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J. E. WILLIAMS, EDITOR.

THE SOUTHERN PLANTER.

DEVOTED TO

AGRICULTURE, HORTICULTURE,

AND THE

HOUSEHOLD ARTS.

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THE SOUTHERN PLANTER

Devoted to Agriculture, Horticulture, and the Household Arts.

Agriculture is the nursing mother of the Arts. [XENOPHON.

Tillage and Pasturage are the two breasts of the State.—SULLY.

J. E. WILLIAMS, EDITOR. AUGUST & WILLIAMS, PROP'RS.

VOL. XIX. RICHMOND, VA., APRIL, 1859. No. 4.

For the Southern Planter.

Irrigated Meadows.

Mr. Editor:

Most of your readers are no doubt aware of the fact that irrigated or "watered meadows" are not uncommon in some parts of our State, particularly in some portions of the Valley. Knowing something of their value, the ease of keeping them up, &c., the only surprise with me is, that more attention is not paid to them in a region so eminently suited to this means of improvement, as are the Valley and other portions of Western Virginia. Having made many inquiries as to the modes of preparing the ditches for irrigation, the best times of letting on the water, the time and labor necessary to keep up these meadows, and above all, having become thoroughly convinced of the great superiority of irrigated over ordinary meadows, I propose to give the result of my inquiries to the readers of the Planter, with the hope that by thus directing public attention to the subject, many farmers who may have bold springs on their farms, or small streams running to waste through them, may turn them to profitable account by using the water to irrigate portions of their meadows.

Irrigation can only be resorted to with advantage in regions of country that are more or less rolling, and the smaller streams somewhat precipitous, so that the water may have sufficient head to admit of its being carried around slopes of very considerable width, and the slopes themselves may have sufficient fall to carry off all the water so as to leave none to stagnate. In England irrigated meadows are resorted to wherever water can be had in sufficient abundance; but in Virginia, irrigation is only practised so far as I know, in the limestone regions, such as the Valley and some other portions of Western Virginia, and even here only to a very limited extent. That irrigation might be practised with advantage in some of the counties east of the Blue Ridge I have no doubt, but as my object is not to recommend an untried system, but rather to urge a more extensive use of a means of improvement which from observation I know to be specially suited to the Valley and certain regions to the west of it, I will simply say that, the farmer living in the portion of the State referred to, and who can command the necessary water, could not do better than to resort to it.

That those who know nothing of the practice may form some idea of the advantages of irrigation, I would state as the result of my observation and inquiries that, a

piece of irrigated meadow in this Valley will, if kept in condition, and the water properly used, yield from one and a half to two tons or more per acre of the first quality of hay, and will besides furnish excellent pasture from August until winter, or until the meadow is covered with snow. This the meadow will do year after year, without any other manure than that contained in the water used to irrigate with. I know of an irrigated meadow that has been in the present owners possession for the last fifteen years, yielding annually from one and a half to two tons of hay to the acre, with the very best of fall pasture, and I am assured that in all that time no manure of any kind has been applied. The only attention that the meadow has received, has been the cleaning out of the ditches in spring, and the letting on of the water at proper intervals, from early spring until near harvest. It is understood that this same meadow has been under this same treatment for the last forty years. That the crop of grass is due to the water, is evident from the fact that, if the water is not properly regulated, and made to flow over the entire meadow, the crop of hay is very much lessened, and those strips that have not had the benefit of the water, are frequently scarcely worth the cutting. The hay, if the meadow receives proper attention, is of the first quality, equal to any produced on upland meadow, and the fall pasture is sweet and nutricious, giving a fine flavor to the milk and butter of the cows pastured thereon.

From the above facts, it must be apparent that irrigated meadows are very profitable, requiring much less care and labor than any of the other crops saving ordinary meadow only, and the crop when produced, taking into the account both hay and pasture, yields a larger annual return than any of the grain crops.

In preparing a piece of meadow for irrigation, it is necessary to have such an arrangement of large and small ditches as that, when the water is let on the meadow, it will spread itself in a thin sheet over the entire surface, and yet will not remain on it long enough to stagnate. The usual way of accomplishing this, is to dig a series of main ditches, capable of carrying considerable bodies of water, and to take the water from these by a series of very small ones. The first of the main ditches leaves the stream or spring at the highest point practicable, and winds along the hillside, preserving a uniform but very slight fall—the fall being proportioned to the head of water. If the head is strong, the fall should be very slight, as the ditch in that case would always be easily kept full; if, on the contrary, the supply of water is quite limited, a greater fall to the ditch becomes necessary. The ditch may lead directly from the stream by simply turning the water into it, or a dam may be constructed, and the water taken from that. Unless the meadow is very narrow, additional ditches below this will be necessary; they should be so situated that when the water is let on the meadow, the spaces between the ditches will be thoroughly watered, and yet no water wasted. Their distances apart will, of course, depend upon the head of water, the slope and nature of the ground, &c.

The main ditches having been made, it remains to show how to take the water from them and secure its uniform distribution over the meadow. This is done by first damming the ditches at their lowest points so as to throw the water over the whole meadow at once, or what is more common, to have gates in them at regular intervals, so as to flood a section at a time. The best way to construct these gates, is to drive down two pieces of stout board across the ditch, leaving a passage way for the water between them, and to have a third piece to slide up and down between the first two. By this arrangement the water can be thrown from one section to another in a moment. These gates should be so placed that, when one is closed the water in the ditch above it shall be dammed up to the next gate above, so as to insure a flow of water over all of the meadow embraced between the two. The lower bank of the ditch may now be of an exact level from one gate to the next above, and of such a height that when the water is dammed back, it will flow over the bank from gate to gate in one uniform sheet. This plan does very well in certain localities, but unless the meadow below the ditch is very favorably situated, it is almost impossible to secure a uniform flow of water over it.

A better method is to make small openings in the lower bank of the ditch at regular intervals, letting the water flow out of these, and causing it to spread itself over the meadow by making with a hoe a series of little trenches in the soil, all of which

radiate as it were, from the outlet in the main ditch. These outlets may be made a little below the general level of the water in the ditch, so that as the water flows along in the ditches a portion may always be passing out upon the meadow. If the supply of water is limited, the meadow may be watered in sections by stopping up all of the outlets except those along the section to be watered. By this arrangement very little, if any, damming back becomes necessary, but the constant opening and closing of the outlets attendant upon it, is a source of no little trouble and loss of time. A still better plan consists in so cutting the outlets for the water, that their bottoms shall be a little *above* the level of the water when it is flowing along the ditch unobstructed, and yet so low that when the water is dammed back, it will flow out of all the openings from the closed gate to the one next above. By this arrangement the water is more easily managed, and the letting it on, and taking off, are attended with much less trouble.

The particular manner in which the water is applied, will necessarily depend in a great measure, on the supply; however, whether that supply be large or small, the water should go on the grass as early in the season as possible. It is universally conceded that, if care is taken to irrigate well in winter, when the weather will permit, and in the early spring, we have the best guaranty for a good crop. At that season the water may flow continuously for a considerable time with decided profit; as the spring advances, however, it ought to be taken off occasionally, and when the warm weather comes, it must be used with great caution to prevent "scalding" and the displacement of the meadow grasses by coarse aquatic species. During the growing season it is important that the grass should have air as well as water, and hence, the necessity for a regular alternation. Some farmers allow the water to flow as long as they can with safety, and after draining it off, keep it off a considerable time, not so long however as to let the sod get so dry as to bake. Others prefer, and insist upon it, that it is the best plan, to put it on from twelve to twenty four hours at a time, leaving it off a corresponding space of time, or longer. When the meadow is large, or the supply of water small, the latter is the only practicable way to irrigate. I know of meadows that are laid off in sections corresponding to the days of the week, so that each section gets the water one day in seven.

The ditches, &c., require cleaning out and some little other care in the winter or early spring; the only after attention necessary, is at stated times to let the water over one section and take it off another, a process which consumes but little time, and gives very little trouble.

WILLIAM GILHAM.

V. M. I., March 1st., 1859.

For the Southern Planter.

The Capabilities of the South for Fruit Growing.

The opinion has very generally been entertained heretofore, that the South cannot compete with the North in fruit growing, particularly the apple. Various causes may be assigned for this opinion, and prominent among these, has been a want of adaptation of suitable varieties to our soil and climate, and a neglect of proper culture. The idea has too generally prevailed, that what suits one region would suit another, and, when failure occurs, we too often allow ourselves to become discouraged and give it up, instead of enquiring into the causes of failure and resolutely determining to persevere until success crowns our efforts.

Our country in its wide area, presents a great diversity of soil and climate, and this diversity must exert an influence in fruit culture, as well as in any other kind of culture. One fact that has been too little attended to, is the length of time and degree of heat that different varieties of fruit require to bring them to perfection. In the South fruit trees bloom in the spring from one to two months earlier than in the North, and have longer time to grow before cold weather, hence a Northern winter fruit obtains length of time and sufficiency of heat to ripen it before cold weather commences; when planted in the South, it then becomes over ripe before winter and will not keep long. This is just what we might expect, if we would look at it scientifically, and a man from the South, moving North, who should attempt to raise cotton as a farm crop there, would be considered as wanting in judgment. And yet one conclusion is just as rational as the other, if we would look at it aright.

Much has been said and written about the failure of our orchards of late years, and the idea is entertained by many that we cannot grow fruit as early as formerly. What then! Shall we give it up in discouragement, and idly resign ourselves to our fate, and blame mother earth for our faults, or rather shall we not earnestly investigate the cause and apply the remedy? We all know that our wheat crop is not as certain as formerly; do we think of giving it up? I judge not. Agriculturists are looking round for a remedy, and endeavoring to investigate the causes of failure. English writers are boasting, that they now calculate upon an average crop of wheat with far more certainty than formerly. They now find that by studying the requirements of the crop and of the soil, that they can apply manure with far more certainty of success than heretofore. Here is a lesson that the agriculturists of this country are beginning to learn, and to learn successfully. And pomologists should profit by this lesson also. While our soil was in its primitive condition, there seemed to be no difficulty in raising fruit, it only needed planting, and it would take care of itself. But as our soil became exhausted of some of its important constituents by continued cropping, success is not now so certain. And added to this, the dry summers and cold winters of the past few years, have caused a destruction of fruit trees, the like of which few of us can remember. Our forest trees also have suffered severely. Cannot we see the reason of all these things? The want of proper culture of fruit trees under the circumstances in which they are now placed, is one main reason of so much failure. A farmer who would plant one kind of crop on his land for 30 or 40 years, without manure to supply the draft upon the soil, would be considered wanting in common sense, and yet how much more sensible is it, to expect a fruit tree to yield fair crops of fruit for that many years without something to supply its wants? It may be said that the roots of the tree yearly extend themselves farther out, and thus constantly is reaching new soil, but does not the farmer anticipate these roots by cropping that soil, and thus robbing the roots of their fair share. Here is a grand error and one that has done incalculable injury to orchards. Look at nature, look at the forest trees in a state of nature, they invariably throw out their roots close to the surface of the ground, with a net work of fine roots just beneath the surface. Here they come into contact with the decayed vegetable matter furnished by their growth, and thus are yearly manured. How is it with our orchards, we crop the ground between the trees, and of latter time plow much deeper than formerly, thus destroying the surface roots and compelling those left to penetrate deeper into the subsoil, into a colder state, and one almost entirely deficient in organic matter. Experience shows us that however rich in other matters a soil may be, if there is a deficiency of organic matter in it, a good crop cannot be grown upon it. Can we be at a loss why our orchards do not bear better? When we look at the facts before us, is it not rather a wonder they bear at all, at least many of them?

Want of adaptation to soil is an error with many tree planters. Some varieties of apples require a strong, heavy soil to bring them to perfection, while others do best in a good but lighter soil. We should endeavor to obtain native varieties for each section of our country, as much as may be. This has been a want in the South heretofore, but is now being supplied. D. Redmond of the Southern Cultivator, Augusta, Georgia, read a paper at the late meeting of the Pomological Society in New York, on the capabilities of the South for fruit culture, in which he gave a large list of varieties of Southern origin, and adapted to that region, of good size and superior quality; some of which, he says, will hang on the tree till the beginning of winter, or even Christmas. Most of these varieties would probably succeed well in the tide-water region of our State, and many of them except the very latest, would suit the upper Piedmont and Valley region; and as many of them are natives of the highlands of Northern Georgia, North Carolina and East Tennessee, these might suit the Alleghany region and the Western counties of the State.

I see no reason why, with proper care in selecting varieties, and judicious cultivation, we may not raise fruit in this as well as any other State of the Union. The practice of doing things on a large scale, and neglecting things seemingly small, has had much to do with the small amount of fruit produced for market, but this in time will correct itself. There are a few earnest pomologists in different parts of the South, that are manifesting what may be done, and when they give as they will give, occular evidence of

the profit of fruit culture, there is Yankee spirit enough even there, to carry the thing out, now that public conveyance will soon be easy to distant markets. Look at Eastern Virginia, how they there are falling into the truck business as it is called, and how they are enriching the country, and building up a business that is a benefit to both South and North. There is little danger of this business being overdone soon; our cities increase faster than the production of the country increase, and then the foreign market might be made use of, should there be a surplus for home use.

HOW TO PLANT FRUIT TREES.

In planting orchards, care should be taken that the soil has sufficient drainage, to prevent water standing about the roots; if not so naturally, it should be underdrained. Trees two years from the graft, are now considered by all intelligent fruit growers, better for planting than older ones, they can be taken up with less injury to their roots, and they grow off more freely, and in a few years make larger and better trees than larger ones will. Care should be taken to set them no deeper than they grew in the nursery.—The holes should be 3 or 4 feet square and 1½ deep, and in planting use only top soil if good, and if not, make it so, by adding compost or well-rotted manure, but use no unfermented manure. Fill the hole partly up, then place the roots in their natural position, and fill the fine soil closely in and around them, do this carefully, then pour a bucket of water around them to settle the earth more closely, and cover all over with earth, pressing it down moderately. By planting in this way, and mulching the first summer with straw, leaves, or other litter, for 3 or 4 feet around the tree, there will be very few failures, provided the trees have not been too long exposed to the air before planting. For several years after planting, the ground should be cultivated in vegetables, say potatoes, vines, &c., but not in winter grain or tall growing plants. Care should early be taken, not to plow the ground close to the trees, and as they increase in size increase the distance from them so as not to disturb the surface roots, but keep down grass and weeds around them. Much injury is done to orchards in this particular, the surface roots are torn off, and the remaining roots are compelled to penetrate the subsoil, divested of the benefit of the sun and dews, and confined to a colder stratum. These surface roots extend much farther than most persons imagine. Downing, in his work on fruits, some years ago, advised those who kept their fruit trees in grass, to dig the surface over at least as far as the branches extended, but this has been found to be too small a space, and does little or no good.—Roots often extend twice as far as the branches spread out, and as it is through the small roots at their extremities that the tree obtains its nourishment, we may at once see the reason of the injury of crops of grass or other vegetables growing within their reach. Persons who wish to grow fruit with certainty and successfully, must avoid injuring the surface roots, and avoid robbing them of their nourishment by cropping over them. While the trees are young the spaces between them may be occupied, but when they attain size, and come into a bearing state, crops of fruit and vegetables cannot be successfully grown together without copious manuring, and then the injury done to the roots will be considerable, unless particular care is taken to prevent it. Marshall P. Wilder, in the late Pomological Convention, "mentioned an orchard in Massachusetts which sends the finest apples to the market, where there has been no grass or plough for forty years. The top of the ground is merely scarified."

The small importance attached to fruit by many farmers, will induce them to consider this too much trouble, they cannot afford it, they can take very especial care to provide for a tobacco or other crop, and yet there is no crop which can be put upon land that will produce as much real profit per acre as a well kept orchard. They all love good fruit, and yet don't seem to try to learn its value. It will go very far in supporting a family if rightly managed, is promotive of health and social enjoyment, and a lack of endeavor to obtain it, where it may be had, is pretty sure evidence of a want of that refinement that makes man the friend of man.

Our State may be considered as exhibiting four distinct regions for fruit growing. The first may include the Tide-water and about one-half of the Piedmont region, with an elevation of say, of 400 feet above tide. Here, for late keeping fruit, we should look to those of Southern origin almost exclusively. Much of this soil being sandy and thin, to ensure good fruit manure should be applied. The second region may extend

from the first to the western side of the Valley region, with an elevation of from 400 to 1500 feet above Tide-water. This is the best region for apples in the State, and with proper attention and selections of varieties, may be made equal to almost any other in the Union. The chief drawback is, the liability to injury from spring frosts, but there are many elevations where this would only be partial. Here Northern varieties do better than in the first division, but still our main dependence should be from the South. The third region may include all the mountains west of the Valley. The valleys in these mountains are many of them similar to the Valley in fertility of soil, but many of them reaching to 2,500 feet above tide-water, would allow of Northern fruit doing better there than either of the other regions, but still the native fruits of the Southern Alleghanies, should be mostly depended on. That part of the State west of the Alleghanies having an elevation about equal to much of the Valley region, would seem to need pretty much the same varieties of fruit. The present system of railroads when finished will give facilities for conveyance that will make the raising of fruit more profitable than heretofore in many places.

In reviewing the facts before us, there seems to be no good reason to suppose that Virginia may not become a profitable fruit growing region. Of peaches she has a decided advantage over the North, the trees are longer lived and the quality of the fruit is superior. Of apples, with a judicious selection of varieties and proper cultivation, there is decided encouragement. But we must lay aside that careless manner, too much in practice at present, and take up a scientific course of cultivation.

The laws governing fruit culture are as certain of producing reliable results as the laws of any other branch of culture, and it is our duty as well as interest, to understand those laws, and apply them to our profit. Of pears we have much yet to learn, in many places we see large old pear trees growing thriftily, proving that our soil is adapted to that fruit, but its culture seems to be checked by the blight here as elsewhere. When we shall produce native varieties, we may expect to be more successful, till then we must select those best adapted to our region. The dwarf pear requires such peculiar treatment, that its cultivation cannot be recommended, unless where proper attention can be given to it. Much imposition is practised by tree venders in this particular, and the want of information in many, renders them easy dupes to these schemers. Persons from other States have been distributing fruit trees from the North into this State the past two years, professing to furnish better fruit than can be obtained here, and selling at higher prices than nurseries here sell for, and thus imposing on the credulous and ignorant, most of whom will not soon realize the return of their money, and many of them never. This evil should be corrected, but while our citizens delight more in politics and making a show in the world than in the quiet and peaceable practice of adding to our comforts, and making our homes a blessing to our families, as well as ourselves and all around us, there is but little prospect of a remedy. A word to the wise is sufficient.

Yardley Taylor.

For the Southern Planter.

War against Wash-Boards Continued.

The attention of house-keepers was, some months since, called to the great injury done to the clothes of a family, by the weekly use of a wash-board. In most cases, the lady of the house sees the clothes delivered to the washer-woman, and, in some instances, takes a list. If the clothes come in at the usual time, and are clean and nice-looking, she is satisfied. When the Spring of the year comes round, and the good mother sees the time is approaching for the little ones (and the old gentleman too) to shed their Winter apparel, she orders the Summer clothes to be brought out. As they are spread out before her, she, with a flushed cheek and ruffled temper, exclaims, "how on earth did these clothes get so ragged and torn? Some, I know, were made up late last Summer, and even they are rubbed to pieces." The washer-woman puts in a word or two to the effect, that "the boys, mam, are monstrous hard on their clothes; they get them so dirty and greasy I has to rub them with all my strength to get them clean."

"But how is it, Evelina, that the girls' clothes are so linted up? Only look, new dresses, new underclothes, even the stockings, are all rubbed as though you had scoured down the kitchen steps with them."

"Oh, *mistis*, you know the girls, *they's* just like the boys. You know they are up the cherry-trees, down in the raspberry patch, up the chinkapin bushes, anywhere and everywhere."

The mother concludes that she never knew such children, and resolves to whip for every rent she sees in the future. If the good wife (it is presumed all wives are good, if they are not they should be, or the chimneys are sure to smoke,) would only pay one or two unexpected visits a day to the washer-woman, she will find one of those wonderful goods destroyers sitting up in her tub, or if its use has been forbidden, it will be found lying flat at the bottom of the tub. I have not space to enumerate the fine and costly articles belonging to the young and old folks, of every family, that are rubbed to a perfect lint on the wash-boards used in one large family. Every old cobler that can handle a saw and a chisel makes them for the colored folks, and every merchant and grog-shop keeper has them for sale. And why do they? Is it for the small profit made on them? No, it is not. What then? Why these merchants have learned from the thoughtfulness of Northern men how to calculate, something after this fashion: "Every wash-board I can sell will, in all probability, *lint out*, in one season, three dozen shirts, two dozen fine and costly handkerchiefs, to say nothing of the fine under-garments worn by every young lady, and a host of fine and costly things besides, on which I make my profit." And the washer-woman has learned from the merchant, that if she will purchase and use wash-boards, (even if she has to use her own money,) that she will be able to collect rags enough every year (at one cent a pound) to supply her with everything she might want from the store. Thus, you see, the merchant and washer-woman are deeply interested in the destruction of all linen and cotton goods—the more clothes are worn out the more goods are purchased by every family, and the more rags are sold by the good and faithful old washer-woman.

Persons who do not look into family matters as they should, and as their interest oftentimes requires, may laugh at this ridiculous war against wash-boards. But only think for one moment of the poor farmer—these uncertain seasons for cropping—who is toiling from year's end to year's end, and his wife and a sewing girl, are hard at work with their needles six months of the year, (or, perhaps, Wheeler & Wilson's family sewing machine, the best in use, making 1000 stitches a minute,) all to be paid for by the farmer, crop or no crop; and who is benefitted? Who makes the money these hard times? The merchant. How does he do it? By selling goods to the farmer at 30, 40, or 50 per cent., and by supplying a machine to wear them out in time to be purchased back again at one cent a pound, to be taken North the next season. Will not some observing man join in trying to bring to the notice of housekeepers the loss sustained, yearly, to every family in which wash-boards are used. I estimate the loss to each family at $50 per year.

A VALLEY FARMER.

February, 1859.

From the Valley Farmer.

The Horse.

