is apt to heat in the pile. *S. B. F's* remarks about winter feeding can only be fully endorsed by any practical farmer; surely the best market for hay and straw is at home. By trying several different ways of feeding, I

have found that from six to eight quarts of corn-meal, with half a bushel of brewers' grain, or its equivalent, will keep up a full flow of milk and fatten a cow. As I have the grain convenient, and labor here is very precarious, I prefer it to turnips, although, under reverse circumstances, I should prefer the turnips. In the fall, when green feed gets less nutritious, it is a very good plan to turn the cattle on the stubble, besides feeding them at night. L. A. HANSEN.

Clifton, Fairfax Co., Va., May, 1867.

Improvement in Farming.

Timothy Titcomb, in his Rural Life, says—"The improvements made in farming and farming implements have not been made by farmers themselves, but by outsiders—mechanics and men of science—who have marvelled at the brainless stupidity which toiled on in its old track of unreasoning routine, and looked with suspicion and discouragement upon innovations. The reason why the farmer has not been foremost in improving the instruments and methods of his own business is, that his mind has been unfitted for improvement by the excessive labors of his body. A man whose whole vital energy is directed to the support of muscle, has, of course, none to direct to the support of thought. A man whose strength is habitually exhausted by labor, becomes, at length, incapable of mental exertion; and I cannot help feeling that half the farmers in the country establish insuperable obstacles to their own improvement by their excessive toil. They are nothing more than the living machines of a calling which so far exhausts their vitality that they have neither disposition nor power to improve either themselves or their calling. * * * * There is no doubt about the fact that a life whose whole energies are expended in hard, bodily labor is such a life as God never intended man should live.

"I am perfectly aware that I am not revealing pleasant truths. We are much in the habit of glorifying rural life, and praising the intelligence and virtue of rural populations; and if they believe us they cannot receive this with pleasure. But the question which most interests them is not whether these statements are true. Is the philosophy sound? Does a severe and constant tax on the muscular system repress mental development and tend to make life hard and homely and unattractive? Is this the kind of life generally which the American farmer leads? Is not the American farmer, generally, a man who has sacrificed a free and full mental development, and all his finer sensibilities and affections, and a generous and genial family and social life, and the dignities and tasteful proprieties of a well-appointed home, to the support of his muscles? There are instances of a better life than this among farmers, and I should not have written this if those instances had not proved that this everlasting devotion to labor is unnecessary. There are farmers who prosper in their calling and do not become stolid—whose homes are the abodes of refinement, whose watchword is improvement, and whose aim is to elevate their calling. If there is a man on the earth whom I honestly honor, it is a farmer who has broken away from his slavery to labor, and applied his mind to his soil.

"Mind must be the emancipator of the farmer. Science, intelligence, machinery — these must liberate the bondman of the soil from his long slavery. When I look back and see what has been done for farming within my brief memory, I am full of hope for the future. The plough, under the hand of science, has become a new instrument. The horse now hoes the corn, mows the grass, rakes the hay, reaps, threshes, and winnows the wheat; and every year adds new machinery to the farmers stock, to supersede the clumsy implements which once bound him to his hard and never ending toil. When a farmer begins to use machinery and to study the processes of other men, and to apply his mind to farming so far as he can make it take the place of muscle, then he illuminates his calling with a new light, and lifts himself into the dignity of a man."

SEEDS FOR GRATUITOUS DISTRIBUTION.—Five large packages of assorted garden seeds were received here, per express, on Friday last, from John T. Ford, Esq., of the Holliday street Theatre, Baltimore, with a request that the same be distributed amongst those whose circumstances should render their acceptance convenient. The fact of their arrival was made public by our fellow townsman, Major Mask, to whom they were consigned, and with characteristic liberality he has distributed them to all alike who stood in their need, "without distinction of race or color."—*Moorefield (Va.) Advertiser.*

ONIONS AND INSECTS.—The *Scottish Farmer*, in alluding to the fact that most insects have a strong repugnance to onions, suggests that a wash of onion juice, or of water in which onions have been bruised, might prove useful as a wash for plants infested with insects.

Portable Manures in England.

Artificial manures are valuable in another point of view. You are not always obliged to feed your turnips off upon the land, but you may want them, in some instances, at home. If, in consequence of this, your barley does not, in the spring, look as satisfactory as it ought, you can now improve it, whereas before you was obliged to leave it to its fate. A little guano or nitrate of soda and salt—about three quarters of a hundred weight of either guano or nitrate of soda, and four hundred weight of common salt—for either wheat or barley looking badly in the spring, will produce an immediate effect. You will find, particularly in hilly districts, that a great breadth of land not hitherto cultivated for turnips, or cultivated with difficulty, in consequence of the expense of carrying farm yard dung, can be brought by these artificial manures into a high state of fertility; and I need not tell you that if you get twenty tons of turnips per acre, your cultivation for the next four years will be pretty well established.

In Wiltshire and other places in the south, the introduction of these portable manures have been the actual salvation of the country. In that district farmers, with whom I am well acquainted, have been paying high rents for low lying lands—smaller rents, it is true, for the high lands, but between the two the rental has been considerable. The hills there are rather more abrupt than the ordinary run of hills in this neighborhood, and it was found extremely difficult, indeed, almost impossible, to cultivate them; but since the introduction of portable manures, by the application of guano, super-phosphate, or manures of the same kind, to the hill land, agriculturists have been able to obtain a great quantity of turnips, with which they have fed an increased stock of sheep. I have not heard any grumbling from them for the last three or four years; they have been doing well by their stock, and if you, gentlemen, can grow more food, and keep a larger number of stock—if you can manage to keep an increased quantity of sheep, and sell them at good prices, and also dispose of your wool at 17d. or 18d. per pound, I think the cry we have had about the fall of British agriculture will prove to have been perfectly unfounded.

I have, I believe, given you a pretty clear notion of what are the best manures for these crops. I may say, generally, that for wheat those manures are the best which contain ammonia or nitrogen, with a certain amount of phosphates. They must be applied carefully, because there is a liability to throw down the wheat, and in order to prevent that I must recommend you to use salt. Salt is not a thing which shows itself conspicuously in the production of a great luxuriance, but rather in giving strength to the stem of the wheat. In Lincolnshire you will rarely find the wheat falling on the salt marshes. Two hundred weight of guano and four hundred weight of salt is a good dressing for an acre of wheat. With respect to grass land, according to the experiments of Professor Kuhlmann, the amount of grass produced on any given acre is in direct proportion to the amount of ammonia used. In reference to grass and clover, you have not much cause to fear excessive luxuriance.

The more you apply of those manures which contain nitrogen, the greater will be the vegetation. Prof. Kuhlmann applied gas-water, nitrate of soda, ammonia, dissolved bones, and a great many other things, to grass land; and he found, as the result of his experiments, having ascertained previously by analysis the amount of nitrogen in these materials, that the increase in the crop was precisely in proportion to the amount of nitrogen in the manure. He tried the experiment for two or three years. He took not only the first crop but the second; he cut them, and found an increase, relatively, in the second as in the first. Having had experiments tried on the Downs in Dorsetshire, with ammoniacal manures, I have myself found the production of grass largely increased thereby. I mention these things because you will have to turn your attention a little more to science than you have done, so as to ascertain the nature of the manures which you are using.

Now let me say a word, in conclusion, with respect to the adulteration of manures. Good guano ought to contain sixteen or seventeen per cent. of ammonia, and from twenty-five to thirty per cent. of phosphate of lime. I am speaking of Peruvian guano. There are many other guanos brought into this country, and I will just tell you what they are selling at. Guanos, of which I have had hundreds under analysis, have been selling in the market at £8 and £9 per ton; but to you they are not worth a third of that amount. I wish to warn you, that if you procure guano from any but the best sources, it is a thousand to one but that you are cheated, as many persons, I fear, have learned to their cost.

Adulterations of guano are carried on to an extraordinary extent. The other day I happened to be in Newcastle, and I can assure you that there is a regular establishment there for the purpose of sending out systematically adulterated articles to the extent of thousands of tons. They are sent off quietly, to prevent the trickery from becoming known, and are of course flavored

with a little genuine guano. The adulterated article is bought up by those farmers who like to purchase *a little under market price*, and who are, in consequence, shamefully cheated. Every farmer, in fact, who tries to buy *cheap manure*, is sure to be deceived; because, if he *will* have it cheap, people will be found to make it at his price, and he will have to pay the cost of mixing, and probably fifty per cent. besides. If manures are worth using at all, they are worth a proper price. Manures of the lowest price are the least valuable to the farmer. If he could obtain a manure intrinsically worth £50 a ton, it would be proportionately more valuable to him than Peruvian guano, because of the saving of carriage, and other facilities arising from its small bulk. You cannot, therefore, be too careful in purchasing these artificial manures.

Let me advise you, when purchasing the article, to deal with none but men of established character and integrity. Do not try to buy everything cheap, for it is certain that you will be cheated if you do. The quantity of adulterated guano annually made up, cannot, I think, be less than 20,000 tons, and I estimate the lowest amount of which the farmer will thus be defrauded at £100,000 ($500,000) per annum.

PROF. NESBIT.

Importance of Bulk in Feed.