As the present high price of horses will induce all who can to raise and bring them into market, it is but reasonable to suppose that many mares will be used for breeding, whose progeny will prove of very little value. In the present instance I propose to consider something of the results to be expected from a judicious course of breeding, and vice versa. In the selection of a stallion to breed to, inasmuch as nearly every one is within reach of a good many, most persons are called upon to exercise some judgment in making a choice, and in order that the choice may prove a wise one, see to it that you consider well the object in view, viz: What kind of a colt do you wish to produce? Consider the qualities of your mare and also the horse, and after all do not breed to the price of the insurance instead of breeding to the horse. A dollar or two now may make a difference of fifty or more a year or two hence. In order to a perfect development in the foal, the mare should be relatively larger than the horse. A large, loose-made mare, from a smaller but muscular and ambitious horse, will rarely fail in producing a valuable colt. The mare being large and roomy there is ample space for developing in the fœtus the full powers of the horse in an eminent degree, giving it remarkable strength, activity and constitution. The correctness of this principle will be readily seen in the effects produced by this course of breeding. Doubtless every reader can point to a number of small horses, (Canadians and others,) which have sustained a high reputation amongst stock raisers throughout their whole lives. The justly famed Morgans, and the advantages to be derived by crossing them upon common stock afford a striking illustration of the truth of this remark. The Mustangs of the western plains, as well as

all *wild* horses, are remarkable for their hardihood and bottom. When it is remembered that the medium and smaller sized horses are always masters in a herd and consequently the race being perpetuated by them, another example is afforded, carrying out the truth of this observation. By crossing the large English mares with the (smaller sized) horses of Arabia and the Barbary States, some of the fleetest horses in the world have been produced. The superior hardihood and endurance of the mule may certainly be attributed, in a *great measure*, to breeding upon this principle. Jacks being smaller than mares, there is a full development of the powers of both parents in the offspring. Some may say that the jack is a more hardy animal and not subject to so many diseases as the horse, hence the result, but this does not explain the true cause of superiority. If *this* had been the reason, the produce of the stallion with the jennet ought to be equally as serviceable as the mule, but experience has proved that the offspring which is called a *Hinny* is a worthless animal. Colts produced by crossing small mares with large horses are frequently tall and ill-shaped, awkward and sluggish, also deficient in constitution. Of course there are exceptions, but this is the *natural* tendency. From this fact the improvement of our stock by importing very large horses, has not been attended with such marked results, as has been attained by a different course of breeding. An error has been committed in importing large horses instead of mares, and although a good many valuable horses are to be found among the colts of imported draught horses, there are many others that will not compare favourably with the common breeds of the country. A large breed cannot be kept perfect and condensed by raising from females of smaller size. Either the form, the spirit, or the constitution must be sacrificed, perhaps all. But you are ready to ask, How are we to keep up the size of our horses and practice upon this principle? Many small horses breed large, and their colts will, in nearly all cases, be large enough. If, however, you have a small mare, I would not advise breeding to a still smaller horse, but after breeding to a larger one, if the colt should prove deficient, correct again by reversing. Perhaps enough has been said upon this subject to lead you to think and observe. If so, my object has been attained. Lessons of experience are always readily fixed upon the mind.

Some difference of opinion is entertained as to which exerts the greatest influence upon the offspring, the male or the female. I think, however, that owing to the peculiar treatment and habits of the stallion, a deeper impress is generally made upon the side of the sire than of the dam. Taking this for granted, and also bearing in mind that "like produces like," it is a matter of great importance that the stallion especially be free from defects and blemishes. Spavin, curb, predisposition to splints, windgalls and all such things are hereditary. All these things are formed easily enough, without breeding to horses which have them. I would, for this reason, always discourage the idea of keeping a horse, unless entirely free from defects. If a horse's legs fail he is useless, and if he inherits spavin or any such diseases, there is little prospect of his ever being permanently cured. Some suppose that if a horse has an eye knocked out, or is otherwise rendered blind by accident or ill-usuge, his usefulness as a breeder will not be effected, but this idea is erroneous. A healthy action and exercise of any member, muscle or limb, increases its vigour and power. Inactivity produces an opposite result. After the loss of the eye the nerves around that organ becomes paralized, and for want of exercise (whatever may have caused the blindness) become to all intents and purposes the same as if they had never existed, and consequently materially affect the progeny of the animal. Although the effects may not be seen in the first generation, they will surely be manifested at a later date by an exhibition of weak eyes, dull and sleepy-looking eyes, very small and bad colored eyes, and finally, total blindness. Stallions are perhaps more liable to go blind than any other horses. If used as work horses, they are very apt to pull too hard. Many horses have been rendered blind from this cause. If saddle horses, by undue exertion in training they are sometimes strained and the eyes lost. If over-taxed during the season the eyes often fail; and again, a horse will often be seen looking through some crack in the stable, with his eyes fixed intently upon some object for many minutes in succession, thereby straining the eye and resulting finally in loss of sight. If any of these causes or even accidents may have rendered a horse blind, rest assured that the effect will be sooner or later manifested in his stock. Old Copperbottom, during his lifetime, was paced a distance of 90 miles, which he accomplished in less than 9 hours, but this resulted in the loss of his eyes. We find now that his descendants in this State, (Ky.,) as well as many others, are weak-eyed. I know a grandson of his whose eyes were, to outward appearances, as good as any I ever saw, now entirely blind, and his eyes failing without any apparent cause. It is also a well-known fact that the Copperbottoms are addicted to blundering. May not this be attributed, in part, to some defect in the formation and structure of the eye? If so, this is an important item for consideration. In conclusion, upon the subject of defects, let me say, if you are raising stock, breed to an animal in all respects free from blemishes; if you are buying stock, purchase such as are free from defects. These things are often produced by causes which you cannot control, and when selling time comes, (especially if the market is dull,) you must

account for every puff, lump, or hair that is out of place. H.

A Chapter on Cements.

To "A Subscriber," who requests us to give a few directions for making a cement that will be useful in joining pieces of glass or earthen, and in uniting pieces of chemical apparatus, we would say that he will find, in the various works on chemistry, directions for making cements and lutes, by which the object he desires can be attained. We, however, furnish him with the following, which are laid down in the "Imperial Encyclopedia," a work published some 45 years ago in England. For the purpose of holding together broken pieces of glass, china, or two pieces if not broken, but which you wish to hold together, the writer says the juice of garlic is excellent, being strong, and, if the operation be performed with care, leaving little or no mark. Quick lime and the white of an egg, mixed together and expeditiously used, are also very good for such purposes.

Dr. Lewis recommends a mixture of quick lime and cheese, in the following manner: "Sweet cheese, shaved thin and stirred with boiling hot water, changes into a tenacious slime, which does not mingle with the water. Worked with fresh quantities of hot water, and then mixed upon a hot stone, with a proper quantity of unslacked lime, into the consistence of a paste, it proves a strong and durable cement, for wood, stone, earthenware, and glass. When thoroughly dry, after being applied, which it will be in two or three days, it is not in the least acted upon by water."

Cheese, barely heated with quick lime, as directed by some of the chemists, for uniting cracked glasses, is not near so efficacious.

A composition of drying oil and white lead is sometimes used for this purpose, but it is not very good.

The Germans use a cement prepared in this way: Take by measure, two parts of litharge, one of unslaked lime, and one of flint glass; let each be separately reduced to finest powder, and worked up into a paste with drying oil. It is said this compound will acquire a great degree of hardness when immersed in water, and is very durable.

Another German cement for joining wood, is made with pitch mixed with bullock's blood, linseed oil, and turpentine,—the whole of this must be put over a fire, in an iron pan, and as much brick dust added as will make them of the consistency of thin paste. The tub or cask to which this preparation is to be applied, must be perfectly dry before being laid on, and the chinks and crevices filled up with tow while the cement is warm.

Japan cement for pasting paper is made by mixing rice flour intimately with cold water, and then boiling it,—it is beautifully white, and dries almost transparent. It is much used in joining paper boxes and other articles of curiosity or commerce.

A cement for damp walls is made in this way,—boil two quarts of tar with two ounces of grease for a quarter of an hour in an iron pot; add some of this tar to a mixture of slaked lime and pounded glass which have been passed through a flour sieve, and been completely dried over a fire in an iron pot, in the proportion of two parts of lime and one of glass, till the mixture becomes of the consistency of thin plaster. This cement must be used immediately after being mixed, and therefore it is proper not to mix too much, or no more than will coat one square foot at a time, since it will quickly become too hard for use, and care must be taken to prevent any moisture from mixing with the cement. For a wall merely damp a coating an eighth of an inch will be sufficient. This coating may afterwards be plastered with a plaster of quick lime hair and plaster of Paris. This cement will join and hold stone together strong.—*Me. Farmer.*

Good Advice to a Farmer.

"Many years ago," said a Quaker friend, who told us the following anecdote: "Many years ago, a brother of the celebrated Benjamin West, who had been a cooper in this city, a man of sterling sense and integrity, purchased a farm some miles out of the city, which had been suffered to be over-run with briers and bushes. He was, for a short time, considered by his neighbor farmers as very far from being as wise as Solomon, or even themselves; but, in a few years, his was the best and most productive farm within fifty miles around him, and his fame as a farmer spread far and wide. One day a man came to him who was desirous of improving his farm, and asked him how he should do it. 'Go home,' said Mr. West, 'and make five or ten acres as rich as thee wants, and come to me and I will tell you

what to do next.' 'But,' said the farmer, 'I have not manure enough to do that.' 'Very well, then go and prepare three acres, two acres, or one acre, in the same way; but what thee undertakes, do well.' The farmer," said our friend, "perfectly comprehended the advice, and, what is unusual, practiced upon and benefitted by it—leaving at his death, one of the best farms in the country." Go, and do thou likewise.—*Philadelphia Herald.*

From the Prairie Farmer.

Cure for Big-Head.

I have lately had letters addressed me requesting a recipe for curing the big-head in horses. The recipe was published (by my request) in *The Prairie Farmer* some years since, and if you think it best you may publish it again. It will or has cured ninety-nine cases out of the hundred: Oil origan 1 oz.; spirits ammonia 2 oz.; ditto turpentine 2 oz.; olive oil 1 oz.; pulverised cantharides 1 drachm; mixed and well rubbed on the enlargement once a day.

Yours, STEPHEN MILLIKIN.

The Dairy---Selection of Cows.

We are not going into a discussion of the different breeds of the cow, as understood by cattle-breeders, but of the general characteristics of those best suited to dairy purposes. We care not what her breed, whether it be Short-Horn, Ayrshire, Devon, Hereford, Alderney, or Native, further than that she be a *good milker*. As to the *quality* of her milk, it would always be rich; as to the *quantity*, that may depend upon the size of the cow, and the amount of food she consumes. We have known cows that yielded thirty quarts of milk in the height of the season, which were not so economical to the dairyman as others not giving over twenty quarts. One ate enormously, the other moderately. It depends much, also, on the quality of the pasturage as to what description of cow the dairyman should adopt. A compact, even-bodied cow will frequently live and thrive, and do her best in milk, where a large rangy beast would barely live, and yield less milk than the other; while, in abundant pastures, where the food is easily obtained, the largest animal, giving a proportionate quantity, would be preferable. So, in the selection of his cows the dairyman should understand the *quality of his pastures*, equally with the description of cows with which he is to stock them.

DESCRIPTION OF A DAIRY COW.

As a rule, we should say, that a compact, small-boned cow of her kind, whatever the breed may be, is the most economical for the dairy. A rawboned, big-jointed, loose-made beast is usually a huge feeder, and a poor keeper, and although sometimes an extraordinary milker, is not, on the whole, a profitable one to keep. Our own style of dairy cow should have a small head, with a lively eye, and a light horn. Her neck should be thin, her shoulders open, or well spread apart; her ribs round, and extend well back towards her hips; her back straight; her loins and hip broad; her rump level; her flanks deep; her belly capacious, without being *paunchy;* her twist full and low; her udder clean, silky in the hair, with fair-sized taper teats, standing well apart as they issue from the bag. When milked dry, the udder should be small, and shrunken—not meaty—but when full, it should be plump, and hard; her tail fine; her legs and feet small; and with all these she should possess a quiet disposition. It may also be added, that she have a yellow skin *beneath* the hair, be the hair what colour it may, and the hair be fine, silky, and if possible, waving, or slightly curling. These qualities, of course, will make a *handsome* cow—an objection in the eye of no one, and certainly none to the disadvantage of the cow possessing good milking properties. A beast the contrary of this description, although possibly a good milker, is not desirable; and when the kind we have described is just as easy to be obtained, as the opposite, if one will but take a little pains, the standard of perfection, or as near to it as possible, may as well be adhered to as otherwise.

We say a yellow *skin*, as distinguished from a white, or pale one. A yellow skin usually indicates a *rich* milker, while a pale skin indicates that of inferior quality. All observing dairymen will acknowledge this fact. Exceptions occur, but the rule obtains.

Now, in contradistinction to *our* choice of a cow, let us see, for a moment, how the mass of dairy cows are generally obtained. At "the West," where the cattle breeders

usually pay little attention to the milking qualities of their cows, and breed them promiscuously without regard to that quality, and also in various other parts of the country among poor farmers who raise now and then a cow to sell, the cow drovers, or buyers go out to make their purchases for dairy markets—the dairymen, as a rule, do not rear their heifer calves, but depend upon purchasing their cows, either of the drovers, or go out and pick them up themselves, as best they may. Of course the selection by the drovers or dairymen, is not of the best, for the owners of them prize their superior quality as valuable to themselves, and the purchasers, consequently, are enabled to buy such only as the owners are disposed to sell. They are therefore a promiscuous lot—a few good, some indifferent, and many inferior if not decidedly bad. These cows are taken by the dairymen, and after trial a year or two, the worst are culled out by them as not worth keeping, and in turn are sold to another passing drover, who proceeds on his journey towards market, and sells to a further dairyman, till the poor rejected beasts are finally brought up in the butcher's shambles! And such is the history of every man of the dairy herds in our country—a short-sighted, miserable, unprofitable mode of keeping up a supply of milch cows.

In opposition to this, we would propose a different plan. Having selected the best herd of cows we could find, instead of getting a wretched inferior bull, with just vitality enough in him to beget a calf, as the means of enabling the cow to produce her yearly supply of milk, and then destroying the calf soon after birth, we would select a bull of some distinct milk-producing breed—and that breed should be of a kind fitted for our own soil and climate. This bull should be descended from a good milking dam, and also from a sire whose ancestors were of a good milking tribe, if possible. A close examination into these facts would give the bull a pedigree, of course, which we would demand. In addition to his milk-begetting qualities, he should add those of good shape, fineness, and general quality peculiar to his breed. We would preserve the heifer calves by this bull from the best cows, and rear them to keep the number of our cows good, as the calves grow up and the cows are worn out or displaced. According to the general physiological rules of "like begetting like," our young cows would nearly all turn out the first class of milkers. We would educate the calves to the developement of their best milking faculties, thus: They should be *well fed*—not pampered; allowed plenty of new milk for the first month, then gradually led off into skimmed milk, or oil meal, and be kept all the while in a sweet grass pasture. At four months they would be fit to wean. From that time forward, pasture in good grass until winter. Through the winter, soft sweet hay, and perhaps a quart of oats, or half the quantity of Indian meal a day, until grass in the spring. Then good grass pasture another summer, and hay through the winter. At two years old, grass again for the summer, and turned to the bull in July—even her own sire, if he has proved a good getter, for such close breeding is not hurtful for a *second* generation. The young cow then comes in a finely developed beast, and being gentle and docile, as she would be if properly treated, she furnishes a fine milking cow, perhaps a little extra cost, but one which, in the natural order of things, is worth one-and-a-half, or two that can be obtained out of a common drove for dairy use. Three or four good heifer calves thus raised every year by an intelligent dairyman, will well keep up his herd of twenty cows, and in that proportion for a smaller or larger number.

As a proof of the advantage of thus breeding up a herd of dairy cows, the writer would relate his own experience: Many years ago we kept a milk dairy for supplying the town people near by with milk. Our herd was a mixed one of different breeds—Short-Horns, Devons, and Natives, with intermediate crosses, and grades. We selected two compact, well-made bulls—one Short-Horn and one Devon, pure in blood, each of his kind. To the pure bred cows of each breed, we bred the same blooded bull, and crossed them upon the grade and native cows, as we judged best to effect our object of producing milkers. Our thorough bred calves of each breed, we of course raised, and selected the most promising of the grade heifer calves to raise for future dairy cows. In the course of our operations we bred and reared about sixty heifers, and with *one* exception only, when they came into cow's estate, every individual turned out a superior milker, with fine form, and excellent quality of carcase as well.

But we will give the sequel. After some years continuance, not because the business was unprofitable but because we could not give the personal attention to it that it required, we discontinued the occupation, and sold off the most of our herd, chiefly grades —a part of them at public sale. Coming in as they did, at different seasons of the year to give a *regular* supply of milk as far as possible, our cows were in different conditions as to flesh. The full milkers were in moderate flesh; the dry, and nearly dry ones were in excellent condition. As they were put up to be sold, since every buyer wanted "a first-rate milker," the question as to her milking quality was asked of each one when offered. There was a difference, of course, some better, some not equally good. Yet, no matter what the answer might be, the *fattest* cows, in every instance, *brought the most money!* So much for the eye, over utility!

But many dairymen say they "cant afford to raise their cows. It is cheaper to buy them, and run the chances." *We* do not believe it—at least, as the *chances* run within our own experience, and observation. It may be objected, and with considerable truth, we admit, as in the late examples, that the Short-Horns and Devons are not milkers. To this we reply, that they are *naturally* good milkers; but the modern breeders have bred for flesh, and symmetry of shape, chiefly, and in striving for these have measurably bred out, or sacrificed the milking quality. But the milk can be brought back again by breeding. That quality is still latent in the animal, and use and education will restore it in the manner we have indicated. Still, we are not advocating *breeds* of cattle, we speak only of selecting good dairy cows, and perpetuating their best milking qualities in their descendants.—*Am. Agriculturist.*

The Farmer's Motto.

Gen. Bierce, closes an Agricultural Address at Twinsburgh, Ohio, Sept. 17th, 1857, as follows:

"Let the farmer's motto be, then, 'good farms, good stock, good seed, and good cultivation.' Make farming a science, in which your head as well as your hands are employed; let there be system, reason, in all your operations; study to make your farm beautiful, and your lands lovely; entice, by kindness, the birds to visit, and cheer your dwellings with their music; I would not associate with the man or boy that would wantonly kill the birds that cheerfully sing around our dwellings and our farms; he is fitted for treason and murder. Who does not, with the freshness of early morning, call up the memory of the garden of his infancy and childhood? the robin's nest in the cherry tree, and the nest of young chirping birds in the currant bushes; the flowers planted by his mother and nurtured by his sister? In all our wanderings, the memory of childhood's birds and flowers are associated with our mother and sisters, and our early home. As you would have *your* children intelligent and happy, and their memory in after life, of early home, pleasant or repulsive, so make *your* farms, and *your* children's home."

Manures for Pears.

During the late Pomological Convention, held at Mozart Hall, New York, we were much interested in observing the appearance and quality of pears there exhibited. We have long known that all kinds of pears flourished with us when supplied fully with soluble phosphate of lime and potash, and that even the Napoleon, so generally discredited, always succeeds most fully under such treatment.

Among the fruits exhibited were a number of specimens from the garden of Dr. Boynton, of Syracuse, New York, who is now lecturing on Geology at the Cooper Institute. These pears were of superior quality, having a peculiar wax-like surface, and surpassing in color all others in the exhibition. Our attention was called to these pears by Dr. John A. Warder, of Cincinnati, who informed us that the manuring was said to be special; but he did not know the precise treatment. To-day Dr. Boynton paid us a visit at our place, and we had the pleasure of a long conversation with him on pear culture. He states that he believes the entire superiority of his pears to arise from the fact, that he has used the superphosphate of lime and potash freely as fertilizers, with full underdrainage and thorough deep disintegration. He states that although his garden is 180 feet above the level of the surrounding country, and is a free, dry soil, still he underdrains, and thus secures a full and efficient aeration of the soil, and perfect

security against drought. All this fully accords with our practice, and we are glad to know that the best colored pears we ever saw, were fertilized in the manner we have so often recommended, and on soils prepared similar to our own.

We hope Dr. Boynton may be induced to make public all the facts in relation to the methods he has pursued in producing the unequalled specimens we have referred to. Their beauty certainly excels that of any other specimens we have ever seen, and the methods, so far as detailed to us by the grower, fully endorse the doctrines we have so long advocated. Until Napoleons and other pears of generally admitted doubtful success shall be grown equal to ours without the use of super-phosphates and potash, we shall claim as a truth, that such special fertilization is superior to the ordinary practice of ordinary cultivation of the soil by surface-ploughing alone and the use of farm manures.

We would again remind our readers, that a saturated solution of soda applied to the bodies of pear trees, will remove the louse and scale perfectly, by a single application.

[*Working Farmer.*

An Old Farmer's Note Book. Why Sows Destroy their Young.

I have always kept breeding sows, and in early life met with many vexatious losses from the sows destroying their pigs. Common sense told me that this was caused by some treatment by which man thwarted the designs of nature, as in the natural state animals may be left in safety to their instincts, of all which the strongest is love for their young. This led me to study hogs closely during the latter period of pregnancy, and watch all their ways up to the time of pigging. I also noticed my neighbours' treatment of their breeding sows, and by comparing results, I learned what caused this danger, and how to guard against it.

Costiveness and its accompanying evils is the main cause of sows destroying their young—and proper food is the preventive and cure.

I have never known a sow to eat her pigs in the autumn, when running at large with plenty of green food; but with hardly an exception, sows littering early in the spring are troubled with costiveness, which is frequently so severe as to be accompanied with inflamed eyes, great restlessness, and other signs of suffering. This restlessness sometimes increases till it amounts to frenzy. I have had them become so savage as to attack me fiercely, though at other times perfectly gentle If not stopped, this frenzy may increase with the pains of labor, and the sow will then destroy her young, or any other living thing within her reach. Cure the costiveness, and this restlessness and irritation will be cured, and if she was a good natured sow she will become gentle and quiet again.

Green food is the cure. As it is usually scarce at this season, you ought to provide for the emergency by saving roots to feed to them. Formerly I used potatoes for this purpose, but since the potato rot commenced I have used sugar-beets, and always have some on hand to feed to my sows for several weeks before they come in. They are very fond of them, and eat them greedily raw. A half peck or more a day with but little other food will keep a sow in the finest condition. Potatoes are as good, and carrots, parsnips, mangold wurtzel, or turnips will do, but it may be necessary to boil them and mix them with other food. If you have no roots of any kind, you must resort to sulphur and give a large tablespoonful two or three times a week for several weeks before littering. Give also a little charcoal occasionally, and always be kind and gentle with them, and they will never attempt to kill their pigs.