Although the presence of a sufficient quantity of nutritive matters in the feed is naturally the most fundamental matter for consideration, its bulk is scarcely less important. The function of digestion requires that the feed shall properly fill the stomach, and however large the supply of nutritive matters may be, their effect is imperfectly brought about if the feed be too small in bulk; and it actually becomes more valuable if diluted with woody fibre, or some other inert substance. On the other hand, if feed be too bulky, the sense of repletion causes the animal to cease eating long before it has obtained a sufficient supply of nutritive matter. It is most necessary, therefore, to study the bulk of the feed, and to consider how to mix the different substances in such a manner as to adjust the proportions of nutritive matter to their bulk. If we examine the nature of the mixed feeds most in vogue among feeders, it will most generally be found that very bulky feed is combined with another of opposite properties. Hence turnips, the most bulky of all kinds of feed, are used along with oil-cake or bone meal; and if, from any circumstance, it becomes necessary to replace a large amount of turnips by the latter substance, the deficient bulk must be replaced by hay or straw.—*Prof. Anderson.*

Clover and its Substitutes.

Clover, Sainfoin, Dutch Clover, Trefoil and Rye Grass—Alsike and Perennial Red Clover—Feeding as compared with Mowing—Curing Artificial Grasses—Causes of Clover Failures—the Season.

NORFOLK, ENGLAND, March 14, '67.

Whether it be owing to too frequent repetition, or to some peculiarity of our soil and climate, the unpleasant fact remains, we cannot calculate with any degree of certainty on the red clover plant standing. We have therefore been driven on the principle that "half a loaf is better than no bread," to sow, with a peck an acre of red clover, a like quantity of perennial rye grass. The mixture, (if there is any clover left,) makes excellent hay. It used to be a common practice to sow alternately, every four years, with this mixture, a peck per acre each of trefoil and rye grass, and four pounds per acre of white Dutch clover—the latter with a view to after feed—as trefoil dies after being mown. Of late years, however, sainfoin has come largely into use. A chalk subsoil is best adapted to its growth, but it is now tried, with varying success, on soils where no chalk exists. The roots run deeper down than the clover plant, consequently our dry summers do not affect it. As green food for sheep, it is a long way the best we know of. The hay made from it is eaten with avidity by horses, cattle and sheep. The quantity of seed, in husk per acre, is three to four bushels, drilled across the rows of barley. The seed seldom costs less than a dollar a bushel, which makes it rather expensive for the year's ley. As a preparation for the succeeding wheat crop, we place sanfoin 1st, clover 2d, trefoil and Dutch clover 3d, rye grass last. Indeed, rye grass being of the same family as wheat, would not be cultivated but for the reason I have indicated.

Where the regular four course rotation is not followed, sainfoin may be allowed to lie five or six years; it usually bears a better crop the second year than the first. For soiling, it is cut the first time in early May, and may be mown twice afterwards; for hay, it is cut the latter end of the same month, or as soon as it is well in flower. The after-growth comes in handily for the newly weaned lambs.

Alsike clover does not find much favor. If sown at all, it is as a substitute for Dutch clover. In the trefoil mixture, cow grass, (perennial red clover,) does not lose plant to the extent that the common red clover does, and it will bear sheep feeding up to a late period in spring, but the hay made from it is coarse in quality.

The exigencies of a flock farmer in the spring often render it imperative to feed one-half his clover or other artificial grass, instead of mowing for hay. Notwithstanding that the land by this means gets a good deal of manure from the sheep's "tothe," the best crop of wheat is generally grown after mowing—probably owing to the benefit derived from the land being shaded from the midsummer sun. If this is so, the difference between land mown and fed, should be more perceptible with you than with us.

We commence cutting artificial grasses for hay rather before the bloom is fully out—cow grass as soon as the first few heads appear. Should the weather be favorable, the swathes are turned once or twice, accordingly as the crop is light or heavy. When about half dried, the hay is gathered into large "cocks," and in that state remains until it can be stacked, without fear of overheating.

Cocking hay involves a heavy outlay for labor, and if the weather can be depended on may be dispensed with, and the hay secured in a stack not over four yards wide at the base. Many good managers pursue this plan. Nobody here ever thinks of putting hay in a barn, as they do on the (European) continent.

Apropos of clover—I find a young farmer in *Co. Gent.*, Feb. 21., quoting Baron Liebig to prove that clover will, in course of time, reduce the fertile soils to barren wastes. Surely Liebig's theory must have reference only to the exhaustion in the soil of the particular food required by the clover plant itself. That it does not produce general exhaustion of the soil, our Norfolk farms, where it has been cultivated time out of mind, furnish a practical proof.

I believe I am somewhat singular in my opinion, that the failure of the clover plant is due to climatic influences more than to any other cause whatsoever; otherwise how comes it that in certain humid seasons, of which the present is a remarkable instance, we get and retain a full plant, while in seasons of an opposite character, we lose the plant altogether? How comes it that the mysterious (and hitherto undiscovered) food, assumed to be essential to the growth of this particular plant, is present one year and absent the next.—A Norfolk Farmer *in the Country Gentleman.*

Soot.—Twelve quarts of soot in a hogshead of water will make a powerful liquid manure, which will improve the growth of flowers, garden vegetables, or root crops. In either a liquid or solid state it makes an excellent top-dressing for grass or cereal crops.—*Practical Farmer.*

Seeding to Clover.

Messrs. Editors: In answer to "J. G., New Jersey," it may be stated that clover seed is often sown on wheat, for which clover has been plowed under, with satisfactory results, in Western New York. It is the customary practice to seed with wheat, and whenever this grain is sown on a clover ley, it is again followed with clover. But in this section wheat is not so often sown on a good clover ley as it should be. It is more customary to let the land lie until the clover is run out, and the time is past when the most benefit may be secured; besides it is getting much too common to sow wheat after spring crops.

But in the northern part of Genesee county, and particularly what is called the "oak openings," plowing under clover—either with or without lightly pasturing—for wheat, has been largely practiced with decided advantage. In such cases the land in wheat is always seeded again to clover, the "two course rotation of clover and wheat" having been followed many years. In this way a great deal of most excellent wheat has been grown.

But it is found that it is not best to follow this course too long. When wheat is sown after clover every other year, fifteen years or more, it begins to fail, and show that a change is needed. This is not because the land is not rich, as it is found that heavy crops of corn and barley can be grown on such land, but because the soil needs resting for wheat. When corn and other crops have been grown, and the land is again sown to wheat, good crops are secured. This not only shows that a rotation of crops is necessary to produce the best results, but there should be some variety in the crops adopted—that although land may be made very rich by plowing under so much clover, yet, to produce the best returns, nature needs more change—needs a greater variety of crops to secure the greatest advantage from so large an amount of fertilizing matter. This is further shown by the fact that last year large crops of barley were grown on the "oak openings," many large fields yielding, as I am told, from forty to fifty bushels per acre.

But there is one point of some importance to those that fear the land may become "clover sick," and that is, that wheat fails or shows a need of a change before clover. Not only is the land made rich, and a succession of heavy crops of wheat grown, but when wheat begins to show need of a change, large crops of other grain are grown, which are again followed with good wheat, and all mainly or wholly secured by frequent seeding to clover, which still continues to do well.

True, this is done on good land that is well adapted to clover; but it is not without value as proof that on all grain soils, and especially those suited to winter wheat—clover, if judiciously used in connection with barn yard manure, and a good rotation—will make and keep land rich and productive. It is also valuable as another proof of the advantage of frequent seeding to clover. And one object in writing at this time, is again to urge farmers to seed to clover with all sown grain, and especially winter wheat and rye, as experience and observation each year confirms the opinion that in no other way can the same improvement of the soil be as easily or cheaply secured.

But I do not recommend farmers to plow under a heavy crop of clover every other year, for wheat. Not but heavy crops of wheat can be profitably grown in this way. But I have no doubt that a rotation in which corn is planted on a two-year clover sod, and followed by some spring crop with which clover can be sown, and this clover, after laying one year, is followed with wheat, is better for the land and more profit to the owner. In this way the land may be in clover about half of the time, and if the crop is good, it may be cut for hay. This hay, with cornstalks and straw, if all are well saved, and judiciously fed, with a suitable proportion of grain, will make sufficient manure, if properly saved and applied in connection with plowing under a good clover ley every two or three years, to make the land rich and productive. I grow clover and other crops in this way, and have several times sown clover seed on wheat that was sown on a good clover ley, and shall do so again this spring.—F., *Orleans county, N. Y., in Country Gentleman.*

☞Mr. Kendall, formerly of the N. Orleans *Picayune*, but for years a wool grower of Texas, writes to the *Rural New Yorker*: "On the 13th of March, after a warm growing spell, the worst sleet storm ever experienced in this State set in; away went the grass; the ewes had no milk, and the consequence you may easily judge. I hoped to raise 1800 lambs; but if 500 rub through, I shall be satisfied. The weather up to April 7, has continued cold, raw and backward."

☞A farmer in Iowa destroyed the grub-worms that were destroying his corn, by catching a lot of moles and putting them into the corn field. The moles may be caught by the use of cow's horns with the pith out.

Raising Calves by Hand.