A common mistake is to move the sow to another pen shortly before she litters. This is very irritating to her. She should be separated from the others and moved to her new quarters several weeks before her time is out. She must be kept sheltered, and a week before she litters supplied with all the straw she will want, which will be better for being short. After this her nest must not be molested, and she ought not to be disturbed in any way, as it is the nature of all animals to seek privacy at this period. Hogs are more true to their time than other animals, and rarely vary more than a day or two.

But if you want to be sure to lose your pigs, feed your sow on corn and cob meal. This will make her very costive, if fed without much other food. Then when she is sick and feverish, and consequently cross, irritate her yet more by driving her from the nest she has become accustomed to; then let the boys teaze and abuse her every day,

and if the poor maddened animal does not destroy her young as fast as they are born, it will not be your fault.—*Homestead.*

Why Use Cut Food?

An intelligent farmer asks for the philosophy of cutting hay. He can understand that it is useful to cut corn stalks and coarse fodder, because cattle will eat it better. But when the cattle will eat good English hay perfectly clean, why should it be passed through the hay cutter?

Our friend evidently supposes that the stomach does its work upon everything that passes into it, with equal facility, and without any tax upon the rest of the system. This is manifestly an error. All food has to be ground up before it can be assimilated and pass into the circulation of the animal. If food is not artificially prepared by cutting, grinding or steaming, the animal has to prepare it himself so far as he is able. Certain kinds of food will pass through the system, imparting to it only a part of their nutriment, because the teeth of the animal have not perfectly masticated it. Whole kernels of corn or of oats are often seen in the fæces of an old horse.

The more perfectly food can be prepared, the more completely will the system appropriate its nutriment. If the whole labor of grinding up the food is thrown upon the animal, it is a serious tax upon the vital energy which every good farmer wants for other purposes. In the case of the horse and ox, you want the strength applied to locomotion and draught.

Whatever strength is applied to grinding food, is so much taken away from their capacity for labor. If three or four hours of strong muscular labor are spent in working up hay or straw into a pulp, there is a great loss of strength and of time.

In the case of fattening animals, you want the aliment to go to the formation of fat flesh. This process goes on successfully, just as the animal is kept quiet and comfortable. No useless labor should be expended in the grinding up of food. The straw cutter, working up the hay into fragments of half an inch in length or less, performs a good part of the working of the jaws, and makes the feeding of the animal still a light matter. If the hay could be ground up into a fine meal it would be still better; as it would make the work of the animal still lighter, and would more completely yield up its nutriment. If it could be steamed it would be best of all, as it would then be wholly appropriated.

We have no doubt that it pays quite as well to pass hay through the machine, as the coarsest fodder. A root cutter is also an indispensable adjunct to the barn, and the more perfectly it communicates the roots the better.

The farmer who has ever experienced with these machines, and marked the results of feeding with hay and roots prepared in this way, can have no doubt of their utility. Laziness, we apprehend, has quite as much to do with these machines as ignorance. It is work to turn the crank to cut up hay enough to feed twenty head of cattle; and in prospect of spending the elbow grease, it is very convenient to believe that it will not pay. Sloth, however, is a poor counsellor in this case, as in all others. We should as soon think of feeding them with uncut straw. A warm stable and a strawcutter are both good investments.—*Goward's Register.*

From the "La Grange Reporter."

Mr. Editor:

Accept my compliments, and find on this paper two receipts, which I regard as invaluable to farmers and all others who own mules and horses. I have tried them myself on some very fine blooded animals, and have caused them to be tried on others, and never knew them to fail as cures. As a citizen of La Grange, I recommend them to its people, and to the surrounding country, as infallible remedies to accomplish what I claim they have often done, and will invariably do, when judiciously, or rather correctly, administered.

For Curing and Preventing Botts in Horses or Mules.—Take 3 papers of smoking tobacco, rub to powder, and sift well; 1 lb. of black antimony; 6 ounces of powdered fenugreek seed—this last will be found only in wholesale druggists' establishments;—and one peck of strong, well sifted hickory ashes. Mix the whole in an air-tight box, by first putting in a layer of ashes—say one and a half inches deep—and then a tea-spoonful or two of each of the other ingredients, and so on, alternately, until all are thoroughly mixed. Keep the box air-tight. Give a horse or mule from one and a half to three table

spoonsful, three times a day, spread on his corn and sprinkled with water until damp. Three or four day's time is sufficient to cure a horse or mule of botts; and about the second day the botts commence exudating from the animal in great exuberance. And now the close observer of the race of animalcules may become sublimely fecund and tediously elaborate upon the important science of horseology. But by continuing to give this medicine for a few weeks, the general health of the animal will be greatly improved. If the medicine acts too freely on the bowels, lessen the dose. This composition, given to horses and mules according to my directions, for two or three months of November and May, will successfully save them from ever dying from botts.

Remedy for Renovating an Old Horse.—Take a handful of rue; 1 handful of the root of Jerusalem oak; 1 ball of garlic, the size of a guinea egg; a piece of tobacco, from the end of a twist, say two inches in length; and a piece of saltpetre the size of a pea. Mix all, and boil in one and a half gallons of water, until the water is half reduced; then strain through a cloth; fill three quart bottles, and drench the animal for three successive mornings, before eating or drinking. This medicine acts on the bowels, cleanses the system, purifies the blood, and gives to the hair a rich, glossy appearance, and in a few weeks, with good attention, will make an old or poor horse sleek, fat, strong and supple. If the saltpetre is used, keep the horse or mule dry one week; if this is impracticable, leave out the saltpetre.

Respectfully,
John Wiley Cook.

From the Philadelphia Enquirer.

Integrity.

"I've scann'd the actions of his daily life
With all the industrious malice of a foe,
And nothing meets mine eyes but deeds of honor."

We sometimes hear complaints on the part of the high-minded and honorable, in relation to the apparent success of villainy. They cannot understand how it is that in the natural course of things, and with an all-wise Providence overseeing and superintending, merit is so frequently found to languish in obscurity; to experience misfortune, and to realize indigence, whilst he bold, the unscrupulous, and the guilty, are permitted to attain wealth, influence and power. They argue that this condition of affairs is calculated to discourage, and in fact, to constitute a premium for vice and crime. But this is a short-sighted view. Only a portion of the drama of life is realized. The sequel is yet to take place. The ways of Providence are often mysterious, and to the finite mind and eye, incomprehensible. Guilt may prosper to-day; trick, guile, and fraud may acquire position and power, yet these will prove but temporary. The future is yet to be revealed. However, therefore, tempting and dazzling the apparent success of crime—however some skilful, polished, and plausible trickster may contrive to defraud and victimize his friends and neighbors, a day of reckoning will come at last, when the responsibility will be of a truly terrible character. The history of mankind is full of illustrations. They may be found in every walk of life. Crime carries with it its own penalty. It is impossible, even for the most hardened, to stifle the still, small voice of conscience—to make the memory oblivious, or to deaden the mind and the heart to recollections and reflections upon the past. Integrity is, after all, one of the highest and noblest of virtues. It is godlike in its nature and its attributes. It purifies, it elevates, and it adorns. Misfortune may come, friends may forsake, storms may burst, but if a consciousness is felt within that duty and principle have been adhered to at all times, and on all occasions, an inward sense of satisfaction, of courage, and of hope will be felt, which nothing in this world can take away. The man of integrity is true, not only to himself and his conscience, but he is equally so to his friends, his neighbors, his associates, and all with whom he may hold converse or have dealings. Such a man, moreover, can never be wholly depressed or overwhelmed. His character is priceless, and it will win for him respect, even amidst the keenest ill of poverty, and confidence even from those who have wronged him. What can be more valuable in an extensive establishment, where there are many trusts of importance, matters of confidence, and cases of privacy, than a man of strict integrity—one who can be relied upon under all circumstances, and in whose soul the element of truth, honesty and honor are so admirably interblended, as to form a deathless union. The quality of

unswerving integrity is the more to be prized and appreciated, because all are surrounded by temptations. All, moreover, are weak, fallible, and to some extent, selfish. When, therefore, amidst the various chances and changes that take place in commercial and monetary life, when in storm and in sunshine, in poverty as in prosperity, we observe an individual still maintaining, upholding, and preserving his integrity, willing to perish rather than resort to a dishonest act, we may still imagine and contend that a sympathy exists between the mortal and the immortal, and that the divinity, so to speak, lives and breathes within the heart of man. It sometimes happens that in the excitement of the battle of life, in struggling forward amidst the shoals and quicksands of adversity, every thing like hope sinks within us, and in the subtle fiend of temptation whispers and persuades to some acts of treachery and dishonor. A mocking story is told, a false future is painted, and a single act is described as calculated to resuscitate for the time, and to outspread a glorious prospect. But alas! that act may be one of turpitude or crime. It is then that integrity exercises all its moral force, that "the better nature" rises above the inferior, that the temptation is resisted and the triumph achieved. But for this principle, a momentary change would have been realized; and then regret, remorse and sorrow, and shame, would have followed and with fearful rapidity. The poor wretch who deceives himself with the delusion, that dishonesty is the policy, even for this world, that he can utter falsehoods, commit frauds, indulge in hypocrisy, iterate slander, and all with impunity, commits a fearful, nay, a terrible mistake. Sooner or later the retribution will come. It may be postponed for a month, for a year, or for ten years, but then, even when least expected, then, when all looks bright and beautiful—then, when the wronged have been forgotten, or have passed to their last long sleep of death, some incident will occur, some development will take place, and the avenger will strike with all his strength. This may be regarded as certain in the great multitude of cases. It is not for man to follow them up to their close, but they cannot escape the All-seeing Eye—they cannot avoid the Ever-present Hand. In every sense, therefore, integrity is the true policy. It is the policy to live by and to die by. That noble virtue—that lofty quality preserved amidst every evil and every change, and man will in some degree assimilate to God, hope for and aspire to a blissful, a beatific, and an eternal destiny.

The Imperial Stables of France.

The Ayer Observer, in giving an account of the French Imperial Master of Horse, thus describes the Imperial stables and their concomitants:

At the royal stables may be seen no fewer than 350 horses of the finest breeds, including the Emperor's favorite charger, Philip, a splendid dark brown animal, of the most perfect symmetry, to which the Parisians attribute qualities more than equine. They tell that before the emperor was called to the thorne, he was one day riding his horse at a review, and on passing the royal flag, which is wont in France to be lowered by way of saluting members of the regent family, the creature stopped, as if entitled to receive the usual demonstration of respect, as if conscious that it bore on its back the future sovereign of France! There are 275 carriages including the state carriages —the latter of which are very gorgeous; one of them which our Queen rode in on the last occasion, should it happen to be used on a wet day, would cost nearly £1,000 to regild it.

There are three of these at the stables at the Tuilleries, and three at Versailles. There may also be seen at the Paris stables, the saddles presented by the Pasha of Egypt to the Emperor and Empress valued at $10,000. The Empress has used her's only on one occasion. There are 260 men employed in the stables all the year round, whose wages alone cost £60,000, apart altogether from the current horse flesh expenses. The stalls of the horses are all arranged in compartments, the stall of the highest horse in each occupying the centre of the compartment, the others ranging in the order of their height on either side, giving the whole the appearance of a series of mathematical diagrams pleasant to look at for their regularity. The royal carriages are arranged in a similar way. The cap and sword of the late Napoleon, and a portion of his uniform, are carefully preserved and shown at the stables.

Strive to recommend religion by the courtesy, civility, and corresponding character of your conduct.

AN ESSAY

ON

Horizontal Plowing & Hill-Side Ditching.

BY

NICHOLAS T. SORSBY, M.D., *of Alabama.*

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The author of this interesting Essay, (who retains the copy-right in his possession,) has kindly permitted us to transfer it to our columns, from the Transactions of the North Carolina State Agricultural Society.

A premium of $50, was awarded by the Society for this Essay.

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PREFACE.

This Essay was written in compliance with the demands of the North Carolina State Agricultural Society.

The writer having felt the need of such information, in days past, feels he would be uncharitable and ungrateful to withhold, and not impart his knowledge on the subject, to his brother farmers.

He has endeavored to serve them in a feeble manner, in a matter deeply concerning their pecuniary welfare, and tried to arrange the subject in a systematic form, and explain the different methods of the horizontal culture, so that the humblest mind can understand and appreciate them.

Each article is separate and distinct from the others, and yet all are connected together by the general bearing of the subject.

Should this small effort in behalf of the soil of North Carolina, meet with the approbation and requisitions of the members of the Agricultural Society, and receive the careful perusal, study, and application of its principles to the soil, by the farmers and planters of the State, the writer shall feel that his labor is not lost and his talent not buried in oblivion.

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INTRODUCTION.

It has been but a few years since the subject of this Essay was brought to the notice of the American farmer.

It now occupies an important and prominent position among the scientific operations of the Southern Farm.

It may be considered as a new branch of agricultural science, founded upon correct and well established principles of the sciences of Engineering and Hydraulics; and essential to the welfare of the farmer, to the preservation of the soil, and to good husbandry.

Forced, almost by necessity, and the strong sense of self-interest and foresight, a few intelligent minds have been brought to discover the urgent need of reforming the old destructive system of plowing in straight rows up and down hills, and of substituting the better mode of horizontal culture.

The absurdity of the old method is really a subject of astonishment and mortification, to those who practice the new methods. The arable lands of the South have been nearly exhausted by it and a careless and wasteful culture.

The beauty and simplicity of the principles and practice, as well as the advantages of the new methods, can only be realized and brought home to the farmer and planter, by observation, study and practice, and when once understood, they will wonder at their past folly of land-killing, and grieve to know they practiced it so long, when a different and better system is so easily learned and pursued.

When we reflect upon the disasters to the soil, occasioned by the pursuit of the old method, and see the apparent apathy to, and indifference with which the more perfect and better system is viewed by some intelligent farmers and planters, at the present enlightened era and golden age of agricultural science, we feel alarmed for them, for their lands, and the succeeding generations.

What a poor inheritance to hand down to an industrious son, an old dilapidated homestead, with an old worn out, galled and gullied farm! Think of it, farmers and planters!

The very sight of decay all around, excites in the mind of the young man, disgust, despair, a disposition to abandon the old place, once so dear to him, and the family, now so much abused, and seek a newer and better place, richer land, among strangers. He has no desire to cultivate the worn out old-fields, and perhaps there is no new land to clear. The old method of plowing up and down hill, has much to answer for; it has driven many a young man to the South-west, and perhaps, eventually, to prison, or the gallows, who might have been a useful citizen, could he have remained at home, and made a living.

Whilst the *horizontal culture* and the *ridge* and *furrow system* are attracting the attention, and being adopted by the intelli-

gent planters and farmers, its principles must be studied scientifically and practically, and new discoveries in the art applied, tested, and settled in the minds of men, or else there will be no end to the diversity of opinions that may arise, and lead to discussions that may retard the advancement of the new science.

It would require much time and space to elucidate the different methods of the horizontal culture, as fully as some men may desire, perhaps.

We have endeavored to simplyfy it, and should some of our readers not comprehend it perfectly, all that we can say to them is, study the principles laid down here, and then take the *level* and follow the plumb, and it will lead them over more tortuous and obscure lines than we have penned here, and a few horizontal rows run with patience and care, will teach them more about it than was ever dreamed of in our philosophy.

Our aim has been, in writing this Essay, to collect together our ideas on this subject, to compare them with others, and deduce from them correct principles, and upon these principles establish with fidelity, practical rules, and thus accomplish by a general survey of the subject, and a brief enumeration of the details founded upon our own experience and observation, all that we think the State Agricultural Society of North Carolina requires of the writer.

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HISTORY OF HORIZONTAL CULTURE.

We regret to state that we have not been able by a careful research of all the Agricultural works that we have been able to examine, in the English and French languages, to find the origin of this system of culture.

Mr. Thomas Jefferson, who was a close observer of improvements in Agriculture, in a letter dated "Monticello, 6th March, 1816," says, "My son-in-law, Colonel Thomas M. Randolph, is, perhaps, the best farmer in the State; and by the introduction of the Horrizontal method of Plowing, instead of straight furrows, has really saved this hilly country. It was running off in the valleys with every rain, but by this process we scarcely lose an ounce of soil.

"A rafter level traces a horizontal line around the curve of the hill or valley, at distances of thirty or forty yards, which is followed by the plow; and by these guide lines the plowman finishes the interval by his eyes, throwing the earth into beds of six feet wide, with large water furrows between them. When more rain falls than can be instantly absorbed, the horizontal furrows retain the surplus until it is all soaked up, scarcely a drop ever reaching the valley below.

"Mr. Randolph has contrived also, for our steepest hill-side, a simple plan which throws the furrows always down hill. It is made with two wings welded to the same bar, with their planes at a right angle to each other. The point and the heel of the bar are formed into pivots, and the bar becomes an axis, by turning which, either wing may be laid on the ground, and the other then standing vertically, acts as a mould-board. The right angle between them, however, is filled with a sloping piece of wood, leaving only a cutting margin of each wing naked, and aiding in the office of raising the sod gradually, while the declevity of the hill facilitates its falling over. The change of the position of the share at the end of each furrow is effected in a moment by withdrawing and replacing a pin."

It seems Colonel Randolph introduced this method of plowing into Virginia, previous to 1816, as Mr. Jefferson states, he was acquainted with it two or three years previous to writing this letter.

This is the earliest notice that we have seen of the use of the horizontal culture, as practiced in the South at the present day. It would be gratifying to know from whence he introduced it, and where it originated.

In "Taylor's Arator," published in Virginia the beginning of this century, on the subject of plowing hilly lands, it is stated "that such lands will admit of narrow ridges, as well as level, by a degree of skill and attention so easily attainable, that is has existed in Scotland above a century past under a state of agriculture otherwise execrable, and among the ignorant Highlanders. It is effected by carrying the ridges horizontally in such inflections as the hilliness of the ground may require, curved or zigzag, preserving the breadth. The preservation of the soil is hardly more valuable than that of the rain water in the successive reservoirs thus produced to refresh the thirsty hill-sides, instead of its reaching to and poisoning the valleys."

It is very strange, if this system was pur-

sued in Scotland so very long ago, that there is no mention made of it in English works.

During an extensive tour, and residence of over three years in Europe, from Great Britain to Naples, Italy, through Holland, Belgium, France, Switzerland, and parts of Germany, we never saw, heard or read of its being pursued in any of those countries, as it is done here, and we cannot conceive how it could have ever been practiced in Scotland and not kept up now-a-days.

In our travels throughout the United States, we have seen it pursued from Mississippi to North Carolina. We have been to Monticello, several times, when a student at the University of Virginia, and though remarking the productiveness of the soil there, and around Charlottesville, we were too young to notice the mode of culture, but we are sure we never saw a rafter-level or any other level applied to lands in Virginia. Had we seen it, we should have noticed it, because we had followed it before we went there to school, in 1836.

In "Thair's Principles of Agriculture," a standard German work, in speaking of plowing ridges, he says, "the most advantageous disposition of them that can be made on an inclined surface, is to give them a horizontal or standing direction;" but he says nothing more on the subject. Had he been acquainted with the method as pursued in the South, he would have written considerably on it.

We are inclined to believe the horizontal system of plowing is of Southern invention. We are astonished at the fact, since the Southern planters and farmers have the reputation of being such careless and wasteful cultivators of the soil.

We consider it the most important discovery of the modern agricultural era. So important is it to the South, and to the soil in every part of the world where it rains like it does here, that the discoverer of the method deserves the lasting gratitude of the Southern people, and a place upon the tablet of memory next to that of the father of our country.

Hill-side ditching and guard-drains, were discovered subsequent to the origin or introduction of the horizontal system into Virginia. They were first introduced into that State soon after the introduction of the horizontal method, about 1815 or 1816; by whom, we do not know.

The first written notice of the horizontal culture and hill-side ditching that we ever saw, was in the pages of the "Southern Cultivator." Major E. D. W., our stepfather, first introduced the method of Horizoltal Plowing on the level system into this county, in the spring of 1834. He had read a notice of it in some paper, which induced him to try it on some hilly land at the Dial Place.

He used the rafter-level and plummet-line, and ran off rows to be plowed four feet apart into beds for corn and cotton. I was a boy then, and carried the hoe and made the chop marks for him. He was so well pleased with the results of it, and with his experiment, that he has continued it ever since with great success on two plantations. He has a thousand or more acres under the plumb. He has tested it thoroughly, and has preserved the fertility, retained the soil, and improved his lands, aided by a proper application of manures, under a severe course of cropping. Without this system, all the manure he could make would not preserve half of the land in its present state of fertility for five years. He would as soon abandon planting as to abandon the horizontal system of culture.

We have assisted him in the work a good deal, and induced him to try guard-drains and hill-side ditches about 1851 or 1852, in order to lighten his labor and lessen his care and attention to it, as he is getting old and the confinement to the field and exposure to the cold during the winter and spring are injurious to his health. But, he says, he could dispense with the drains and ditches if he could attend to the plowing in person every spring, and direct the work and correct the errors of the previous year's work.

An old negro horizontaler lays off the rows, and attends to one plantation where there are between six and seven hundred acres under the plumb; and manages it astonishingly well for a man of his understanding.

His lands were originally of a good quality, and are of a mixed character. On one plantation, the grey and mulatto sandy land prevails, the subsoil being yellow and red clay a foot, and eighteen inches originally, in parts of it, beneath the surface soil. The balance of the land is a chocolate loam on a red clay subsoil. Some of it is considered stiff red clay land. On the other plantation, the chocolate loam prevails with

a close, stiff red clay subsoil, requiring a long and sharp-pointed plow to penetrate it when moderately dry. The rest of the land on this plantation, is grey and gravelly sandy soil, loose and porous. Most of the land on both places, is gently undulating ridges. Some of it is hilly, and some knolls. The stiff red clay land is the most difficult and expensive to cultivate, and is the best land for grain. It is also the most difficult of his land to manage on the level method of culture.