For the first ten days the young calf is allowed the milk of the cow exclusively. The milk of the new calved cow, as every dairyman knows, is not fit during the first week for dairy purposes, and is the only suitable nourishment for the delicate digestive organs of its young. For a few days after this period, about two or three quarts of milk at a meal should still be given, gradually adding some other food in the shape of gruel, and at the same time diluting the milk with water, so as to obtain the requisite quantity of fluid. Some recommend whey, where it can be procured. The gruel is made with a mixture of linseed meal or oil cake powdered fine, and meal of various grains, barley, oats, and a little wheat flour. The proportions recommended by Mr. Henry Ruck, in a paper read by him at one of the meetings of the Cirencester Farmers' Club, England, are as follows: Into a six gallon bucket pour two gallons of scalding water, stir into this seven pounds of ground linseed cake; then add two gallons of hay tea, which should be fresh and sweet; next add seven pounds of mixed meal; add sufficient cold water to fill the bucket, and well mix together. Two quarts of this gruel, diluted with two quarts of cold water, will be about the right quantity, and of the right temperature, for one calf at one meal. The food should be given at regular hours, and twice a day, morning and evening, will be found sufficient. The hay tea, which seems to be an excellent preparation, is made every morning by filling a small tub with good hay, and pouring on boiling water; this should be used in the evening, fresh scalding water added, covered down and used the following morning. After the first fortnight, when the calf begins to chew the cud, the chief difficulty and danger are over. As the calf begins to eat, the quantity of gruel should be gradually diminished. Solid food should be placed before them, to train and encourage them to eat, which they will very soon learn to do. The best material for this purpose is good sweet hay, with a small supply of crushed corn and crushed oats. In addition to this, mangel wurzel will be found serviceable, and is very much relished by the young animals. Vetches also, as soon as they can be had, are most useful —*Canada Farmer.*

☞On a charge of destroying fruit, the city council of Madison, Ind., have passed an ordinance excluding honey bees from the limits of the corporation—guilty or not guilty.

Plant Food.

The intrinsic value of all articles of food is measured by the proportion of nitrogen contained in them. If we take wheat as the standard of comparison, and call the proportion of nitrogen in it 100, corn will be 40, potatoes 30, beans 250, beef 300, cheese 350, &c. The actual value of these, as articles of food, will maintain about these proportions; and with a proper allowance for the variations produced by the operation of the law of supply and demand, these figures will very nearly represent the commercial value of these articles for a series of years. But while nitrogen is the most valuable element of a crop, it is at the same time the most difficult to obtain. This may sound strange to persons who remember that plants grow in an atmosphere four-fifths of which is nitrogen. But this is simple, uncombined nitrogen, and plants cannot use an atom of matter until after it has been subjected to the action of the chemical force.

Food for vegetables must be prepared by the process of chemical combination before it is fit for use. More than half the labor of cultivation in producing farm crops, is devoted to furnishing the ammonia necessary for their vigorous growth; for it is from this compound that plants derive their nitrogen. Porous substances absorb ammonia and retain it, unless the temperature be considerably elevated. To make the soil a good absorbent, the farmer labors to pulverize the earth and make it as fine and porous as possible, and that the ammonia, once absorbed, may not be driven off by the heat of the summer sun, he extends his pulverizing process as deeply as possible.

Animal and vegetable matter containing nitrogen, when decaying, give off the nitrogen in the form of ammonia. From this source the air is constantly supplied with ammonia—to breathing animals an impurity, but to plants an indispensable article of food. This ammonia, floating in the atmosphere, is common property and belongs to the man who catches the largest quantity of it, by making his soil the best absorbent.

Many of the ingredients of soils are valuable only for their absorqent properties. For example, clay does not, in any form, enter into the composition of vegetables, and yet no soil can be highly productive without at least twenty per cent. of clay. It acts, not as food for plants, but as an instrument for collecting and holding moisture and the fertilizing gases. The finer its state of division, the more perfectly it answers this end. Carbon is even a better absorbent of gases than clay. Fresh burnt charcoal, which is nearly pure carbon, will absorb and retain, at low temperatures, as much as ninety volumes of gaseous ammonia. By this expression I mean to say that one cubic foot of carbon will take up and hold ninety cubic feet of ammonia in the form of gas. It also absorbs carbonic acid in the proportiou of thirty-five volumes to one, and of other gases in various proportions. Now the vegetable mould, which every good farmer regards as the index of a rich soil, consists chiefly of carbon, and its great value is in its power to absorb and hold ammonia and carbonic acid as a supply of food for growing plants.