I took my first lessons under him in the science, and owe him a debt of gratitude which can never be paid. He taught me the level culture, and I taught him the grading method. I commenced planting in 1844, in Hinds county, Mississippi, near Jackson, in copartnership with a brother. The *level culture* No. 1, and the *grading method* No. 1, both combined, without drains and hill-side ditches, had been in use a few years on that plantation. The soil, a close, tenacious, marly clay, of a yellow color, changing into an ashy colored soil, when thoroughly disintegrated and cultivated a year or two. I was partial to the level culture, and he to the grading method. I found out, after a better acquaintance with the land, that the level culture retained the water too long, and made the land too wet for cotton. The grading method drained, but washed the land a good deal. After testing both methods to my satisfaction, I gave into his views rather from an avaricious motive than otherwise, to make better crops, though at a sacrifice of some land that took the streams and disappeared. From one to three inches fall were given to each row, when practicable, and the short inside rows plowed on a level. The land was rolling, and drains between the ridges conveyed the water into ditches and branches. We continued both systems until I left in December, 1850, and moved back to this place. The grading method has been kept up by him. I commenced a mixed system here in 1851, and have practiced both of them to a certain extent.

My land is chocolate and grey sandy land, on a red and yellow clay subsoil. The grey land is of a fine texture, and much of it runs together and bakes. The chocolate land is loose and porous. It is generally a little undulating, some rolling, and some flat basins and ponds. It requires much ditching and surface drainage, and some under-draining. Forest growth, pine, oak, hickory, chestnut and poplar, with a variety of undergrowth.

My experience and observation teaches me, that the *level culture* is the best method ever discovered to prevent arable land, of the majority of soils in the South, from washing by rains, but not the best always to secure good crops. The grading method is the safest as a general rule for the culture of cotton, and can be pursued to great advantage on many soils that could be cultivated well on the level method, when one is willing to lose a little soil to make a better crop, by draining the land. No one system of culture is, then, applicable to all soils; and on large plantations of mixed soils, both the level and grading systems should be applied. He is a fortunate man who understands the different methods well enough to apply them to the best advantage to the different soils, on a large plantation. It requires close application to field study, a good knowledge of the geology of the soil and the agricultural character of the land, with years of experience, to know how to cultivate land to the best advantage to the soil, and to the increased size of the purse.

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SECTION I.

Definition of Horizontal Culture.

Horizontalizing, Circling, and Leveling land are different terms employed by *Agriculturists,* in the *South,* meaning all the same thing; viz: cultivating land in parallel lines run by a leveling instrument to direct and control rain-water with the plow.

SECTION II.

Its Objects.

The objects of the System of horizontal culture are, to irrigate, to drain, and to preserve arable soil, in the simplest and most economical manner.

1st. By collecting, retaining, and distributing rain-water, on the surface of arable land, it effects natural irrigation.

2d. By conveying it away, by artificial channels, it effects drainage.

3d. By a proper system of irrigation and drainage, the soil and food of plants are retained, and the fertility of the land is preserved.

SECTION III.

General Considerations.

Rain-water being a solvent of the food of

plants, and the medium of supplying them with many of their elements, the system of horizontal culture teaches us to control, and diffuse it in the soil, and distribute it in such a manner that the food of plants it contains, may be made available to the utmost degree, in promoting their growth; and, when it exists in excess, to remove it without injuring, or washing away the soil.

Hence, we conclude that a correct system of manuring and improving land, depends greatly upon a proper regulation of water by the horizontal culture.

We perceive, then, that the horizontal culture is a beautiful branch of the science of Agriculture; that it is a mixed art, a combination of irrigation, drainage, and manuring. We cannot, therefore, study it well, appreciate it properly, and practice it successfully, without some knowledge of agricultural engineering, of the geology of the soil, and hydraulics, and the application of them to irrigation and drainage.

We can then realize and appreciate the several advantages and connections of these branches of science with each other, in developing the chemical and physical properties of soils, and in the improvement of the fertility of land. To practice it scientifically, and successfully, we must study and understand the geological formation, and the agricultural character of the soil, and ascertain by observation and experiment what plants grow on it best, and are most profitable to cultivate.

Drill-husbandry, that is, the cultivation of crops in drills, by the ridge and furrow method, is indispensable, and the check and hill-culture are inadmissible except on level lands, as a general rule, by the system of horizontal culture. Of course, the broadcast mode can be employed, as well with one method as with the other. The horizontal culture, by the ridge and furrow method, conflicts with the practice and opinions of many farmers, in the oldest of the Southern States, who advocate the check and hill culture; but an acquaintance with the horizontal culture changes their practice and opinions.

SECTION IV.

The Different Methods of Horizontalizing land

Are divided into two principal systems, viz:

1st. The Level Method of Culture.

2d. The Grading Method of Culture.

The Level Mode, (or Irrigating System,) is divided into two modes, viz:

1st. Horizontalizing with an instrument, on the level culture, without the aid of guard-drains, and hill-side ditches; and,

2d. The level-culture, aided by guard-drains and horizontal ditches.

The Grading Method, or Draining System, is divided into four different modes, viz:

1st. Horizontalizing with an instrument, giving a grade to the rows, without the assistance of guard-drains, and hill-side ditches.

2d. With a grade to the rows, the same as that given to the drains and ditches, accompanied by guard-drains and horizontal ditches.

3d. With a grade given to the rows so as to empty their water into the drains and ditches.

4th. The straight-row method. The rows run up and down hills, and empty into hill-side ditches.

Besides the above methods, there is the old mode of horizontalizing with the eye, without the aid of an instrument, or guard-drains, or hill-side ditches.

SECTION V.

The Different Methods Explained.

The old method of hill-side plowing by running the rows around hill-sides with the plow, directed with the eye, is mere guess work—of course very imperfect, and only an approximation to accuracy.

It is done with the object of retaining the rain-water in some instances, and of removing it in others; in either case, it cannot effect the object in as perfect a manner as the new methods of level and grade work done on correct principles, by the leveling instrument.

When the object is to retain the rain-water, it answers tolerably well in some countries, on porous, poor, sandy soils, where the showers are not frequent and are light, and where the leguminous crops are cultivated mostly on high beds and lands, as a substitute for artificial irrigation, and where the spade and hoe are used, generally, for the purpose of forming the ridges.

When adopted to drain hill-sides by the plow, unless the soil is not disposed to wash, it is very liable to do more injury to the land by washing it away than benefit by removing the water.

It should not by any means be resorted to now, since we can substitute better methods for it. It is the first step towards the horizontal culture from the straight-row method; and was, perhaps, invented for the purpose of retaining instead of removing water.

1. *Level Culture or Irrigating System.*—By this method the rows are laid off with a leveling instrument on a perfect level, and the land cultivated without the aid of guard-drains, or hill-side ditches.

Here, science steps in to correct the imperfections of the eye.

It is impossible to lay off a level row by the eye. The most skilful horizontalizer cannot judge with accuracy the degree of inclination of lands, and discover all the inequalities of surface well enough to horizontalize land on a level by the eye. But, with a *rafter-level* properly made and adjusted, it can be done, on an even or uneven surface with perfect accuracy, on a dead level: and if the land be properly plowed the rows will hold all the water that falls on them.

It is the best and only system ever invented to prevent comparatively level, and gently undulating lands, from washing.

It is intended to retain all the water that falls on land just where it falls: this is natural irrigation. We all know the value of water for the nourishment of animals and plants. They cannot live without it. Crops often fail for want of it. By this method none is wasted. Enough water is absorbed during winter and spring rains by land cultivated on this system, to almost make some crops, especially when aided by light summer showers, that would fail to do so, cultivated by the grading method. This method is most applicable to all poor, thirsty, porous sandy soils, whether they rest on clay or sandy subsoils; and to many varieties of clay soils not too compact and retentive of water.

We think we may say with truth, that we never knew, in this country, but one kind of clay soil, on uplands, that this system was not applicable to, on the ground of making it too wet for profitable culture. That is the fine, close, tenacious, marly-clay soil, resting on a retentive yellow clay subsoil, of the black-jack, post-oak, and hickory ridges of Hinds, Madison, Yazoo, Carrol, Holmes, Warren, and other parts of Mississippi.

Besides this kind of soil to which the level culture is objectionable, are the compact red and yellow clay soils of some hilly lands, and the blue and white clays of low-lands.

The red and yellow clay lands may be cultivated by it, if they admit of subsoiling to advantage. It is seldom that the level culture is objectionable for corn and small grains, and the root crops. But when it causes the soil to become too wet during the cultivation of crops, to plow well, and hastens a rapid growth of grass and weeds that destroy the crops, it is an evidence that it should be abandoned, and a grading method substituted for it.

2. *Level Culture with Guard-drains, or Hill-side ditches.*—The rows are plowed on a level, and guard-drains, or hill-side ditches are added, with a slight grade to correct the evil of the excess of water, and remove it, should the ridges break. Some soils, such as close tenacious clays, though plowed deep, may absorb a great deal of water during heavy and repeated rains, until the plowed soil becomes well saturated; the water will then sink until it reaches the impervious strata, not broken by the plow, and move along that strata on steep hill-sides, until it accumulates in such quantities as to break the ridges, and flow downhill, carrying the soil with it.

Again, in clay soils, plowed shallow, a heavy rain succeeding another heavy rain, that had caused the land to run together, to be baked by the sun, and its pores to be closed, may cause the water to accumulate in level rows until the volume and weight of water makes a breach, then some of the ridges give way, and the water is precipitated from row to row till it reaches an outlet.

A mole, a stump, bad plowing, the wheels of a cart or wagon, and other causes may break the ridges, and cause the land to wash. To prevent such a disaster, guard-drains,—hill-side ditches have been invented, to aid and protect the level culture, and to correct the ignorance and errors of the inexperienced horizontalizer, and save his time, labor, and soil. But, in many instances, they encourage careless work, and are sometimes of evil tendency. They should not be relied upon too much; the remedy may prove worse than the disease.

1. *The Grading Method, (or Draining System.)*—The great object of this method is surface drainage, of arable land: hence it is divided into,

1st. Horizontalizing with a grade given to the rows, without the aid of guard-drains and hill-side ditches.

Every row is designed to drain itself, and of course the other drains are unnecessary. It is a kind of self-sustaining system, and a substitute for straight rows. It is beautiful in theory, but difficult to practice, as a general system, on all soils. In some fields, and parts of fields, no grade is necessary, whilst in others different grades are required according to the inclination of land, the physical properties of soils, and the length of rows. The length of rows is very irregular by this method, and short rows emptying into long ones, pouring their water into them, force them to wash into gullies. Hence, it is impossible to prevent the soil from washing by this method. It should be confined, therefore, to close clay soils. This method answers best combined with level culture.

2d. *Horizontalizing with a grade given to the rows* the same as that of guard-drains and hill-side ditches. This method was adopted, doubtless, to correct the evils of the preceding method.

When the drains are well made, they check the flow of water descending down the hills from the broken rows, and thus convey it away and protect the land beneath them. Without their aid much mischief might take place, but if the work by the preceding method be well done, there is no need of the drains to aid it. Imperfect work, then, excuses their employment. But they are indispensable evils to the system they are used to protect, and are much employed.

3. *Horizontalizing with a grade given to the rows* so as to empty their water into guard-drains and hill-side ditches.

This is truly a draining process, employed on clay-uplands, and low-lands, and answers a good purpose when the rows are not too long, and the fall is correct. Of course the drains and ditches require considerable fall, and to be very capacious. It is popular with those planters who have clay soils, and trust much to overseers and negroes, and kind Providence for gentle showers, to make them crops. But overseers make mistakes, plowmen do bad work, and the clouds pour down heavy rains, and the soil, as it were, melts and runs rapidly away. To answer a good purpose, the overseers, plowmen, and drains require strict attention, or the land will be injured by this method.

4. *The Straight row Method, with Hill-side Ditches.*—The ditches in this instance are cut on hill-sides with considerable fall, and the land is plowed on the old straight-row method, the plowman raising his plow over the ditch banks as he passes them. It is evidently a troublesome business to raise the plow over the ditches, and keep them clean. If the soil be sandy, and disposed to wash, the ditches must be deep and large, the fall great, and the plowman careful, which is contrary to negro character, or else every heavy rain will fill up the ditches with sand, break their banks, and cut the land into gullies and galls. However, it has the recommendation of being simple, and better than the old up and down hill method, without the protection of ditches.

Experience will soon teach any one that it is a bad system for hilly lands: for low-lands, it answers a good purpose for quick and effectual drainage, and enables some low-lands to be cultivated that could not be without this kind of drainage.

On the rich low wet lands, and the rolling up-lands, in the prairie or lime lands of Alabama and Mississippi, when too wet, this kind of expeditious drainage is the *sine qua non*,—the proper method to remove the water, and dry the land in time to prepare it for a crop, and to save the cotton from damage by excess of water.

SECTION VI.

Philosophy of the Level Method.

It is true there are deep, sandy, alluvial soils that absorb all the water that falls on them during the heaviest rains; but, again, there are other soils, when cultivated on the straight-row method, that are injured by the irregular distribution of water, one part of the field being drained too much, whilst the land below it is being drowned; thereby, both parts sustaining an injury. The crops on such land grow and mature irregularly as the consequence. The level culture corrects these evils. It retains the water and soil in their proper place, and when the land is cultivated alike, all remains nearer the condition of dryness, and the crops grow off more uniformly on the same quality of land and mature nearer the same time.

Should the land be manured, the elements of the manure remain where deposited, and are not removed by the first

rain to the nearest ditch or branch. It irrigates and preserves the soil, when properly done. It is the best method to employ to aid in restoring exhausted lands.

It is very difficult to lay down any set of rules by which to do the work; because, the physical properties of soils are such, and the inequalities of land vary so much, no one rule or set of rules would apply to any great extent of surface. One part of a field might require the level culture, and another part the grading method. Hence, we are forced to adopt the one or the other, according to circumstances, and to do the work correctly, we must be acquainted with all the different methods.

It matters but little where the work begins or terminates in the field, so the rows are laid off accurately, on a level. The most important rule is to follow the level, let it lead to whatever point it may. It will run at every point of the compass, and form rows of every imaginable form and length, terminating wherever it may. It will lead the new beginner in the art into a maze from which he can scarcely extricate himself, but he should have patience and perseverance, and all will come out right and no land be lost. He must be content to follow the level, but not try and make it follow him, and force it to any particular place or termination. The only way to terminate a row at a certain point, is to start the level at that point: but ten chances to one, in returning, if the next row does not go off at an angle, and terminate at some distance from the first starting point. It is immaterial whether the rows be long, short, straight or crooked, or where they begin and terminate, so they are on a level, and the land be well plowed in rows or ridges. This should ever be borne in mind. The horizontalizer will make mistakes, and be awkward at first, but will learn to do the work correctly.

SECTION VII.

Advantages of the Level Culture.

This system is the best mode of cultivating land ever invented, to prevent the devastating effects of rain-water washing away the soil and the manures put upon it. It enables the soil to absorb more water, and retain it better, and give it back to plants when needed, more effectually and regularly than any other mode, thus preventing the deleterious effects of drought. It makes the soil more uniform in production; improves its fertility by retaining the manures; makes it easier to work, with less labor; causes the crops to grow faster, to be more uniform in growing and maturing; and as the rain-water is evenly distributed on all parts of the field alike, so that when one part can be plowed, all can be done at the same time; saves time in turning around at wet land.

Disadvantages of the Level Method.

It seems in the order of things in this world, there is an evil attached to almost every good. So it is in this instance, but we shall find that the disadvantages are overcome by practice, and are counterbalanced by the advantages.

The disadvantages are, the unavoidable necessity of having so many short rows terminating at any part of the field, forcing the plowman to turn around often, and lose time by so doing:—(this time, however, is made up in the greater number of long rows:)—The injury to the crop, done by the plow, the mule and the hand, in turning around at the end of the short rows: The difficulty at first of doing the work well, and of plowing the rows out without breaking up the work and deranging the rows: The constant care and attention, by the overseer or employer, to maintain and keep up the system. And the necessity of using the ridge and furrow system and abandoning the check and hill culture.

[TO BE CONTINUED.]

Harmless and Sure Cure for Warts.

Take two or three cents worth of sal ammoniac, dissolve it in a gill of soft water, and wet the warts frequently with this solution, when they will disappear in the course of a week or two. I have frequently tried this cure for warts, and it has never failed.

A. P.

[We are inclined to believe in the efficacy of our correspondent's cure for common warts, because we know that alkaline solutions softens them, and gradually eats them away, as it were. We have removed some of these unpleasant skin excrescences with a weak solution of potash applied in the same manner as the sal ammoniac.—EDS.]

Scientific American.

☞ It is a sign of extraordinary merit, when those who most envy it are forced to praise it.

From the British Farmers' Magazine.

Discussion on Drainage.

The following lecture was delivered by Mr. Robert Bond, before the *Halesworth Farmers' Club*, convened on the 24th of September, 1858, for the discussion (by previous appointment) of the subject of Drainage.

The Chairman having introduced the lecturer to the meeting,

Mr. Bond said: *Mr. Chairman and Gentlemen*—It is with pleasure I appear before you for the purpose of introducing the subject of drainage for this evening's discussion; and I presume we meet here to give our own individual experience in preference to quoting the published opinions and statements of the great and antagonistic leaders upon the questions of deep and shallow draining. I shall, therefore, adhere to the accounts of my own doings and my own conclusions, knowing well that your kindly feeling will absolve me from the charge of egotism, to which I do not fear in this case to expose myself. I only desire to see the subject divested of dogmatism, and resolved into sound and safe principles of action, that science and practice may not be disunited. Hitherto drainage discussions have been too much the battle-field of opposing parties, who have aimed rather at the triumph of their own pet dogmas than at a calm philosophical deduction—it has never been the arena of insipid unanimity, and I trust this evening we shall have that friendly dissent which excites discussion and leads to the general experience. We want to advance the subject, if only one step, toward the solution of scientific truth; but it will be as well for us to bear in mind that it has ever worn a cameleon hue, which for a practical demonstrative question can only be accounted for by the fact that diversity of soil and climate admits of correct and equally truthful variations in opinion and in practice. Where physical condition is the same, we can probably square ourselves to one notion, and agree upon depth and distance of drain; but physical differences as to subsoil, climate, and inclination, create practical differences in treatment. We may not attempt to discover a universal panacea for every ill applicable to the entire kingdom; this has been our vain and fruitless aim, but, as in physic, so in drainage, we can have no Holloway's ointment or Morrison's pills for the cure of all hydropical disease. We must vary our treatment according to our patient; but it is for us to pronounce our opinion as to the best system suited to this our own locality. To revert once more to the controversy for universal principles, we have often been interested to observe how fully the fashionable world of agriculture has followed a leader, and propounded the doctrine of deep drains at wide intervals, even in the spirit of a Cochin China mania; whilst the advocates for a shallower system at closer intervals have borne much condemnation whilst adhering to their principles, and they have in reality been somewhat prejudiced against all opposing claims. I mentioned I would confine myself to my own experience, but it is desirable I should inform you what that experience is. I have practised the different methods of drainage at various depths on different characters of soil, and my operations have extended over an area of upwards of one thousand acres of land, and containing in lineal measurement five hundred miles of drain. I have, therefore, necessarily devoted much time and thought to this subject, and it is one in which for years past I have felt considerable interest.

As to the advantages arising from draining, they are so self-evident that I need not enlarge to any extent on this point; let us remember, too, as Suffolk men, that if our forefathers were not the inventors of the art, they at least were amongst the foremost largely to adopt the practice and to appreciate its usefulness. Drainage is undoubtedly the foundation of all improvement, and I know of no greater agricultural revolution by art or nature than the effects of good sound drainage upon wet clay lands. Only let us consider for a moment its effects from our own observation. We can recal to mind the actual state of an undrained, thin-skinned, cold, clay farm. Can anything look more uninviting, or present a more unpromising and unproductive appearance?—It has the very aspect of barrenness; whilst its water-logged, sodden surface, covered and infested with every species of water-loving semi-aquatic weed natural to the soil points out the cause of its condition. Take it in its cultivation; 'tis labour! labour! labour for man and beast, the result unrequited toil, and the effect upon the soil but an exchange in the extremes from homogeneous mud to baked brick earth. And what is the produce but a stunted and scanty yield, with its narrow rows of dwarfed straw and puny

ears. Nor can we wonder at such results, for our cultivated plants require moisture and not saturation, percolation and not stagnation, heat and not cold, aëration of the soil and not suffocation, friability and not compactness, manure and not poison. I have before said that drainage is the foundation of all improvement; without *it*, cultivation and manure are of but little avail; and I have observed upon such undrained farms that master and men, horses and cattle, buildings and fences, usually present the appearance, and apparently imbibe the air, of the surrounding property. I can well understand that a mismanaged impoverished farm produces poverty in the purse, parsimony in the outlay, ill-paid labourers, half-fed stock, and all ditto to match with the "Hungry hills," "Van Diemen's fields," "Upper and Lower Wilderness," which are the appropriate cognomens of such wretched spots of mismanagement and slavery.—Drainage, then, is the main point; it is desirable; it will pay. Why, by that one operation we remove the very poison and preventive of fertility; we remove the curse to our corn crops, and the food of the semi-aquatic weeds; we reduce the amount of necessary labour in cultivation; we produce friability, admit the renovating air, the invigorating rays of the sun, the enriching shower; render the manure applied available, producing so marked a change at harvest that we have an abundant crop of a superior character, arriving much earlier to maturity. Consequently, with the same rent-charge and rates, with diminished horse-labour, and other advantages, we have an infinitely better return; and we are enabled to improve and extend our root culture, by adopting autumnal cultivation, thereby increasing our return in stock, which has usually ruled disproportionately high in price, especially in times of cereal depression. I repeat, I am convinced no investment pays better, whether upon arable or pasture land. The arable becomes, under a sound system of continuously effective drainage, totally changed in character and fertility; double the amount may be produced, while the previously wet pasture is equally benefited, and changes its herbage. Remember in Job it occurs, "Can the rush grow without mire? can the flag grow without water?" Thus the water-grasses—from the lack of food, stagnant water, to sustain them—die out, and are succeeded by clovers and other nutritious grasses. Upon one pasture in Col Bence's possession and occupation, there is an extraordinary instance of change. It was four years since an undrained pasture, presenting that blue poverty-stricken appearance peculiar to wet grass lands. The herbage, if it deserved the name, was a short, thick, broad, rush-shaped, sharp-edged grass, which the stock neither liked nor thrived upon; but now, since drainage, a change has gradually taken place, and it produces an excellent crop of succulent grasses. At the present, I had rather pay a rental of thirty shillings per acre for it than fifteen shillings previously. Since drainage, the surface has been continually covered with the old-sered plants which have died off, and I believe at one time many might have presumed that the pasture was even injured by over-drainage; this would have been a great mistake, and it is certainly improved fifty per cent. Allowing, then, that drainage is desirable, and that it will pay, still the question naturally arises—Which is the most efficient and the most economical method?