The idea commonly entertained by farmers that the black vegetable mould, which is the distinguishing characteristic of all rich soils, is itself the food of plants, is evidently a mistaken one. The food of plants must be presented to them in either a liquid or gaseous form. But carbon, whether in the form of charcoal or of vegetable mould, is not capable of being dissolved in water, or in any other way liquified, and therefore cannot be used by growing plants. Exposed to the air and sunshine, it is slowly oxydized, and thus converted into carbonic acid, it becomes a source of supply for the demands of the growing crops. The importance of vegetable mould as a source of carbonic acid is not to be lightly estimated, yet this is certainly not its chief use. To absorb ammonia from the air, and to retain it, subject to the use of plants, is its true office. A soil consisting of clay and vegetable mould, has the chemical composition, therefore, of the highest absorbent power.

But this is not all that is necessary—a state of fine mechanical division is also an essential quality of a good absorbent, and a compound of clay and vegetable mould is apt to be compacted into a solid mass which the air cannot penetrate, or baked, by the sun, in clods as hard adobes. From forty to sixty per cent. of sand will most effectually remedy this defect, and render the soil easily pulverized and maintained in a state of fine division. Such a soil will always have on hand an ample supply of food for the use of plants, at least so far as the organic elements are concerned, and if the inorganic elements—the alkalis and phosphates—are furnished in proper quantities, we have all the conditions of fertility pertaining to a perfect soil.

But a soil may absorb plant food most perfectly and yet hold the gases but feebly. In the last number of these papers I spoke of the effect of Plaster of Paris as a means of holding ammonia by forming of it an involatile salt. This secures it more effectually than any other method, and but for the high price of plaster, it would soon come into general use. There is an article which

may be used as a substitute for plaster, which is abundant in supply, and will cost but little to procure it. Under the common yellow clay, which, everywhere in Central and Northern Indiana, forms the subsoil, there lies a bed of clay of a dark lead color, very hard and compact. This "blue clay," as it is commonly called, lying at depths varying from ten to twenty-five feet from the surface, is often exposed in the banks and beds of our streams. It owes its peculiar color to a combination of sulphur and iron. Now if this material be thrown up in heaps, so as to expose it to the air, it crumbles down into an ash colored mass. On examining this earth, now, it will be found that the sulphur has combined with the oxygen of the air, and thus been converted into sulphuric acid, (oil of vitrol,) which has united with the lime and iron of the clay, forming sulphates of these bases. This clay, thus prepared, will act as a fertilizer on the same principle that plaster acts. Of course it will require much more per acre than would be required of plaster, as but a small per cent. of it is the sulphates of lime and iron, the mass being clay.

A soil not shaded by any vegetation, or protected by any covering from the direct rays of summer sun, loses its ammonia very rapidly. Naked fallows exhaust a soil more than a summer crop. Much of the fertilizing effect of clover is to be accounted for on this principle; for no crop so completely covers the ground and secures the absorbed ammonia from the exhausting effect of sunshine, as does clover. Every observing farmer has noticed how rapidly an old fence row or a dense brier thicket acquires fertility. Even covering the ground with boards for one season will greatly increase its productiveness the next year. Mulching trees and plants promote their growth, not merely by keeping a constant and uniform supply of moisture, but much more by retaining the absorbed ammonia. —*Dr. R. T. Brown, in Northwestern Farmer.*

☞ The *Prairie Farmer* has not the shadow of a doubt of the ultimate success of the beet sugar enterprise in Illinois and other Western States. About 100,000 lbs. of sugar of an excellent quality has been manufactured in Chatsworth, Ill., the past season, demonstrating that beets grown there are as rich in sugar as those produced in the best sugar districts of the Old World.

☞ The *Prairie Farmer* says that Osage hedging has become the chief mode of enclosure on the prairie farms.

Jersey Cows.

Mr. James Thompson, of Nantucket, has an article in the *Massachusetts Ploughman*, of the 9th inst., mainly devoted to the discussion of the merits of Jersey cows. He is a thorough believer in the valuable qualities of this breed, but does not claim for it superior excellence in all respects. After an experience of twelve years he was led to give up the raising of cows from native stock, and in 1863 he purchased three Jerseys and three Ayrshires. He found that Grade Ayrshires fattened and dried up in milk, early, and he soon sold them to the butcher. His full blooded Ayrshires came in with a large flow of milk, but when gestation commenced their flow decreased and they began to fatten; this led to the shortening of their feed, which again decreased the flow of milk, so that on the whole they did not yield more than an average. He was thus led to sell off all but his Jerseys. After four years' trial he is well satisfied of their superior qualities for milk or butter, and that for beef they fatten rapidly when dried off. He also maintains that they are either natives or Ayrshires. Mr. Thompson's cows are of pretty good size, weighing from 800 to 1000 pounds. Many persons who own Jersey cows prefer the small sized and delicately shaped to the larger animals, which we believe a mistake. And it also seems to us that one reason why Jerseys have not been more generally appreciated in this country, is to be found in the fact that sufficient pains has not been taken in the rearing of the calf, in the crossing of families and in the feeding of the cows. To half starve a calf, to drive it when it is not over a year old, and finally to breed in-and-in, is to take the surest method of dwarfing and ruining any breed of cattle. This is almost universally done with Jerseys. Bring the calves up by hand, teaching them when not two days old to drink warmed milk from a pan; give them skimmed milk, that they may grow, not new milk that they may fatten; and after a while a thickening of linseed meal, scalded; keep them in a warm place in winter, and their growth will be astonishing. Mr. Thompson gives the net product of five cows as follows:

996 3-16 lbs. butter at 50c	$453 09
Milk sold for cash	116 76
One bull calf sold	25 00
One bull calf on hand	25 00
One heifer on hand	100 00
6300 quarts skimmed milk to the pigs at 2c	126 00
	$555 35
Cost of keeping 5 cows at $80 each	400 00
	$455 35

Sunday Reading.

The rising of the sun is known by the shining beams; the fire is known by its burning; the life of the body is known by its moving; even so certainly is the presence of God's spirit known by the shining light of a holy conversation; even so the purging fire of grace is known by the burning zeal against sin, and a fervent desire to keep God's commandments; even so certainly the life and liveliness of faith is known by the good motives of the heart, by the bestirring of all the powers both of the soul and body, to do whatsoever God wills us to be doing, as soon as we once know He would have us do it. He, that hath this evidence, hath a bulwark against despair, and may dare the devil to his face; he, that hath this, hath the broad seal of eternal life, and such a man shall live forever.

There is a particular tenderness due to persons under any recent affliction, not only that we may not seem to "vex them, whom God hath wounded, and persecute them, whom He hath afflicted;" but because men are more susceptible of resentment, in proportion to the greatness of their distress. Their adversity will embitter their spirit, and discolor every object. Handle then gently "a wounded mind," as you would do a wounded body, with all the tenderness you can. It will not bear too rough a hand. Remember that a good natured man cannot give pain, without feeling in some measure the pain he gives.

By six works of mercy Christ wrought miracles upon the body, and by these six also doth He work miracles upon the soul. Blindness is ignorance and error; Lameness is infirmity and waywardness of the will; Leprosy is concupiscence of the flesh; Deafness is obduration of the heart; the Separation of grace from the soul is death; Poverty is the defect, or want, of the knowledge of God, the power to receive the gospel.

Our light is like a candle; every *wind* of vain doctrine blows it out, or spends the wax, or makes the light tremulous; but the lights of heaven are fixed, and bright, and shine forever.

A tender conscience is an inestimable blessing; that is, a conscience not only quick to discern what is evil, but instantly to shun it, as the eyelid closes itself against a *mote*.

All the succession of time, all the changes in nature, all the varieties of light and darkness, the thousand thousand accidents in the world, and every contingency to every man and every creature, doth preach our funeral sermon, and calls us to look how the old sexton, Time, throws up the earth, and digs a grave, where we may lay our sins or our sorrows, and sow our bodies, till they rise again in a fair, or an intolerable eternity.

Our words are the commentaries on our wills; for, when we speak we make, as it were, a dissection of our own hearts, and read an anatomy lecture upon ourselves. Our wanton talk discovers a stew in our heart; when our words are swords, our hearts are a slaughter house; when we bear false witness, that is the mint; when we worship Mammon, that is the temple. The heart is the shop and workhouse of all evil.

Faith is the source; charity, that is, the whole christian life, is the stream from it. It is quite childish to talk of faith being imperfect without charity; as wisely might you say that a fire, however bright and strong, was imperfect without heat; or that the sun, however cloudless, is imperfect without beams. The true answer would be; it is not faith, but utter reprobate faithlessness.

A man is no greater than what he is in the eye of God; and the estimation, which God hath of us, is not for being born in a *palace*, but for being righteous and just: what an error is it then to value ourselves more than for our human birth, by which we are made sinners, than for our Divine birth, by which we are made just.

Men are not made truly righteous, as Aristotle supposes, by performing certain actions, which are externally good—for they may be still counterfeit characters; but men must have righteous principles in the first place, and then they will not fail to perform righteous actions. God first respects Abel, and then his offering.

In extemporary prayer, what men most admire God least regardeth, namely, the volubility of the tongue. Herein a Tertullus may equal, yea exceed, St. Paul himself, whose speech was but mean. (Acts xxiv; 2 Cor. x, 10.) O! it is the heart keeping time and tune with the voice, which God listeneth unto.