I have drained with pipes at the depth of three, four, and five feet, at various distances; I have also drained with whins and bushes; and I have used the mole-plough. With your permission, I will now give you the conclusions at which I have arrived. I am decidedly in favour of tile-draining; but, as it is an expensive operation, and a permanent improvement to the soil, it is essential that a part of the expense be borne by the landlord in connexion with the tenant; and the proportion of the outlay must be governed by the length of lease granted.—I believe as a general rule, where no lease exists, nor an agreement for the payment of unexhausted improvements upon quitting—I believe, if the tenant's outlay is governed by the cost of bush-draining, and the landlord pays the surplus for substituting pipes, it is a safe rule, and mutually advantageous. In such cases, those gentlemen under whom I have the pleasure to act, have adopted the safer course of arranging that their own pipe-layer shall place the pipes in the drain, quite irrespective of the men executing the digging. In every case it is desirable that the men contracting for the draining should have nothing to do with placing the pipe, as it prevents that hurried and imperfect workmanship which has repeatedly brought pipe-drainage into disrepute. What does a man care, who is only interested in executing the

work as quickly as possible? He knows well he can bury the defects; and we have known instances in which the low spade has never been dug, and the pipes, consequently, not placed. Presuming, then, that landlord and tenant have made an equitable and fair arrangement, which is the best, the cheapest, the most efficient, and most judicious system of draining for our neighbourhood? what the depth and distance? which the best direction? what materials to use? the size of the pipe? the cost, duration, and return? Upon our clays, I do not approve of five-feet drains at intervals of forty feet, as depth, I find, does not compensate for the distance apart; the land is not thoroughly drained; the crop is best nearest the drain; and wetness is plainly perceptible in the intermediate space midway between the drains. Five feet, too, into hard, dry, blue, tenacious clay, is no joke; and the expense of the manual labour is very considerable; but, as such drainage is not sufficient, we must discard it as unworthy of our adoption, as ours is not a subsoil of gaults and gravels, where, I believe, such drainage answers well. I have drained at four feet deep, and twenty-seven apart, in stiff, chalky clay. I am satisfied it has answered, but yet not perfectly: the extra depth has not compensated for the additional distance. I would mention a fact in connexion with one field of fifteen acres I drained in this manner. I attempted to dispense with the water-furrows; but it would not do. The field, after a heavy fall of rain, was quite flooded, the furrows standing full; even the sketches themselves were partially under water. The water-furrows were, of course, again resorted to as a necessity.—Upon this same field, the tenant who succeeded me, not being satisfied that the drainage acted quickly enough, cut drains of whin transversely above the pipe-drains; but, to his astonishment, they have never acted, the pipe-drains carrying the entire quantity of water, thus most plainly proving that water enters the drain from the bottom, and not at the top and sides, as many have supposed. It is clear to reason that water gradually rises in the subsoil, with the fall of rain, till it reaches the level of the drain, when it naturally runs off in the aperture to the adjacent outlet. To return: I consider three-feet pipe draining, at sixteen feet apart, the cheapest and most effective. It has always answered my purpose best. The land has been more fully drained: There has been a freedom from wetness, also from too great a dampness, even at the extreme points from the drains; the crop has been even uniform in result; the pipes have been fully protected from injury, either by treading, or by the roots of our cultivated crops; and I pronounce it the most economical and the most efficient system of drainage for this neighbourhood. Three feet has proved efficient depth to prevent the slightest injury from capillary attraction; it has also allowed of ample depths for the roots of plants to work in. And it is singular that, whilst in agriculture some are advocating an extreme depth of subsoil, in which the plant can search for food, as if a mine of immense wealth existed there, often in the culture of fruit-trees, even after deep drainage, the descent of the root is prevented, because adverse to productiveness. I know objections have been raised to the use of pipes, especially on lands with but a slight fall. I have used them where comparatively flat, with perfect safety; but in such cases I prefer the two-inch-diameter pipe, in preference to the inch-and-half; and I strongly recommend the use of the theodolite, or spirit-level, to secure the best fall. I believe it is often impossible to discover the best direction for the drain without an instrument of the kind; and I have often been surprised to find so great an inclination on such an apparently flat surface.

As to the course of the drains generally, if the angle of descent is not too great, I drain with the best natural inclination, much preferring that principle of action to crossing it diagonally. I object that the drain should be in precisely the same direction or parallel with the furrow; consequently if the greatest gradation is in the line in which the field is generally ploughed, I afterwards alter the direction of the ploughing as I find desirable. I observe we frequently neglect to clear the eyes of our drains, and to scour the water-courses, as necessary. I believe it desirable we should not only carefully attend to these essential points, but it is also requisite that we frequently send round, at suitable times, to examine each outlet, that we may assure ourselves the drains work freely.

I am of opinion that the pipe drains will last for a vast number of years, probably fifty, or even for a much longer period.—Thus durability is one of the great advantages which pipes have over bushes, whins,

or straw bands; where I have used such perishable substances as the latter, the drainage has been renewed after eight or twelve years. Further, whilst the pipes remain effective and the land yearly improves, the bush drains gradually fall in; even after four years they become impaired, and gradually get worse, until renewed; consequently during the latter part of the term the land has the disadvantage of partial and imperfect drainage. Again, rats and rabbits are great destroyers of bush drains; and I have one one field now, in which this description of drain is literally overrun with rats. The difference in cost between bushes and pipes I have found to be about £2 5s. per acre—£4 10s. for the pipe drainage, and £2 5s. for the bush drainage; consequently the tenant at will, or with a short lease, or of uncertain tenure, without a covenant for the allowance of unexhausted improvement, or without any direct assistance from his landlord in the draining, adheres to the bush system, which answers his purpose; nor would a heavier outlay be prudent under the circumstances. I have chiefly used the mole plough upon comparatively wet pastures, and in every case it has answered well at the small cost of 20s. per acre; and the drains have lasted eight years.

As to returns generally, I have found that drainage repays the outlay, according to the amount of the first cost, in two, three, or four years; and sorry indeed should I be, to farm wet clay land without such a system of thorough drainage. The advantage of drainage to the country at large is immense, and the benefit might be vastly increased by enlightened covenants between landlord and tenant. We want to ensure a larger extent of drainage, and of better quality. If a proprietor of clay land, I should certainly make the drainage with pipe a matter of arrangement upon letting an occupation, and I know in the course of years I should be greatly a gainer by the combined investment.

I would here remark that I am in no way opposed to deep drainage; I have found it to answer in West Suffolk upon springy land, upon gaults and gravels; but upon clays I am especially opposed to the expense, because depth does not compensate for distance.

In executing the work, I plough out the drain to one foot in depth, and the drainers draw two spades of one foot each—three feet. The items are:

Eight score rods of digging at 4s. 6d.	£1 1
2,500 pipes at 18s. - - -	2
Expense of cartage, laying pipe, also drawing drains, - - -	0
	£4 1

To recapitulate: We have considered th poverty and infertility of undrained lands we have shown that drainage is the founda tion of all improvement, the precursor c many advantages, ensuring a better retur in grain and grass, allowing of improved an extended root culture, and of an increase profit from stock farming. I have recom mended three-feet pipe drains at sixteen-fee intervals as the cheapest and most efficien system for this neighbourhood, the expens to be shared by the landlord, the pipe to b laid by a trustworthy person, the direction of the drains to a certain angle to be wit the fall, larger pipes to be used on flat land the theodolite or spirit level also to be used water-furrows to be retained, that the wate enters the pipe at the bottom of the drain the drains and furrows not to be parallel the superiority of pipes over bushes; the cost and probable durability of each system the great advantage which has accrued t the country from drainage, and the need o a better agreement between landlord and tenant to ensure its more extended and more perfect adoption.

From the Southern Agriculturalist.

A Night with the Man who did not take the Papers.

It is a dismal day, truly, and as this cold nor'-easter drives its half-frozen mist into every fold of our outer covering, we are forcibly reminded of the old Scotch Proverb, "That a wind fra the east blaws nae gude for man nor beast."

But we will draw our great coat more snugly about us, and, peering from beneath the visor of a weather-beaten cap, strive to find something more cheerful to think about than the weather.

We are drawing near a settlement—these old fields grown up in pine and broomsedge, tell us that man has been here in times past. Now we approach fields yet full of dead trees and stumps, disfigured by bald spots and gullies. Wheat has been sown upon them, too—we know it by the stripes of deeper green running up and down the hills far away, as it fell more thickly between the cotton-beds.

The cotton-stalks stand high and low, and at about the right angle to throw a cradle-full of wheat to the wind at harvest time.—On our left is a big clearing—"more fresh land for cotton, to enable us to rest the old land." Rest!! Wheat, pastured by every living thing in the neighborhood—corn, oats, and so on—this is the common *rest*. On our right, upon the highest point of the plantation, looms up a huge log gin-house, and the *uncovered* screw. Why do people always select the highest point for a gin-house? and why are they always so hard run, that they cannot take time to cover a screw?

The piles of cotton-bales are arranged to show well—ten, fifteen, twenty-five, thirty-five and seven—forty-two—pretty good.—These people are taking the cream out of the hills pretty fast.

Hard by, on the hill-side, are rows of low log pens which we take to be stables, from the head of a disconsolate horse now and then sticking out between sundry fence rails, which are jammed into certain apertures, intended, we suppose, for doors. A few colts lean shivering against the wall, amusing themselves by a search after a stray blade of fodder in the gable.

A wagon-body lies upside down in the yard, and the "running gear" stands taking it coolly with its tongue lolling out upon the ground. The yard is perfectly bare—no indications of manure-heaps or littering. At the gate, an interesting fraternity of razor backs stand squealing; poor fellows! this gloomy evening has made you anticipate Sambo's evening hoo-ee! But the odor insinuating our olfactories just now, as well as certain unmistakeable signs by the road-side, warn us that the "c'uppen" is near; here it is on our right, on a bleak knoll, so as to be dry, we reckon. The remains of a few straw-pens, which, having been undermined, are tilted over about the lot, and the poor dumb brutes are scattered about, some trying to pick a palatable morsel out of the mouldy, half-rotten heaps, while others are propping themselves against the worm fence to keep off the wintry blast. It has always seemed to us that a cow must have a very strong imagination, or a great deal of philosophy, to think a worm fence a protection against old Boreas.

But here we are opposite the house—a two-story framed wooden building, 30 by 15, sheds and piazza to match. The front piazza is decorated by sundry strings of red pepper, seed bags, saddles, bridles, blowing horns, and tin pans.

Night is drawing her sable curtains round, and we must take such quarters as we can get. Our host meets us at the door, and ushers us into the "big room," where we find all the members of the family seated around a glowing green wood fire, before whose influence we soon find our humanities begin to flow.

The price of cotton, probability of rise or fall, increased production, horrid condition of the roads, railroad hopes, and enterprises of great pith and moment, were discussed in turn, till supper was announced. As we expected, fried ham and eggs, sausages, corn *light* bread, blue biscuit, cold pies and weak coffee, make the course.

After supper, we return to the blazing fireside. I glanced round the room, with the hope of finding a book or newspaper. Fox's Book of Martyrs, Remarkable Shipwrecks and Disasters, and Gunn's Domestic Medicine, made up the assortment.

"Can you give me a late paper, sir?"

"Well, I don't take any paper now; I took the *Brother Jonathan* a while, but them cussed Yankees got so ripping on abolition, that I quit the whole concern."

Drawing the first number of *The Southern Agriculturalist* out of our pocket, we remarked: "Here's a paper, sir, we picked up where we lodged last night, that promises to be a valuable acquisition to your department."

"What paper is it, sir?"

"*The Southern Agriculturalist*, a paper—"

"All humbug—I don't believe a word in this book farming. I never seed anything in one of them papers but stuff about manuring, ditching o' hill-sides, subsiling, and sich like."

"You don't believe in manuring, then?"

"No, I don't; it'll do very well for gardings, and turnups, and sich as that, but a body that plants a full crap never has time to be dickering about manures—its in the way of everything."

"Don't you believe that one acre well manured and well cultivated, will produce more than two badly managed?"

"Well, it might; but, like the Injun's gun, it'll cost more than it comes to. I can clear a piece of land and pay for it out of the truck made on it before I can bring an old piece back to what it was."

"Granted; but, my dear sir, after you've paid for it, what is it worth? You've worn your's out paying for it, and just the moment your's is gone, mine is good for a bale to the acre."

"Pshaw, stranger! that's all book farming; it looks mighty pretty on paper, but it won't work out the right answer. I tell you it *won't* do; I've got a neighbor who's always at it, and does nothing else; its manure, manure, subsile, subsile, and write for the papers; all stuff, sir; his crib's always empty, stock poor, and everything out o' fix, except his fancy patches—they're great; but there's the Injun's gun again pinting at you."

"Granted, too; but, my dear sir, did that neighbor succeed better before he commenced book farming?—did he ever succeed at anything he went at?"

"Well, I can't say that he ever did."

"That's the misfortune, my friend—whenever you find a humbug among the book farmers, it is trumpeted to the world, but when success crowns one's efforts, its, oh! he's a *practical* man. Nothing is ever said of your practical humbugs. Have you, my dear sir, no neighbors who never read a book, and still make poor crops?"

"Oh, yes; but you see that's owing to bad judgment."

"And it's bad judgment, exactly, that makes a bad book farmer—nothing else; the man who is not able to sift the chaft out of his wheat, we take it, will rarely get a good loaf of bread. In book farming, as in everything else—nothing should be taken for granted—the best of judgment, common sense, should be applied. If you put an inexperienced hand to work with a set of cabinet-maker's tools, the chances are that he will cut himself badly; he must become accustomed to their use, before he can employ safely or profitably; so in farming—a man must, by the exercise of good common sense and observation, learn something of the practice and the nature of what's to be done, before he can safely or profitably apply the learning of books. But there is one thing I know we will agree in, deep plowing, what say you?"

"I don't believe in it—its ruination to land—it turns all the clay up, and makes the ground hold so much water that it's never dry in the winter or wet in the summer. I never could make plowing and reading go together."

"Well, don't you think if you had ditched those hill-sides in your wheat-field ove the way, you would have made more whea and saved your land?"

"I don't; it wastes too much land, thes ditches; I'd as leave have 'em where natur puts 'em as men. This eternal turning an twisting about over a field, a body gets n work done, besides cutting your land all u and ruining the looks of the field in the bar gain."

Beaten at all points, to the evident deligh of the youngsters, who thought the old ma had used us up right, we struck our colors and begged to be put to bed; and after a night's immersion in a spongy feather bed with two little pillows for our companions— about as big as a goose-egg—in a shed-room neither ceiled or plastered, sundry vacant window-lights stuffed with old hats, our olfactories regaled by a compound extract of dried peaches, sole-leather, and ing'uns sets, we dedicate to you, dearly beloved laborers in a good work, the benefit of our musings.

DOBBS.

Chief Aim in Farming.

There are many cultivators of the soil who seem to have no well defined purpose in their husbandry. They have no plans laid far ahead, which they are seeking to realize in their practice. They exist rather than live, are listless in their efforts, and effect no beneficial changes in the soil they attempt to cultivate. Everything about them wears the aspect of decay. The farm buildings are never repaired while it is possible to get along without it. You can see the gaps in the roof, where the winds have blown off the shingles, and the missing boards and swinging clapboards from the sides of the building. The fences are never re-set, no stones are dug from the mowing fields, and no drains are made in the swamps and low lands. They simply contrive to get along, their lands and themselves growing poorer every year.

There is another class, who have purpose and energy enough, but it is not wisely directed. Their aim in farming is to get the most possible out of the soil, and to put the least possible back, in the shape of composts and fertilizers. Their whole farming operations are based upon the theory that the soil is a living well that will always send forth its waters as long as there is anybody to draw. They plant and sow as long as they can get remunerative crops, and

then either sell out, or resort to concentrated fertilizers, which stimulate the soil to part with its last elements of fertility, and leave it nearly barren. They are generally energetic men, work hard, and push their help as hard as they do their acres. They plant a very large breadth of land, and in a few years exhaust a whole farm. They do not believe in plowing in crops, or in making composts, or in saving the stable manures. They cannot see any utility in carting dirt into the barn-yard, and then carting it out again. It looks like a waste of labor. If near the shore, they rely upon fish to stimulate the soil when it fails to produce otherwise, and thus crop after crop of grain and grass is taken off, until the land is exhausted of its carbon, and runs to sorrel. If inland, they rely upon Peruvian Guano, which in a few years serves the soil in the same manner. The theory of these farmers is to get great crops, at whatever expense to the land. This is the skinning method of farming, and the more energy these farmers have the sooner the land is ruined.

Now, we believe the chief aim in all good farming to be the improvement of the soil until it reaches the point where maximum crops are produced at the least expense. Wise husbandry regards the farm simply as a *machine* for turning out crops. The machine is the matter of first importance. This is always to be kept in good running order, and its efficiency is to be increased by all economical methods. The man who farms upon this system will never sacrifice soil for a great crop. His aim is to have every crop taken off, leaving the land in a better condition than he found it. He aims in every working of the soil to increase its depth, and to add to it more elements of fertility than he removes in the crops, and to make the crops not only pay for themselves, but to pay for the improvement of the acres upon which they are grown.

In carrying out this aim, so as to realize these results, a man shows his skill as a cultivator. Ir is a comparatively easy thing for any one, who has money, to improve the soil so that it shall produce crops paying for the labor of growing them, and the interest on two or three hundred dollars an acre. Stable manure enough well plowed in will do this. But it is altogether another matter to make this improvement pay for itself. Yet it is a possible thing to do this, and there are farmers skilful enough to accomplish this result, and this we hold to be the true aim in the cultivation of the soil.

All good farming, then, must look to a permanent occupation of the soil. Economical improvements can not be made in a single year. The most judicious improvements, those which finally pay the largest profits, require several years to bring in their full returns. It is a matter of great importance that our farming population should not only be settled, but that they should feel settled, and plan all their operations upon the farm as if they expected to spend all their days upon it.

Here is a ten acre lot now in mowing, cutting ten tons of hay, worth one hundred dollars. It has in it some stumps, more boulders, some brush by the wall, and a few wet places, growing nothing but sour grasses and flags. It can be cleared of all obstructions, be underdrained, subsoiled and manured, so as to produce three tons of hay to the acre for the sum of say one thousand dollars. It will not pay the present occupant to do this the coming year, if he is going to sell out the year following. But he may accomplish all this economically in five years, furnish profitable employment for his help, introduce the mowing machine, and cut more fodder upon the field than he now cuts upon the whole farm. He may get crops enough from the field during the five years to pay for all the improvements, leaving the increased value of the land, certainly not less than a hundred dollars an acre, as the reward of his skill in husbandry.

This is an illustration of what a farmer's aim should be, and a good example of the kind of improvements that are needed upon most farms, at least upon the seaboard. The fields want to be cleared of rocks, the swales need deep underdrains cut through them, with smaller side drains running into them at right angles; old walls want removing, and the fields enlarging to ten or twenty acres; the whole surface need to be thoroughly worked and manured, so as to produce maximum crops. By this thorough method, horse labor may be substituted for that of man, so as save full half of the present expense of raising and harvesting crops. In smooth land, nearly all the planting and hoeing can be done by a horse; all the mowing, reaping, cradling and raking can be done by the same method.

The man who will lay his plans wisely to improve his soil, making this his chief object, and who will judiciously expend his capital in the improvement we have indicated, is in a fair way to gain a competence. This kind of farming in the long run, will pay amply, and we believe more surely than any other business. The skinning process, which is reckless of the soil, and looks only to the crops, is bad policy both for the farm and its owner. Let it be abandoned.

From the American Stock Journal

Care of Horses.

We may not hope to remove existing evils, simply by calling attention to them, but we can point them out, and leave the work of reform to whom it belongs. Let us confine ourselves, in this brief article, to some of the more prominent features in the care of horses.

Assuming that an animal which has good treatment, will be sound and healthy, while one that does not receive this care will be diseased, we are led to believe that to promote the health and comfort, and to secure the kind treatment of animals under his charge, should be the constant aim of the breeder. It does not necessarily injure a horse to work, or to trot fast, provided he receives good care after performing the labor. The practice is an inhuman one, of driving a horse fast, and then putting him in the stable without a good brushing; or letting him stand where the cold wind or night air comes upon him, without throwing a blanket over him as a protection. This is a simple matter, yet any one who neglects it, has no feeling for the health or comfort of his horse.

Feeding is an item of great importance in the care of horses; but as every breeder has satisfied himself in regard to the best and most proper method, it will be necessary to treat of it at length. Be sure to avoid musty feed of whatever kind, whether hay, straw, corn, or grain. It is dear at any price, and should never be fed to a horse. Give only good, sweet hay; and clean grain. It is an excellent plan to cut hay, and mix it with Indian meal or middlings. Salt the feed once a day, and often as once a week throw in a small handful of wood ashes. Pure water should be provided with regularity. If this course is uniformly pursued, horses will seldom be troubled with any disease, but will be healthy and sound. If those who now feed dry hay without cutting, will try the plan given above, my word for it, it will not only be found cheaper, but your horses will look fifty per cent. better.

Horses should have plenty of room in a stable, and not too much deprived of the liberty of motion. Close confinement after hard work, is apt to abate their circulation too suddenly, make them chilly and stiffen their joints. When horses are kept in stables, as they always are the coldest half, if not the whole of the year, the curry-comb and brush should be used faithfully every day. This treatment, will not only make them look better, but they will be more healthy, and have more courage and activity. It is a bad practice to omit this operation; more especially is it necessary after a hard day's work, when they begin to grow cold from being sweated by labor. Then it should *never* be omitted.

In warm weather, it would be better for the health of the horse if he were allowed his liberty, to roam at pleasure in the pastures, provided a shelter is afforded as a protection, both from the intense heat of the sun, and the damp, chilly atmosphere of night; as well as from cold winds and pelting storms. Horses that are worked every day in summer, should be kept on green fodder in the stable, in preference to grazing in pastures. It is no great burden to tend them; and a large quantity of manure will be saved.

Is there any good breeder who fails to perform these simple acts of kindness to his horse, contributing as they do in so large a degree to promote his health and comfort? Cannot our horses be kept in better order; receive more attention and greater kindness the coming winter, than they have previously? Is not the merciful man "merciful to his beast?"

S. L. B.

Brookdale Farm, Maine.