☞So great is the demand for the Osage plant for fencing purposes, that the price has recently risen from two and a half to four dollars per thousand, in the State of Illinois.

☞A cargo of 46,000 bushels of California wheat, lately arrived at Philadelphia, nets the owners $50,000.

Baltimore Markets, May 20, 1867.

COFFEE.—Rio, 16¼a18¼ cts. gold, according to quality. Laguayra ——, and Java ——.

COTTON.—We quote prices as follows, viz:

Grades.	*Upland.*	*Gulf.*
Ordinary	23	—
Good do	24	—
Low Middling	26	—
Middling	27	—

FERTILIZERS.—Peruvian Guano $80; Patapsco Co's $60 Reese & Co's. Soluble Pacific Guano, $65; Flour of Bone $60; G. Ober's (Kettlewells) AA Manipulated, $70; A do. $60; Ammoniated Alkaline Phosphate, $55; Alkaline Phos. $45; Baltimore City Company's Fertilizer, $40; do., Flour of Bone, $60; do., Ground Bone, $45; do., Poudrette, $20; Baugh's Raw-bone Phosphate, $56; Maryland Powder of Bone, $50; Andrew Coe's Super-Phosphate of Lime, $60; —all per ton of 2,000 lbs.; Pure Ground Plaster, $13.50a $14.00 per ton, or $2 50 per bbl. Shell Lime, slacked, 6c., unslacked, 10c. per bushel, at kilns.

FISH.—*Mackerel.*—No. 1, $19a21; No. 2, $16 50a18.00; No. 3, $14. *Herrings*—Labrador, $5.50a6.50; Potomac and Susqueh'na, ——; Codfish, 5a5¼ cts. per lb.

FLOUR.—Howard Street Super and Cut Extra, $11.00a $12.00; Family, $16.00a16.50; City Mills Super, $11.00a 11.50; Baltimore Family, $18.00.

Rye Flour and Corn Meal.—Rye Flour, new, $8.75a 9.25; Corn Meal, $5.75a6.00.

GRAIN.—*Wheat.*—Good to prime Red, $3.15a3.50; White, $3.40a$3.50. Market dull.

Rye.—$1.40a$1.50 per bushel.

Oats.—Heavy to light—ranging as to character from 76 a79c. per bushel—bulk.

Corn.—White, $1.12a$1.15; Yellow, $1.13a$1.16 per bushel.

HAY AND STRAW.—Timothy $33a35, and Rye Straw —— per ton.

POTATOES.—90a95 cents per bushel.

PROVISIONS.—*Bacon.*—Shoulders, 10a10¼ cts.; Sides, 12a12¾; Hams, plain bagged, 15a16 cts.; sugar cured, 16a 16½ cts. per lb.

SALT.—Liverpool Ground Alum, $2.20a2.25; Fine, $3 20; Turk's Island, 62a65c. per bushel.

SEEDS.—Clover and Timothy nominal—out of season. Flaxseed, $3.00 per bushel.

TOBACCO.—We give the range of prices as follows:

Maryland.	
Frosted to common	$1.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10.00a15.00
Fancy	17.00a25 00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00
Ohio.	
Inferior to good common	3.00a 6.00
Brown and spangled	6.00a12.00
Medium to fine red and spangled	8.00a20.00
Fine yellow and fancy	20.00a30.00

WHISKEY—34a35 cts. per gallon, in barrels, in bond.

WOOL.—We quote: Unwashed, 26a29 cts. per lb.; Tub-washed, 45a48 cents; Fleece, 40a50 cents; Pulled, No. 1, 34a38 cts.; Merino, 40a43 cts.

CATTLE MARKET.—Common, $6.00a$7.75; Good, $8.00a $8.75; Prime Beeves, $10.00a10.25 per 100 lbs.

Sheep—6¼a7½ cents per lb. gross.

Hogs—$10.00a10.75 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by HEWES & WARNER, *Produce and Commission Merchants, 67 Exchange Place.*

BALTIMORE, May 22, 1867.

BUTTER.—Ohio Grass Roll, 25 to 30 c.; in tubs, 20 to 26; new Glades, 25 to 32; new Goshen, 30 to 33.

BEESWAX—35a38 cts.

CHEESE.—Eastern, 19a20; Western, none here.

DRIED FRUIT.—Apples, 7 to 8; Peaches, 10 to 12.

EGGS—15a17 cents per dozen.

FEATHERS.—Live Geese, 70 to 85 cents.

LARD.—Western, 13a13½; City rendered, 15 cts.

TALLOW.—10all cents.

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