The Hollow Horn.—"The disease of cattle, known as hollow horn, is causing an annual loss to be estimated by millions of dollars in this State alone. *This disease is spinal, caused by the skin adhering to the bone of the back and preventing circulation,* and may be cured as follows:

"Rub with the hand with as much force and friction as possible the hide of the animal, on the back-bone, from the tail to the horns, thereby restoring circulation."

From the Horticultural and Botanical Magazine.

Sources of Vegetable Matter.

BY DAVID CHRISTY.

The *elements* entering into the composition of vegetable matter, are of two kinds —*organic* and *inorganic*. The former class of elements, comprising by far the larger portion of the bulk of vegetable bodies, consists of those parts which during combustion, disappear in the state of gases, and the latter, of those that remain in the form of ashes. Combustion, therefore, in effect, is merely a separation of the organic from the inorganic elements of the substance which is burned. The same may be said, also, of the process of *digestion*. Vegetables, eaten as food by animals, undergo a process, in digestion, similar in its effects with that which takes place in their combustion: a separation of the organic and inorganic parts being effected, by which the former are converted into flesh and blood, while the latter pass off as excrement.

The process of decay, or *decomposition*, which dead trees and plants undergo, produces the same results as to those of combustion and digestion: it being only a much slower one, and requiring years to accomplish that which, in the other case, is done in an hour or a day.

By careful analysis, chemists have also discovered that the *ashes* of plants, left by burning, do not contain a single *inorganic element* that did not belong to the soils in which they grew; and repeated experiments have demonstrated, that a plant will not come to perfection in soils lacking any one of the elements found in the ashes of the mature plant of the same kind or species, except that one of the *alkalies* is sometimes substituted for another. It is inferred from this, that all the *inorganic* parts of vegetables are derived from the soils: that is to say, all that portion of vegetable matter which remains in the *ashes* after combustion, is taken up from the earth during the period of the growth of vegetables.

An examination will show how fully the chemical constituents of the ashes of vegetables correspond with those of the soils, and these, again, with those of the rocks from which the soils have been derived. Such an investigation will enable the reader to see, very clearly, the relations existing between the *earth* and the *vegetable kingdom*. A comparison of the organic elements of vegetables, with the elements of the atmosphere, will also show that with a single exception, they are all derived from the atmosphere. The relation, then, that the earth and atmosphere bear to the vegetable kingdom, is this: the earth supplies to all vegetables the *inorganic* elements of their growth, while the atmosphere affords to them their *organic* elements.

In proceeding to describe the chemical elements to which reference has been made, the *gases* claim the precedence, as occupying the most important position; and these being disposed of, the remaining part of the chapter will embrace a notice of the *non-metalic* elements, existing as solids at the common temperature.

Oxygen is a permanent gas, when uncombined, and is the most extensively diffused element in nature. It forms more than one-fifth part of the atmosphere, and nearly eight-ninths, by weight, of the water of the globe: enters as a constituent into nearly all the earths and rocks, and, with a few exceptions, into all organic products. *Oxygen gas* is prepared by disengaging it from some substance with which it has entered into combination. By means of the galvanic battery, it may be obtained in large quantities from water, and, by the action of heat, from the oxyd of mercury oxyd of maganese, or chlorate of potash. Oxygen may be made to unite with all the other elements except *fluorine*, and forms what are called *oxyds*, of which the rust of iron is an example. With the same element oxygen often unites in several proportions, forming a series of oxyds, which are distinguished from each other by the different prefixes enumerated in chemical nomenclature. Many of its compounds are *acids*, particularly those which contain more than one equivalent of oxygen to one of the other elements, and compounds of this nature are those which it most readily forms with the *non-metalic* elements: such as *carbonic acid* with carbon, *sulphuric acid* with sulphur, and *phosphoric acid* with phosphorus. But oxygen unites in preference with single equivalents of a large proportion of the *metalic* class of elements, and forms bodies which are called *bases:* such as *potash* with potassium, *soda* with sodium, *lime* with calcium, *magnesia* with magnesium, *protoxyd of iron* with iron, &c. A certain

number of its compounds are neither *acid* nor *alkaline*, and are therefore called *neutral* bodies: such as the *oxyd of hydrogen*, or water, &c. The presence of oxygen is essential to the support of *respiration* in animals, to the *combustion* of vegetable or animal substances, and to the *growth* of plants.

"The combinations of oxygen, like those of all other bodies, are attended with the evolution of *heat*. This result, which is often overlooked in other combinations, in which the proportions of the bodies uniting, and the properties of their compound, receive most attention, assumes an unusual degree of importance in the combinations of oxygen. The economical applications of the light and heat evolved in these combinations, are of the highest consequence and value, oxidation alone, of all chemical actions, is practiced, not for the value of the products which it affords, and, indeed, without reference to them, but for the sake of the identical phenomena attending it. Of the chemical combinations, too, which we habitually witness, those of oxygen are infinitely the most frequent, which arises from its constant presence and interference as a constituent of the atmosphere. Hence, when a body combines with oxygen, it is said to be *burned;* and instead of undergoing oxidation, it is said to suffer *combustion;* and a body which can combine with oxygen and emit heat, is termed *combustible*. Oxygen, in which the body burns, is then said to support combustion, and called a *supporter* of combustion.* But every case of combustion, however familiar to us, is only a process of *oxidation*, in which the oxygen of the air combines with the particles of the burning material. This is as true of the rapid burning of wood as it is of the rusting iron. Both are the results of the combination of oxygen with these substances. But the oxidation of iron proceeds so slowly, that the heat evolved is dissipated as fast as produced, and never accumulates, while the more rapid oxidation of wood evolves heat in abundance. The oxidation of iron, however, can be made to progress with such rapidity as to produce a sensible evolution of heat, by introducing an iron rod, at a red heat, into oxygen gas. But iron is not the only substance that has its power of combination with oxygen increased by an increase of temperature. The affinity which all ordinary combustibles have for oxygen, is greatly promoted by heating them, and is rarely developed at all, except at a high temperature. For this reason, to insure the commencement of combustion, it is commonly necessary that the combustible be heated to a certain point. But the degree of heat necessary to inflame the combustible is, in general, greatly inferior to what is evolved during the progress of the combustion; so that a combustible, once inflamed, maintains itself sufficiently hot to continue burning until it is entirely consumed. Here the difference may be observed between combustion and simple *ignition*. A brick heated in a furnace till it is red hot, and taken out, exhibits ignition, but has no means within itself of sustaining a high temperature, and soon looses the heat which it had acquired in the fire, and, on cooling, is found unchanged. *Combustion* does not take place, as the brick includes no combustible matter to support it.

The oxidable or combustible constituents of wood, coal, oils, tallow, wax, and all ordinary combustibles, are the same, namely *carbon* and *hydrogen*, which, in combining with oxygen, at a high temperature, always produce carbonic acid and water; the volatile bodies which disappear, forming part of the smoky column that rises from the burning body. In combustion, no loss whatever of ponderable matter occurs; nothing is annihilated. The matter formed may always be collected without difficulty, and is found to have exactly the weight of the oxygen and combustible together, which have disappeared.

The discovery that heat is evolved in the combination of chemical elements with each other, serves to explain the principle upon which the consumption of food by animals tends to keep up the heat of their bodies. The degree of heat evolved, depending upon the rapidity with which combustion proceeds, and the rapidity of combustion upon the degree of temperature at which the combustible comes into contact with oxygen, it follows that the heat evolved in the *combustion*, *digestion*, and *decomposition* of vegetable or animal substances, must be very different in degree in these several cases. The evolution of heat during decomposition, with a few excep-

* Graham.

tions, is generally imperceptible to the senses.

Hydrogen.—This gas does not exist, uncombined, in nature; at least, the atmosphere does not contain any appreciable proportion of hydrogen. But it is one of the elements of water, and thus enters into nearly every organic substance. This gas is obtained purely by decomposing water, or some other substance with which hydrogen has combined. The Tables exhibit hydrogen as everywhere present, in all animal and vegetable substances, and in some minerals. It is indispensable to the vegetable and animal kingdoms. It is eminently combustible, and burns when kindled in the air, with a yellow flame of little intensity, which moistens a dry glass jar held over it; the gas combining with the oxygen of the air in burning, and producing water.

Nitrogen, besides constituting a portion of the air, enters into the composition of most animal, and many vegetable substances. This gas is usually procured by allowing a combustible body to combine with the oxygen of a certain quantity of air confined in a vessel, by which process the nitrogen is left free. It is a singularly inert substance, and does not unite directly with any other single element, under the influence of light or of a high temperature, unless, perhaps, with oxygen and carbon. To combine it with another body, requires the adoption of a circuitous method. A burning taper is instantly extinguished in this gas, and an animal soon dies in it, not because the gas is injurious, but from the privation of oxygen which is required in the respiration of animals. Nitrogen appears to be chiefly useful in the atmosphere as a diluent of the oxygen, thereby repressing, to a certain degree, the activity of combustion and other oxidating processes. By reference to the Tables of organic analysis, it will be seen that nitrogen is a constituent of the nutritious articles of food, both animal and vegetable.

Ammonia.—This gas is a compound of hydrogen and nitrogen, in the proportion of *one* atom of nitrogen to *three* of hydrogen. It is produced in the *destructive distillation* of all organic matters containing nitrogen, which has given rise to one of its popular names—the spirits of hartshorn: there being a large per cent. of nitrogen in deer's horns. It is also produced during the *putrefaction* of the same matters, and finds its way into the atmosphere.

Ammonia is a colourless gas, of a strong and pungent odour. It is inflammable in air in a low degree, burning in contact with the flame of a taper. Water is capable of dissolving about five hundred times its volume of ammoniacal gas in the cold, and the solution is always specifically lighter, and has a lower boiling point than pure water. Ammonia, in solution, is decomposed by chlorine. It is distinguished as the *volatile alkali*, as it restores the blue colour of litmus paper reddened by an acid, and exhibits, in other respects the properties of an alkali. Ammonia forms several classes of compounds with acids and salts, and exhibits highly curious reactions with many other substances. It will be seen as we proceed, that it is a highly important agent in agriculture.

Chlorine.—This is one of the simple, gaseous elements, is of a pale-yellowish green colour, has a peculiarly suffocating odour, is capable of being condensed into a limpid liquid of a bright yellow colour, has not been consolidated by freezing, and is easily combined with water. It exists abundantly in sea-water, and combines with sodium to form *common salt*. It destroys all vegetable and animal colouring matters, and hence is invaluable for bleaching linens and muslins. In combination with lime, it acts as a powerful disinfecting agent, in freeing the atmosphere of hospitals, close rooms, and cellars, from impurities generated by the decomposition of vegetable and animal substances. It combines with all the metals, and in the same proportions as oxygen; and, with three or four exceptions, these compounds are soluble and sapid.* It is also absorbed by alkaline solutions. It does not, under any circumstances, unite directly with oxygen, although several compounds of these elements can be formed: nor is it known to combine directly with nitrogen or carbon. It is "the leading member of a well-marked natural family, to which also bromine, iodine, and fluorine belong. Phosphorus, carbon, hydrogen, sulphur, and most of the bodies of this class, have little or no action upon each other, or upon the mass of hydrogenous, carbonaceous, and

* Having a taste.

metalic bodies to which they are exposed in the material world; and these substances being too similar in nature to have much affinity for each other. But the class to which chlorine belongs ranks apart, and, with a mutual indifference for each other, they exhibit an intense affinity for the members of the other great and prevailing class—an affinity so general as to give the chlorine family the character of extraordinary chemical activity, and to preclude the possibility of any member of the class existing in a free and uncombined state in nature. The compounds, again, of the chlorine class, with the exception of those fluorine, are remarkable for solubility, and, consequently, find a place among the saline constituents of sea-water, and are of comparatively rare occurrence in the mineral kingdom; with the single exception of *chloride of sodium*, (common salt,) which, besides being present in large quantities in sea-water, forms extensive beds of *rock salt* in certain geological formations."*

Although chlorine, as has been stated, does not combine directly with oxygen, nitrogen, or carbon, and may be mixed with hydrogen and preserved in the dark without uniting, yet a combination of these two elements is produced, with explosion, by the introduction of spongy platinum, or the electric spark, or by exposure to the direct rays of the sun. Even under the diffuse light of day, combination of these two gases takes place rapidly, but without explosion. Chlorine has such a strong affinity for hydrogen as to decompose most bodies composing that element, and in this process *hydrochloric acid* is always formed. This is the *muriatic acid* of commerce. The affinity of chlorine for most metals is equally great: antimony, arsenic, and several others, showered in powder into this gas, takes fire, and produce a brilliant combustion.

Chlorine, in some of its combinations, exists in all productive soils, and, from its active properties, in producing chemical changes upon nearly all animal, vegetable, and mineral substances, it is a most important agent in agriculture.

CYANOGEN.—This gas, though a compound of carbon and nitrogen, unites with other elements exactly in the same manner as though it were itself an element, and forms an exception to the rule, that simple bodies can only combine with simple, and compound only with compound bodies. It comports towards other bodies in a manner similar to that of chlorine, iodine, and fluorine. With iron it forms *prussian blue*, and with hydrogen the *prussic acid*. Under pressure this gas is condensed into a limpid liquid, which evaporates again on removal of the pressure. Cyanogen is *salt-radical*, and unites with all the metals as chlorine and iodine do, forming a class of *cyanides*. It may be obtained pure from the cyanide of mercury.

FLUORINE.—This substance has not hitherto been isolated, by the utmost skill of the chemist, as its powers of combination are such that no simple body has been found capable of resisting its action. It is found as a component of a few mineral substances only; one of these, *fluor spar*, is very abundant, and is noticed under the head LIME and its compounds.

This closes our notice of the simple gaseous bodies. Those named hereafter are formed by the union of one of these gases with some one of the solid elements.

CARBON is found in great abundance in the mineral kingdom, united with other substances, as in coal, of which it is the basis, and in the acids of carbonates. It is also the most abundant element of the solid parts of both animals and vegetables. It exists in nature, or may be obtained by art, under a variety of appearances, possessed of very different physical properties. It occurs crystalized in the *diamond* and *graphite*, or *black lead*, uncrystalized in *wood charcoal*, *anthracite coal*, &c. Carbon may be said to surpass all other bodies whatever in its affinity for oxygen at a high temperature; and being infusible, easily got rid of by combustion, and forming compounds with oxygen which escape as a gas, this body is more suitable than any other substance to effect the reduction of metalic oxyds: that is, to deprive them of their oxygen, and to produce from them the metal, with the properties which characterize it. When heated to low redness, it burns readily in air or oxygen, forming *carbonic acid* by its union with oxygen. The prominent position which carbon occupies in the composition of vegetable and animal substances, may be seen in the Tables.

* Graham's Elements of Chemistry, p. 329.

Carbonic Acid.—This gas is formed by the union of oxygen and carbon, in the proportion of *one* equivalent of carbon to *two* of oxygen. It is easily prepared from fragments of marble, limestone, or chalk, by pouring upon them sulphuric acid, or muriatic acid It is thrown off from the lungs of all air-breathing animals. It is also a product of vinous fermentation, and is largely produced in the burning of wood or coal. It is discharged from the earth by active volcanoes, and from fissures in their neighbourhood, long after they are extinct. It is evolved in the decomposition of animal and vegetable matter, and accumulates in vaults and wells as the *choke-damp*, occasionally so fatal to those who descend incautiously into such places. Although enormous quantities of carbon are constantly abstracted from the atmosphere in the growth of plants, yet the supplies from the above named sources, and a few others, seem amply sufficient to prevent any sensible diminution of its carbonic acid. It would seem that the decomposition of the vegetation of one period supplies the necessary elements for the productions of the succeeding one, and that thus the amount of carbon in the atmosphere is kept constantly equalized.

Sulphur is distributed very generally throughout the earth by means of its combinations with mineral and metals, which, in their decomposition, supply this element to the soils. It is furnished abundantly from many volcanoes no longer in a state of much activity, where it is collected for the supply of commerce. It is supposed to be the strongest chemical body, next to oxygen, and has, like it, a powerful affinity for all other elements. Sulphur, or its acids, unites with iron, lead, copper, zinc, lithia; with oxygen, hydrogen, nitrogen, carbon, phosphorus, ammonia; with silicon, alumina, potash, soda, lime, magnesia, manganese; with fibrin, gluten, starch, albumen, blood, cartilage, etc. Its other combinations, which are numerous, have little connection with agriculture, and need not be noticed. Sulphur burns readily at a very moderate heat, and is used in connection with phosphorus in the manufacture of friction matches. Possessing such active properties, sulphur is ever ready to perform its offices in the vegetable and animal kingdoms.

Sulphuric Acid, one of its most powerful products, in combination with oxygen, consists of *one* equivalent of sulphur and *three* of oxygen.

Phosphorus is essential to the organization of the higher orders of animals, being found in their fluids, and forming, in combination with lime, the basis of the solid structure of their bones. It is also found in most plants and minerals. Phosphorus, in its properties, is very closely allied to sulphur, but melts, boils, burns, and evaporates far more easily than that element. So readily does the oxygen of the atmosphere act upon it, and produce combustion, that it must be kept, and also cut, under water, especially when the atmosphere is at the temperature of summer heat. It is on this account that it is so valuable in the composition of friction matches, the temperature being sufficiently raised by a very little friction to ignite it. It is soluble in ether, alcohol, sulphuret of carbon, and oils. It is an exceedingly violent poison, and is used to extirpate rats and mice. Phosphorus is susceptible of four different degrees of oxidation—the highest of which is a powerful acid, and the acid character is not absent even in the lowest. Phosphorus, or its acids, has the power of combining with hydrogen, oxygen, nitrogen, chorine, sulphur, ammonia, potash, soda, magnesia, lime, iron, manganese, lithia, and a large range of ether elements, not connected with the growth of vegetation. With such extensive affinities, phosphorus must be an important element in soils. *Phosphoric acid*, which is so often named in the Tables, consists of *one* equivalent of phosphorus and *five* of oxygen.

Silica, Silex, or Quartz, which occurs so abundantly in the inorganic parts of vegetables, is a compound of oxygen and Silicon, in the proportion of about *one* part of the latter to *three* of the former. It constitutes a number of minerals, nearly in a state of purity; such as common quartz, rock crystal, flints, sand-stone, chalcedony, cornelian, agate, opal, common sand, and the water-worn white pebbles, met with almost everywhere. It also enters largely into combination with other substances, to form the rocks of the globe. It exists in two states in soils, *soluble* and *insoluble*. In its soluble state, it is taken up by plants during their growth, and constitutes a part of their mass, entering largely into the composition of the stalks of

reeds and grasses, which have often a thick crust of silica on their bark. It is a very abundant mineral, and is estimated to constitute one-sixth of the crust of the globe.

But it is not in the bark of plants alone, that silica is met with by the chemist. It is diffused generally throughout the structures in which it occurs, says Quekett,* the latest writer on the subject, and in this connection is so intimate and equable, that it forms a complete skeleton of the tissues after the soft vegetable matters have been destroyed; in fact, the part it plays in reference to the organized tissues in which it is deposited, is precisely analogous to that existing between the animal and earthy elements of shell. Silica exists in such great abundance in the cuticle of a plant known as *equisetum hyemale*, or Dutch rush, that on this account the stems are employed by carvers in wood and modelers in clay, as a substitute for sand paper. It is also very abundant in the canes, but is by no means limited to this order of plants. It is contained principally in the cuticle, or outer bark, and in the various structures that are developed from it, such as hairs, spines, etc.; but in some instances layers of cells, lying much deeper than those of the cuticle, also abound in silica; and it may also be met with in woody fibres and in spiral vessels. In the burning of a hay-stack, masses of perfectly formed glass are always to be found among the ashes. This glass is produced by the combination of the silica of the cuticle of the hay with the potash of the woody fibre—glass being a silicate of potash.

In order to display effectually the siliceous matter in plants, it is necessary to expose the tissue under examination, to the flame of the blow-pipe, or, better still, to boil it for some days in nitric acid. By these means the organic portion is entirely destroyed, and the silica, withstanding these destructive agents, remains as a perfect model, or cast of the original tissue. In the husk of a grain of wheat, not only the cells of the cuticle, and layers of cells beneath, but also the fibers of the spiral vessels are silicified. Of all the grasses or grains used as food by man, rice contains the largest proportion of silica. In the husk of the rice, the woody fibres are also coated with silica; and in wheat, oats, and other grains, not only the stalks, but the hairs which stud the surface of their husk, partake largely of the siliceous deposit.

It will now be apparent that a vast amount of *silica* is yearly removed from our soils by the cultivation of the ordinary grains and grasses, and that a supply of this substance may be necessary to many soils, in order to insure good crops.

BORON is an element sparingly diffused in nature, and having some analogy to carbon. It is never found except in combination with oxygen, as BORACIC ACID. It is a constituent of several minerals, but the main supply of borax to commerce is from certain hot lagoons in Tuscany, and likewise from the hot springs of Lipari, and a few other places. It communicates fusibility to many substances in uniting with them, and generally forms a glass. On this account borax is much used as a flux. With the assistance of the vapor of water, it is slightly volatile, but alone it is more fixed, and fuses, under a read heat, into a transparent glass. Boracic acid is remarkable for the variety of proportions in which it unites with the alkalies.

All the foregoing elements are *non-metalic*. A brief review of their peculiar properties will close our remarks upon them.

Oxygen, hydrogen, nitrogen, and carbon, form the chief elements of plants and animals, and are, for this reason, called *organogens*, or generators of organic bodies.

Sulphur and phosphorus, with some of their compounds, are characterized by such great inflammability, that they have been called *pyrogens*, or fire generators.

Chlorine, iodine, bromine, fluorine, and Cyanogen, on account of their power of producing *salts* in combination with the *metals*, have been called *halogens*, or salt producers. Their compounds are called *haloid salts*, which consists of an acid and a base.

Silicon and boron occur in nature only in combination with oxygen, as silica and boracic acid. These substances are oxyds, and form amorphous salts with many bases, such as glass, slag, glazing, etc., and for this reason they have been called *hyalogens*, or glass producers.

Having disposed of the gases and non-metalic elements, the *light metals* may be next considered. They are called light metals, because they are specifically lighter

* London, 1852.

than other metals. These metals, so far as they are connected with agrieulture, may be notieed in the following order:

1. Potassium, sodium, and lithium, the metalic bases of the *alkalies.*

2. Caleium, magnesium, barium, and strontium, the metalie bases of the *alkaline earths.*

3. Aluminum, and several kindred but rare metals, the metalie bases of the *earths.*

All these metals have such a strong affinity for oxygen, that they are usually met with only as oxyds, and it is to their properties in this form, that attention will be directed. The process by which the pure metals are obtained, ean be learned from the eommon ehemical works.

Potash, or Potassa, is an *alkali,* formed from its metalic base, *potassium,* by the chemieal union of oxygen with this metal. This element is eapable of forming several compounds with oxygen, and also enters into ehemical combination, in various proportions, either as potassium or potash, with sulphur, ehlorine, iodine, iron, cyanogen, earbon, hydrogen, nitrogen, siliea, aeetic acid, tartaric acid, oxalic aeid, etc. The extent of its presence in minerals and vegetables, ean be learned from the Tables. Its eapaeity for eombining with so many of the elements existing in soils, and its almost constant presence in plants and trees, render it indispensable to the growth of vegetables.

Soda is an alkali, formed from its metalie base, *sodium,* by the chemieal union of oxygen with this metal. Soda and sodium are eapable of forming eompounds with sulphur, ehlorine, earbon, nitrogen, phosphorus, iodine, siliea, boraeie acid, etc. Like potash, it is of mueh importance in soils, as it enters largely into the composition of certain vegetables. In combination with ehlorine, it forms *common salt,* which is the chloride of sodium, and with sulphur it produees the *glauber salts,* or sulphate of soda. "As potassium is in some degree eharaeteristic of the vegetable kingdom, so sodium is the alkaline metal of the animal kingdom, its salts being found in all animal fluids."—*Graham.*

Lithia, which is an oxyd of *lithium,* is not an abundant element. It exists in small quantities in a few minerals, and is met with in a few vegetables. Lithia and lithium enter into combination with ehlorine, hydrogen, carbon, sulphur, soda, phosphorus, fluorine, etc. It is an *alkali,* like potash and soda.

Lime is an *alkaline earth,* having *calcium* for its base, and is formed by the chemical union of oxygen with that metal. Lime and calcium form chemieal combinations, with earbon, sulphur, ehlorine, phosphorus, nitrogen, hydrogen, fluorie aeid, etc. Uneombined lime, or quick lime, whieh is the pure *oxyd of calcium,* ean be obtained by heating eommon limestone to redness. This roek is a *carbonate of lime,* consisting of 43.71 parts of earbonic acid and 56.29 of lime in 100 parts. Marble, ealeareous spar, ehalk, marl, eoral, the shells of moluscous animals, etc., are all earbonates of lime, more or less pure. In burning any of the marbles or limestones, the heat drives off the carbonie acid and leaves the pure oxyd of ealeium or eommon lime.

Lime, in eombination with sulphur, forms *sulphate of lime,* or *gypsum,* which is composed of sulphuric acid 46.31 parts, lime 32.90 and water 20.79, in 100 parts. Heated to a proper temperature, the water is driven off, and *plaster of Paris* produced. Gypsum possesses highly benefieial properties as a fertilizer of soils. *Phosphate of lime* is eomposed of phosphoric aeid 48.45 parts, and lime 51.55, in 100 parts. This mineral enters largely into the eomposition of the bones of animals. The *fluate of lime,* or *fluor spar,* is composed of fluorine 47.73 parts, and lime 52.27, in 100 parts. This mineral forms a very small portion of the earth of bones, but a somewhat larger proportion of the enamel of teeth. The *chloride of lime* has been notieed under the head of ehlorine. Lime, in its various combinations in soils, performs the most important offiees to vegetation, while at the same time it supplies a portion of the materials of the growth of plants.

Magnesia is an alkaline earth, having *magnesium* for its base, and is formed by the chemical union of oxygen with that metal. Magnesium has the colour and lustre of silver. It is very ductile, and eapable of being beaten into very thin leaves, fuses at a gentle heat, and crystalizes in octahedrons. It undergoes no ehange in dry air or oxygen, but is oxydized superficially by moist air. Magnesium, when heated to redness, burns with great brillianey, forming magnesia, or the oxyd of magnesium.

Magnesia is extensively diffused in the mineral kingdom, forming a large per cent. of the chloritic, talcose, and serpentine rocks, and is also a constituent of hornblende and one variety of mica. Carbonate of magnesia occurs native as a hard, compact mineral, in the proportion of magnesia 48 parts, carbonic acid 49, and water 3, in 100 parts. Magnesia is also extensively diffused in combination with lime, as a rock, called, *dolomite* or *magnesian limestone*, which is composed of carbonate of lime 54.18 parts, and carbonate of lime 45.82 parts, in 100. Magnesia, or its base, combines with silica, boron, carbon, hydrogen, chlorine, sulphur, phosphorus, nitric acid, and ammonia.

Baryta and Strontia are also *alkaline earths*, and have a great similarity to lime in their properties and combinations, but need not be noticed in detail in a work of agricultural chemistry.

Alumina is an oxyd of *aluminum*, formed by the union of *three* parts of oxygen to *two* parts of this metal. It is the only one of the *earths proper* that occurs in abundance. It exists in its pure state, with the exception of a trace of colouring matter in the *sapphire* of which the oriental *ruby* and *topaz* are varieties. *Emery* is nearly pure alumina. All these substances are extremely hard, being, in that respect, second only to the diamond. Like silex, alumina is an abundant ingredient in many minerals and slaty rocks, and is the principal constituent in clays. In combination with sulphuric acid and potash, it forms *alum*, and may be obtained in its metalic state from this salt. Its great capability of absorbing water, renders it of vast importance in soils, as a means of supplying moisture to the roots of vegetables. Its affinity for vegetable and mineral *colouring matters*, and its power of retaining and rendering them insoluble, connected with its equally powerful affinity for *ligneous fibre*, makes alumina indispensable in the arts and in manufactures. It also absorbs carbonic acid and ammonia, and supplies these two elements to vegetables. In combination with silica, it supplies the clays for bricks, porcelain, earthen-ware, stone-ware, etc. Alumina, or its base, enters into combination with hydrogen, chlorine, iodine, bromine, fluorine, nitrogen, sulphur, potash, soda, lithia, magnesia, manganese, iron, selenium, phosphorus, cyanogen, borax, etc.

"Next to silica, alumina occurs most frequently in nature, and, indeed, not only in clay and loam, but also in rocks and minerals; for instance the well known gray-coloured clay-slate, porphyry, etc. Feldspar must be regarded as the most important of the alumina minerals, and is found in greater or less quantity in granite, gneiss, mica, slate, and other rocks. Feldspar, like other stones, is finally disintegrated by the influence of air and water, and by heat and cold; it weathers, as the miners say, or is dissolved, and the silicate of potassa is thereby gradually removed by the water, so that, as the result of this decomposition, clay or loam remains behind. When the farmer lets his plowed land lie *fallow*—that is, remain uncultivated for some time—he by this means accelerates the weathering; soluble salts, potassa, soda, lime and other salts are thereby formed from the constituents of the soil, and to these salts especially, is to be attributed the greater fertility of fallow land over that which has been exhausted by cultivation."—[*Stockhardt.*] The same process of decomposition takes place in the other minerals of the rock composing the earth's crust, and by this means soils are produced.

Glucinum, and the several other metallic bases of the *earths*, closely allied to aluminum, occur so very rarely as not to demand a notice.

This closes what is considered necessary to be said in explanation of the properties of the *light metals*, which constitute the bases of the *alkalies proper*, the *alkaline earths*, and the *earths proper*. A few remarks in relation to each of these classes, however, by way of retrospect, will be useful to the reader.

Of all bodies, the *alkaline metals*, potassium and sodium, have the greatest affinity for oxygen; and their oxyds, potash and soda, are the most powerful *bases*, with which other elements unite to form compounds. Ammonia is also classed with the alkalies. These three alkalies are easily soluble in water, exert a strong caustic action on animal and vegetable substances, and have a great affinity for carbonic acid, which they absorb eagerly from the atmosphere, thereby becoming converted into alkaline carbonates. The carbonic acid in combination with these alkalies, cannot be expelled by heating, but it escapes immediately with effervescence on the addition of other acids. These carbonates are also

easily *soluble* in water, and have a basic reaction. Potash and soda, combined with sand at high temperature, yield melted *glass;* and when dissolved in water and mixed with fat, on being boiled together they yield *soap*. Most of the salts which the alkalies form with acids, are soluble in water, and thus the moisture in soils afford them the opportunity of performing their part in the chemical preparation of the food of the plants.

The metals of the *alkaline earths*, calcium, magnesium, etc., have also such a very strong affinity for oxygen, that the preparation of them is very difficult. The oxyds of these metals, lime, magnesia, etc., though alkaline, are called *alkaline earths*, because they are *sparingly soluble*, while alkalies are *easily soluble*. They are also less caustic than the alkalies, and, like them, eagerly absorb carbonic acid from the air and form *carbonates* which are solid, and *insoluble* in water, while the carbonates of the alkalies are *easily soluble*. The carbonates of the *alkaline earths*, on the other hand, lose their carbonic acid by exposure to a powerful heat, while the *alkalies* do not.

The *earths*, alumini, etc., unlike the *alkalies* and *alkaline earths*, are entirely *insoluble* in water, which they absorb largely like a sponge. But alumina, it has generally been supposed, does not combine chemically with carbonic acid, but only absorbs it freely, as it does water, and retains both as agents to aid in the preparation of the other elements in the soil as food for plants. A part of the carbon of plants is now supposed to be derived from the soil, though their whole supply of this element had long been considered as derived from the atmosphere.

Iron and Manganese.—Of the *heavy metals*, these two only need be noticed, as they alone, of this class, enter into the composition, of the common vegetables cultivated by the farmer.

The extent to which *iron* is appropriated in the growth of animals and vegetables can be seen in the tables. Being always present in quantities larger and smaller, in the rocks, and entering into combination with any of the elements of the soils, the agriculturist need have little fear that his lands may become deficient in this element.

Iron combines with oxygen, carbon, chlorine, sulphur, phosphorous, cyanogen, potash, acetic acid, etc.

Manganese, in some of its forms of combination with oxygen or chlorine, enters sparingly into the composition of minerals and vegetables. It is never found as a metal in nature, but may be produced from its black oxyd by a high heat with charcoal.

On "Big Head."

Clinical Lecture on "Big Head," by George H. Dadd, V. S., Lecturer on Veterinary Science, at the Boston Veterinary School.

Gentlemen—The subject which I now propose to call your attention to, is one of great importance, from the fact that this disease, familiarly known as "*big head*," prevails to an alarming extent in the south-western states, where some of you intend to locate, and very little is known of either its causes or pathology.

As the disease generally originates in and about the osseous tissues of the head, it is highly necessary that we understand the mechanism of bones, hence I shall make a few remarks calculated to enlighten you on this subject.

Bones have many things in common with the soft tissues and organs—for example, arteries, veins, nerves, and connecting cellular web. Their structure in the embryotic state, is vascular, yielding, and gelatinous. They have a fibrous investment externally termed periosteum, which is well supplied with arteries, veins, nerves, and absorbents, and by means of this fibrous tunic, vessels are distributed to the bones and their internal surfaces, and here also we find a fibrous membrane, similar to the one on the external surface, only more delicately organized. A portion of the cavity found in the shaft bones, is occupied by a considerable amount of adipose matter, known as marrow, enclosed in lumintated cells. Bones consist of two constituents—animal basis and calcareous matter; in the healthy adult, the proportions are as follows: animal matter, 33⅓ per cent; calcareous, 66 2-3 ⋈ 100.

Bones which contain certain distinct central cavities, as the antrum of the jaw, for example, are not connected in their centres, by *osseous*, but by cartilagenous unions; so that they expand, fall apart or burst, when the cartilagenous *braces* are decomposed.

The growth of bones, like that of shell, is

effected by the addition of new tissues, to that already formed.

The ultimate constituent of bones are gelatine, animal matter, carbonate and phosphate of lime, fluate of lime, phosphates of soda and magnesia; the solidity of bones, therefore, depends on a due proportion of the same. Should there be a lack of phosphates the bones lose their cohesive firmness, and become soft, this constitutes the disease known as *mollities ossium*. The disease known as *caries* is a pathological condition analagous to ulceration, occurring in the soft parts.

We are now prepared to examine and form an opinion on the character of the disease now under consideration. The specimen of Big Head which I now offer for your examination was forwarded to me by my friend, Dr. Gordon, of Georgetown, Ohio; you will perceive that the walls of both the upper and lower jaw have all undergone dilitation in lateral directions, so that the width of the same is about three times the ordinary size, and on inspecting the interior you will see that the cartilagenous connection or braces, are all decomposed; hence the dilitation.

This dilitation has, no doubt, partly been accomplished by the presence of a large quantity of purulent matter, now in a dried, spongy condition, which has almost as you perceive, burst the bones apart. The bones, as a whole, appear to have lost their cohesive firmness and vitality, and are bordering on a state known as necrosis. I have removed a portion of one of these bones, which has been macerating for the past twelve hours in a weak solution of muriatic acid, and you see that it can now be rolled up like a piece of paper, showing very conclusively that it is deficient in calcareous matter; had it taken several days to abstract the same, the experiment might not have been so satisfactory; the animal matter preponderates, and a knowledge of this fact can be used to great advantage in the treatment of the malady, in its early stage, for it clearly indicates that phosphate of lime must be our chief agent; it should be combined with remedies possessing tonic and stimulating properties; hence I shall recommend the following formula:

Powdered phosphate of lime, 4 ounces.
" golden seed, 1 ounce.
" sassafras bark, 2 ounces.
African ginger, 1 ounce.
Mix. Dose—one ounce daily.

I recommend the *phosphate*, in conjunction with the other agents, because the function of nutrition may be deranged, and the latter agents tend to give tone and energy to the same. It is well known that the maintenance of the functions of animal life are almost entirely dependant on the due performance of the nutritive operations, and therefore the integrity and properties of all the *hard*, as well as soft tissues depend on their regular nutrition by a due supply of perfectly elaborated blood; this cannot be effected unless the functions of circulation, respiration and secretion, be performed with regularity. *Circulation* is necessary to convey a supply of nutritious fluid. *Respiration* and secretion separate the blood from its impurities. Therefore I advise you in all cases of this character to endeavor to improve the general health of the animal by such means as I have suggested, and at the same time see that the animal be fed on that kind of food which is calculated to promote the integrity of the organism; and you should advise the use of that kind of food which is rich in phosphates. It is very difficult to define the causes of a disease of this character. It may originate from a peculiar morbid habit, or idiosyncracy, or it may be the sequence of faulty nutrition. When an animal labors under any morbid habit of body, he is in a state far removed from that of health and various parts of the body become affected by the change, and even, should the power of forming good healthy blood remain, the organic force by which the constituents of blood are transformed into osseous stricture, must necessarily be enfeebled by the morbid habit, so that the power to produce metamorphoses is necessarily diminished. It is my opinion, and you may judge for yourselves, by inspecting the various specimens now before us, that Big Head usually commences in the fibrous tissues which is found in the internal surface of bones; a very peculiar feature of these fibrous tunics is, that when they once become diseased they run rapidly to purulency, and this accounts for the large amount of purulent matter, now in a dry state, which you see occupies the immense cavities between the walls of both upper and lower jaws. A very distinguished French writer contends, that "fibrous tissues hardly ever contribute to the formation of pus," this is evidently an error, for you are aware that, when the periosteum—a fibrous tunic—found within

the alveolus, and reflected on the fang of a tooth, becomes inflamed, it often suppurates, and in consequence, we are often compelled to remove the tooth. I contend that it is the most common tissue that excites the flow of those exudations from arterial capillaries, which become converted into pus; hence we often find collections of pus both above and beneath the fibrous fascia, and aponeurosis of muscles; on and beneath the periosteum, and in the vicinity of fibrous tissues in various other parts of the system.

If in the early stage of *Big Head* you can detect, and even have good reason to believe that the cavity within the jaw-bone is the seat of accumulated pus, I would advise you to cut down upon the jaw and make a pendant opening into the same by means of *bone* forceps or trephine; in this way you liberate the imprisoned morbid matter, and have an opportunity to inject the cavity.—The injection should consist of pyroligneous acid and sanguinar canadensis, in the following proportions:

Pyroligneous acid, - 4 ounces.
Powdered Blood Root, - 1 ounce.

Throw a portion of this mixture into the interior of the jaw once daily, for a short time, by means of a glass syringe; of course it will be necessary, to improve the general health, by the means just alluded to.

"Big Head" has hitherto been named *osteo sarcoma*, and I also have named it so, but I think *ostitis* would be a more applicable term for it; for *ostitis* is a disease of inflammatory type, accompanied by synochoid fever, soon followed by suppuration. Whereas *osteo sarcoma* is a slow caries of bone, involving the soft parts, elevating the skin in the form of a conical tumor, discharge from the same ichorous corroding and fœtid.—Therefore I contend that the term *ostitis* when applied to a disease, such as you now see before you, gives us a better idea of its character than we have hitherto entertained.—*Valley Farmer.*

Curiosities of Commerce.

Turning over the pages of the Cyclopedia of Commerce, just published, a few matters attracted our attention, as curiosities, which we propose to transcribe for our readers. We were looking for the small things in commerce, matters that, in taking a magnificent, broad, and comprehensive view would be overlooked—just as the invention of the greatest importance for domestic purposes would be overlooked and unnoticed in its homely attire, when placed on exhibiton, and surrounded by works of polished art, costly machinery, and gorgeous furniture. An humble inventor once placed in such an exhibition, a few bunches of friction matches. They were unnoticed. Vistors went there, looking for some great thing, not realizing, that the despised package of splints, tipped with chemical fire, was the greatest thing in that proud collection, destined to work a revolution in the means of procuring artificial light, and to become a universal necessity, to be deprived of which would become one of the greatest inconveniences that could happen.

It is not more than twenty years ago, since the tinder-box was in universal use. It is abolished now. The invention of the friction match spread slowly, but who, at this day, would venture to say that they could do without it? Insignificant as they appear to be, single factories, with expensive machinery, cut up large rafts of timber, annually, for matches.

Under the head of *Pin*, we find that the manufacture of this indispensable little instrument was commenced in the United States, between 1812 and 1820, since which time the business has extended greatly, and several patents for the manufacture of pins have been taken out. The manufacture in England and other parts of Europe is conducted upon improvements made in the United States. Notwithstanding the extent of our own productions, the United States, imported, in 1856, pins to the value of $40,255.

Still keeping our attention directed to small things, we find that the import of needles into this country, for 1856, amounted to $246,000. It is said that needles were first made in England, in the time of the Bloody Mary, by a *negro*, from Spain; but, as he would not impart his secret, it was lost at his death, and not recovered again till 1566, in the reign of Queen Elizabeth, when a German taught the art to the English, who have since brought it to the greatest perfection. It is stated that the construction of a needle requires about 120 operations, but they are rapidly and uninterruptedly successive.

The temperance people will find an argument to enforce their doctrines in the fact that 41,071,636, bushels of grain, paying $25,000,000 duty are annually converted

into malt in Great Britain, for Ale and Porter. It may reasonably be inferred that a great quantity of those beverages is drank there.

Ground nuts are quite an institution with Young America, 800 tons having been imported into the United States from Gambia, in one year. We, however, dissent from the encyclopedist, when he says that they are most used here as dessert, roasted as chestnuts are elsewhere. But France is the greatest market for ground nuts, where they are used for oil, of which they contain large quantities. The insignificant hazlenut, so agreeable to the palate, but so difficult to get is imported from Tarragona, to the extent of 25,000 or 30,000 bags of four to the ton. A kind of chocolate is prepared from them, and they sometimes have been made into bread. The pressed oil of hazlenuts is little inferior to that of almonds.

The original inventor of the Ayrshire snuff-boxes was a cripple, hardly possessing the power of locomotion. They are made of wood, admirably joined, painted and varnished, and were first manufactured only sixty years since. Instead of taking out a patent, the inventor entrusted his secret to a joiner in the village, who, in a few years, amassed a great fortune, while the other died as he had lived, in the greatest poverty. Speaking of snuff-boxes, snuff taking took its rise in England, in 1702.

Under the head of *Hair*, the Cyclopedia says that 200,000 pounds weight of women's hair is annually sold in France, and that the price paid for it is usually six cents an ounce.

One hundred thousand roses are required to give a yield of 188 *grains* of otto or oil of roses.

There are, doubtless, in this compendious work, many curious, inteersting, and instructive facts, if one had the time to find them out. And now, as we are closing, we notice quite a number of items, such as that a bale of Sea Island cotton weighs 333 pounds, and measures 35 cubic feet, while a bale of East India cotton weighs 383 pounds, and only measures 15 cubic feet, a fact of great importance in the question of transportation. What makes this great difference in cubic proportions?—*Phil. Ledger.*

See well to the stock at this season of the year. Feed them well till the grass is high enough to afford them a good bite.

Rearing Calves.

A correspondent of the *Country Gentleman* says:

My calves are taken from the cow when they are two days old, and taught to drink, which they will generally do after being fed a few times. I teach them to drink by putting two of my fingers in their mouths, and then putting their mouths in the milk, which is in a pail held by the other hand; in sucking the fingers, they will suck up the milk—by gradually withdrawing the fingers from their mouths, they will soon learn to drink without any further trouble.

I give them four quarts of milk night and morning, and continue to feed them in this way as long as they are fed, providing I have milk enough for them, and they will bear that quantity; sometimes that amount of skim milk, especially if it is sour, will make them scour; if it does, I reduce the quantity until they will bear it. They are fed with new milk till they are four weeks old, when one-half sweet skim milk is substituted, on which they are fed about two weeks longer, when they are fed wholly on skim milk. When I commence giving them skim milk, I commence feeding them meal—putting a little in their milk every time they are fed, and increase the quantity of meal as the proportion of skim milk is increased, until they are fed on all skim milk, when I put a single handful of meal into each mess of milk that is given to them.—If they will not bear so much meal give them less. I prefer barley meal to feed them with while they are young, though rye, or rye and oats, make good feed; oatmeal, if bolted, I think as good as any, but if not bolted, the hulls trouble them about drinking. Corn meal is liable to make them scour, if fed to them without being cooked. The milk is warmed for them in cold weather, or until summer; after that it is fed cold. After this time they are fed on sour milk, and generally that which is thick—while making cheese, whey is fed instead of milk, letting it stand till it is sour, or else scalding it before it is fed to them. I continue to feed to them in this way till they are at least four months old, and as much longer as I have milk to spare for them—and the longer they are fed, the better I think, for I never had a calf hurt by being fed milk too long. Here I think is where so many fail in raising calves; it is not be-

cause they do not feed well enough, but because they do not feed long enough.

Most farmers feed their calves sufficiently while they are young, but they are weaned too soon, and turned out to pasture to shift for themselves—and such calves make but a poor shift surely. Some farmers seem to have a *chronic difficulty* about them on this subject; they think that a calf must be weaned and turned out to pasture as soon as the feed is good, at any rate, and frequently some of them are not more than two months old at the time, but they must all start at once. Under this treatment the young calf soon grows poor, generally gets lousy, and becomes so stunted that it never outgrows this severe and unnatural treatment, and in this way becomes a *living commentary* on the *mismanagement* of its owner, to say the least. Of this class we see very many scattered over the country, and they go to furnish the material for the class of stuff known in the market as the *scallawog beef.*

Some farmers injure their calves while young by feeding them too much; they seem to think that the more they can stuff into them the faster they will grow, and they generally will grow *out of shape* fast enough; they soon become what is called *pot-bellied*, with paunches large enough for yearlings. This is as much unnatural treatment as stinting them, and both should be avoided, if good, well proportioned animals are to be expected. After the calf is a few weeks old it will commence eating hay; it is then daily supplied with as much fine sweet hay as it will eat. Salt is occasionally given to them in small quantities, and while they are kept in the barn they have fresh dirt or a turf of grass placed where they can have access to it. During the time they are kept in the barn, they are furnished with a warm, dry and clean place, and they are frequently littered with dry straw or its substitute. No kind of stock need these things more, and none suffer more for the want of them. At about four months old they are turned out to pasture, where there is a good supply of fresh grass and clean water.

In the fall, as soon as the seed becomes frost-bitten, and the nights cold, (and in stormy weather,) they are put in a warm, dry place, and fed every day with a few roots, such as potatoes, turnips, refuse garden vegetables, or apples. They will soon learn to eat almost anything in this way. During the winter they are fed what good hay they will eat, and once a day with a mess of turnips cut so that they can eat them readily. In the fall of the year calves require particular attention, and a little time and expense devoted to them now, will add dollars to their value in the spring. Calves are tender animals, and are much affected by the cold storms and frosty nights of autumn—and unless they are protected from them, and furnished with a supply of good food at this time, they will grow poor, and soon lose what flesh they have gained for some time before, and what it will take them some months to regain; this is bad treatment for the calf, and unprofitable business for the farmer. With my course of treatment, under favorable circumstances, I get my calves to weigh, at one year old, 600 to 800 lbs. live weight—steers at two years old from 900 to 1,000 lbs., at three years old from 1,200 to 1,400 lbs., and oxen, when matured, 2,000 lbs., and upwards.

In raising stock of any description, the farmer's object should be to have his stock gradually growing till they are fully matured, or as long as he keeps them, and at no time to allow them to fall back, or to remain stationary.

I think that all the elements of success in raising stock of any kind, may be found in what should be every farmer's motto who is engaged in this business, viz: "Good blood, good care, and good keeping,"—and without these essential elements it is utterly useless for any one to pursue the business with pleasure or profit to himself, or honor to the profession.

C. T. Alvord.

How to Mend China.

From an English almanac we, a long time since, cut a receipt for mending China, and the opportunity having occurred for trying, we found it admirable, the fracture being scarcely visible after the article was repaired. It is thus made:—Take a very thick solution of gum arabic in water, and stir it into plaster of Paris until the mixture becomes a viscous paste. Apply it with a brush to the fractured edges and stick them together. In three days the article cannot again be broken in the same place. The whiteness of the cement renders it doubly valuable.—*Exchange.*

From the National Intelligencer.

The Camel—His Nature, Habits and Uses.

WASHINGTON, Nov. 29, 1858.

To the Editors of the National Intelligencer:

GENTLEMEN: I observed in the National Intelligencer of the 24th inst., a re-publication of an article from the *Alabama Sentinel*, "On the Uses of Camels, by a correspondent who signs himself "Jatros." The purpose of the article is to induce inquiry as to the usefulness of the Camel in the production of corn and cotton, and on our plantations generally. Having been occupied now ten years with the experiment of introducing the Camel into this country, permit me to offer, through your columns, briefly, to "Jatros" and other inquirers, a few of the results of reading, observation and thought upon these points. To do so concisely, and at the same time sufficiently, I will follow them in their order, as presented by your correspondent.

The Climative range of the Camel, within which he has been known indisputably to live, thrive and be useful, may be stated at from 50° to 52° of north latitude. The mean temperature of this zone may be rated at from 50° to 68° Fahrenheit. As animals, we know, are diffused over the globe, first, according to zones of climate, and, second, according to degrees of longitude; and as we know that "camel land" and the United States are included in the same zones of climate; and as, further, the secondary order of arrangement (by longitude) is but of trivial importance, your correspondent is right in his supposition "that the camels would flourish in any latitude within the United States."

The cost of a Camel, a good serviceable one, landed at Mobile or Pensacola, may be put down at from $150 to $200—not more, I think, if the purchase and transportation are judiciously managed. The greatest expense in general will be in the freight. In any project, therefore, for the introduction of the animal, this must be the main item for close calculation. So far as the voyage is concerned, there need be no apprehension, for I know of no animal of so little trouble and so comfortable at sea as the camel. I speak from a tolerably large experience in the transportation of horses and mules during our war with Mexico. So far as the motion of the vessel goes, whether in calm or in gale, one hundred camels would n cause as much anxiety or give as muc trouble as ten horses.

The camel does not consume more foo than a horse or a mule; prefers a coarse diet; satisfies itself readily with either scant grazing or browsing; requires feeding bu once a day, being a ruminant; and woul be with difficulty distressed for water. I requires no close stable; only a shed pro tecting it from cold northerly winds an from falling weather; and requires no groom ing, though certainly healthier and better like all other animals, for a clean skin. Th camel is undoubtedly a hardier and thoughe animal than the horse; not surpassed, i equalled in these respects, by the mule; an with half the forage of either, and wit two or three hours of grazing or browsing can be kept in condition. In addition t the economy of forage, the use of the camel saves the outlay for wagons and carts, har ness, shoes, and the necessary repairs o them. The pack-saddle being so simple i its construction as to be readily made on th plantations, its cost will be but trifling. It weight, moreover, compared with that of a wagon or cart, increases the physical energy devoted to the transportation of goods. Fo short distances, say about a plantation, o for six or eight miles on the road, a strong camel will carry on an average from eight hundred to one thousand pounds. The *Tiulus* of Asia Minor, the produce of the double-humped Bactrian male on the single-humped Arabian female, will average, fo the same distances, from one thousand to fifteen hundred pounds. All of the statements in my official report of what was done by the camels under my direction in Texas, are made from accurate weights and closely computed distances.

So far, the general advantages from using camels may be summed up as follows:

They will flourish as well in the United States as either horses or mules.

They may be introduced at Mobile or Pensacola at rates not greater, certainly not much greater, than present prices for good mules.

They are not as expensive to feed as horses or mules.

They require no close stabling or grooming.

They are as tough and as hardy as either horse or mule.

They save a heavy outlay for wagons, carts, harness, and shoes, and a constant tax for their repairs.

Their physical energy is not largely drawn upon for the draught of a wagon or cart, and therefore is proportionately given more usefully to the transportation of goods.

They will do more work at the same cost and keeping than either horse or mule.

These are the general advantages that I think may be fairly claimed for the camel. Now, let us examine how far this animal, with these advantages, may be suitable for our plantation or farm uses.

In Egypt I have seen the camel used in cities and in the country, on plantations, in fields, and on the road, for every purpose that horses and mules are used with us. I have seen them transporting bricks and broken stone from yards and quarries for building, sleepers, rafters, scantling, boards, or flooring, &c. I have seen them carrying chopped straw, corn, cotton, fodder, merchandise of all kinds, men, women and children, and with their burdens stepping intelligently and with sure-footedness into and out of clumsy ferry boats. And I have seen them usefully occupied in carrying burdens on the dams and check banks of our rice plantations. Is there anything more than these uses that our plantations and farms require?

As a Southern man, from a cotton, corn, and rice growing section, I believe that in many respects we might use camels with advantage in our agricultural labors, while pulling corn or fodder, or picking cotton, in transporting them from the fields to the barn or gin-house, in carrying seed, manure, firewood, &c., about the plantation, and in transporting produce and goods to and from the railway or market. So far as the negro is concerned, I am satisfied, from a knowledge of the nature and habits of both, that no animal better suited to him in all respects than the camel can be given to his management.

That the preceding may prove of interest enough to find a place in your columns, and result in benefit to our country, especially to that section of it we both hail from, is my apology for trespassing upon you.

Very respectfully,

Your obedient servant,

HENRY C. WAYNE,

Major United States Army.

From Dickens' Household Words.

Roses.

O! the ineffable delight of a trip into the country, to see a show of roses, when you have a high-spirited, fast-trotting, rose-fancying hobby-horse to ride! "Cato,"—one of our most learned authors, informs us—"Cato seemed to dote on cabbage." Myself may boast of out-Catoing Cato, in one respect: for I dote to distraction on cabbage-roses. Take a full-blown Provins to bed with you; lay it on your pillow within reach of your nose; sniff at it an amorous sniff from time to time till you fall asleep; perform similar ceremonies the first thing when you wake in the morning, and you will not be too hard on my infatuation. I particularise a Provins, because although the tea-scented roses are delicious, while the Macartneys smell like apricot-tart, and the Jaune Desprez is a happy blending of raspberry jam with the finest otto, or atargul; nevertheless, all roses by name do not smell equally sweet. In fact, some roses are no roses at all. The Christmas rose is a hellebore, which deserves a little protection with a hand-light if we desire it to wish us a happy New-year; the Guelder rose is a sterile snow-ball, which ought not to repudiate its classical title of Viburnum; the Rose Trémière, or Passe-Rose, is a hollyhock, which renders excellent service in the decoration of garden scenery; the Rose of Jericho is a cruciferous individual (?)—the note of interrogation shall be discussed hereafter—belonging to the same Linnæan class as cabbages and turnips, and in no way related to any sort of rose, "for, though it be dry, yet will it upon inhibition of moisture, dilate its leaves and explicate its flowers contracted and seeming dried up;" the Rose-Laurier, or Laurel Rose, is the Oleander, an elegant shrub with bright pink flowers, delighting to grow by the water's edge, but which, Algerian colonists say, poisons the brook that runs at its foot. The Rosa Mundi, the World's Rose, or fair Rosamond, was a pretty young woman who was considered by her friends to be under no particular obligations to Queen Elenor; the Rose Effleurée, the Handful of Roseleaves, or bouquet for children and families, is a nice little volume of tales and poetry. I am sure that the roses of heraldry—stained-glass roses and gothic stone roses—have no right to claim any other than a verbal relationship with the le-

gitimate family of Rosaceæ. And the rose on the spout of my watering-pot is only a bit of red-tin pierced with holes. All these, (with the exception of the lady) are false, sham roses, of fleeting merit, and mere outside show; whilst a real rose, even in its grave of pot-pourri, exhales a pleasant odour, and is sweet in death.

Know, ye who are unfamiliar with roses, that the queen of flowers, like the changeful moon, presents herself under different aspects. There are roses which resemble the beauties of the South; they blossom once in their season, they dazzle you with their charms, and then they depart. You have to wait for another generation of blooms. There are others—we call them perpetual roses, while the French style them rosiers remontants—which do not begin perhaps quite so early but which, having once begun, go on continually, till old Father Nip-nose comes to town. Even then, if you can shift them into warm, light and airy quarter, in their pots or tubs, they will go on flowering and flowering till you fear they will flower themselves to death. Observe, that some of the old-fashioned sorts maintain their ground against new-born rivals. What an indefatigable bloomer is the old crimson China, or semperflorens! What an emblem of perseverance and hardihood is that sweet-scented, semi-double, faithful friend, the Portland, or Pæstan rose, which will present you with a cluster of bright red buds, reflecting the gleams of December sunshine! The biferi rosaria Pæsti merit their repute of more than two thousand years; for after all we stand most in need of flowers which will carry a cheerful face under adverse circumstances. Any plant, or man, can be full of bravery during the hey-day of summer and prosperity; but our strongest sympathies are with whatever will make a goodly show, and even bear blossoms, in spite of the insults of the north-wind and the disdainful looks of the sun. Amongst the most unflinching bloomers is the Stanwell Perpetual, a spinosissima, or Scotch rose, with small double flowers of a very pale blush, which assumes for its motto, Never say die! Another stout-hearted flower, belonging to quite a different race, is Aimée Vibert, with its bright and almost evergreen foliage, and its thick clusters of pure white blossoms.

Perhaps, though not the most continuous in its succession of blooms, yet for lateness, as well as for the combined perfections of form, scent, hardiness and colour, the best autumnal rose yet raised (certainly in the Portland or Quatre-Saisons class), is a turncoat flower whose history I blush to relate. But it averts your censure like other fair offenders; for, if to its lot some floral errors fall, look in its face, and you'll forget them all. It made its appearance during Louis the Eighteenth's time, and was named Rose du Roi, or the King's Rose, in compliment to him. But when Bonaparte came over from Elba, and put the legitimate king to flight, the proprietor, thinking that this new rose with any other name would bring in more money, deemed it good policy to rechristen it Rose de l'Empereur, or the Emperor's Rose. But the hundred days were a limited number—fate did not choose to make them a hundred and one—and the battle of Waterloo again changed the aspect of political affairs, The rose ratted once more, and was re-styled Rose du Roi. It is known in England as the Crimson Perpetual—I should have called it the Crimson Weathercock. To complete its diplomatic education, it only wanted to have passed for a time as the Rose de la République Rouge, or the Red Republican Rose. No autumnal rose-garden is complete without the two Desprez, the red (or Madame), and the yellow, or rather the salmon-coloured. The Géant des Batailles is also a hero whose prowess and whose manly beauty insure his gracious reception by the ladies. None of these are what the nurserymen call new; most of them are quite antiquated; but they will hold their own, and maintain their ground, long after Louis Philippes and such-like loose ragged things have been swept clean away by the breeze of forgetfulness.

I think that if you can make only one voyage of rose-discovery during the summer, it is better, more sentimental, and altogether more poetic, to defer it till the robin has commenced uttering his autumnal notes. One out-of-the-way rose-garden that I wot of is a gem in its own peculiar style. To get to it, you put your square-built old pony into your rumble-tumble four-wheel; you drive through high-hedged lanes and over breezy commons till you reach the turnpike-road, which traverses a rather secluded district of the country; you pass gentlemen's seats on the right and on the left, with their verdant parks and noble timber-trees; you drive through a village, with the prettiest of gardens before each cottage—no two of the cottages or gardens being exactly alike—

while overhead is a flickering bower of cherry, plumb, and walnut-trees, chequering the road with sunshine and shade; you pass a brick-kiln or two (symptomatic of the soil); and, after peeping over clipped quickset hedges at the brightest of pastures and the richest of crops, you reach a solitary way-side inn—the Merman. The pony knows where he is as well as you do, and stops. From out a stable-door steps a hale young man, with one hand partly bound in a cotton handkerchief, and the other covered with scratches more or less recent. He has been budding roses these many days past, and, as our noble allies say, Il vaut souffrir pour les roses (Roses are worth a little pain); nevertheless, he unharnesses old Smiler, who straightwith proceeds, snorting and whinnying, into the well-known stable. You enter the house, and find everything clean, countryfied, and way-side-inn-like, without the slightest pretensions to metropolitan adornments. You are met by a tall, gaunt, dignified woman, certainly not handsome, and assuredly never better-looking than she now is. She is the mistress of the house, and the rose-grower's wife. She looks as if she thought it would be a sin to smile more than once a week; but she is an admirable cook—and did you ever know a good woman-cook who did not look dreadfully cross at times? You order dinner for five precisely, and step into the garden by a side-door, invisible from the road. The master, the enterprising horticulturist, has heard the sound of your rumble-tumble's wheels, and is coming to meet you—with slow step, unfortunately, for he has lost a leg since he began to grow roses. You have before you a tall, stout man—stouter since his loss—not handsome, but with an honest open face, which prepossesses you at the very first glance. Between brother enthusiasts, preliminary ceremonies are short; so you walk up and down amidst hundreds and hundreds of roses—tall, middlesized, short, and level with the ground, climbers, dwarfs, standards, pot-plants, white, blush, cream-colour, straw-colour, pink, crimson, scarlet, slate-colour, spotted, edged, striped, and blotched. You investigate the character of the early summer roses, whose bloom is past—you inquire into the prospects of the newest new varieties, and often get a shake of the head as the only response of the oracle—you ask whether the good old sorts still remain at par in the market, and Jove replies, with a complacent nod, that they are a wholesale staple article of public consumption. "This bed," he says, "entirely of Bath white moss, has been budded to order for America." You then look round and decide upon your plants, combining a sprinkling of the unknown and the speculative with a larger proportion of the approved and the true. And, then, a sharp magisterial voice rings the dinner-bell with the tongue of authority. You dare not remain longer in the garden, even if you wished to, which you probably do not; for, immediately after crossing the threshold of the side door, you enter, to the left, a neat, snug little parlour with the window open, staring point-blank at the roses, and a little white-clothed table, hardly big enough for your party, but tending much to merriment and good fellowship. You take your seats, and instantly stern Minerva drops amidst you such mutton-chops, such green peas, such potatoes, and such melted-butter, followed by such a currant tart and such a rice-pudding, that—oh!—words may express thoughts, but not sensations. The goddess concludes her miraculous performance by the production of a cream-cheese of her own manufacture. Expressions of your appreciation and delight burst from your lips, and—marvel of marvels—she smiles! Then, a bottle of wonderful port, and an invitation to the master to partake of it; he obeys the summons, and sets on the table a dish of Elton strawberries and a green-fleshed melon, grown in some hole and corner stolen from the roses. Then you ride your hobby-horses full gallop: how such a thing, sent out at such a price, turns out no better than a handful of coloured rags; how so-and-so's stupid gardener committed an outrageous donkeyism: how such another's inventive genius would produce leaves and flowers from a ten-year-old broom-stick; how this year's committee of the Highanmityshire Horticultural Society is working; and, above all, whether the rose-fever has yet attained its climax. Then you stroll once more round the garden to fix upon a few additional protégés; you drink a parting cup of tea; Smiler takes his place between the shafts; you drive homeward through the cool evening breeze, and, as you watch the glow-worms lighting their lamps amidst the dewy wayside grass, you make a vow never more to judge of a woman's good qualities by her looks alone. Verily, rose-gardens are bits of consecrated ground, cut out and separate from common earth. If you could drop into the midst of this one, at the end of July,

after having been shut up for nine months in a smoky city, you would go down on your knees before the flowers.

Roses have had a good deal to go through; it is true they have had a good long while to go through it in. When I began rose-growing, no body would look upon a rose in any other light than as a pretty sort of thing, very well for school-boys to talk about after a course of Virgil, Horace and Anacreon, and permissible for kind-hearted old maids to shelter in the obscure retreats of their obsolete gardens; but as florist's flowers, the idea was not to be entertained. Dahlias were then all the rage, and were carrying off exclusively, innumerable silver cups, teapots, sugar-tongs, medals, certificates, and highly-commendeds. Mr. Cathill (horticulturist, Camberwell,) records that when Mr. Rivers first began to speculate largely in rose-growing, his old foreman, long since gone to his last resting-place, came one day, with a very grave face, and said:

"Master Tom, you are surely out of your mind. What are you going to do with all those brambles? It is a shame to plant them on land that would grow standard apples!"

And so it was with myself and my friend: a lady, who imported the art from France into our neighbourhood, and who did me the honour to make me her disciple. We were looked upon as benighted heretics, humanely tolerated as amusing enthusiasts, and just escaped ostracism as hetrodox gardeners; because, while others were running mad after Mexican tubers with repulsive effluvia, alike offensive to man and beast, we cared only to complete our respective collections of a hundred fine varieties of the rose. If many were too polite to say so, they certainly thought, that it was a burning shame, so it was, to grow nasty prickly roses in a garden that would produce double dahlias; and the scorn of the public attained its height when it heard of our begging ladies for their worn out parasols to shade both our very dark crimson and our double-blooms and when they over-heard us rejoicing at a pic-nic water-party when a thunder-storm drove muslin skirts and white chip bonnets pell-mell below the hatches—that the delicious shower came just in time to save our last-inserted buds! But it is a long lane which has no turning; and the poor neglected roses soon came to a path which led them to make their triumphal entry. I daily make use of some convenient plate, engraved with the cyphers H. H. S., which my roses won at the Highanmityshire shows. My roses and I well deserved the reward thus bestowed in the shape of pieces of silver; for I worked them all with my own proper fingers, and they exerted themselves to the utmost to return the obligation.

I strained just now at the word individual, as applied to plants; because it has been a question, among the dons of vegetable physiology,—What is an individual in the world of botany? and judgment has been pronounced that a bud is an individual. A bulb, therefore, such as a Tripoli onion, which is nothing more than an overgrown bud, may claim to be no more than a simple individual; but an oak tree is a herd, a crowd, a throng, a joint stock company, composed of as many individuals as there are buds on its trunk, branches and twigs. What most concerns us here, is, that buds enjoy a vitality of their own, which is more or less independent of the rest. In cold wet climates certain plants being unable to flower to any useful purpose, revenge themselves and have their own way in the end, by throwing off living buds, which take root and settle themselves in the world with the utmost facility. Such plants are styled viviparous, or plants which bring forth their young alive. There are even leaves whose fecundity of constitution engenders a crowd of little budlings round their outside edge. Unless the practice of budding were extensively employed, the supply of choice roses could not meet the demand.

New varieties of roses (with a few rare exceptions) originate from seed. Suppose you have raised an invaluable novelty, like the Rose du Roi, or my own Maria. Your plant is, at first, unique; only a single specimen exist in the world. How to propagate it, distribute it, bring it into the market, and make money of it? Its seeds, supposing any attainable, would probably produce offspring inferior to itself. Cuttings are a tardy and limited means of multiplication; besides, several subsections of the genus Rose strike root, as cuttings, with difficulty. Layering is a still slower process, and often not a bit more certain. Budding accomplishes all we can desire.

It has been discovered experimentally, that the buds of shrubs and trees, if skilfully and surgically inoculated upon other shrubs and trees nearly related to themselves—that

is species belonging to the same genus—will grow and thrive. In a few cases, the faculty is extended a little more widely; thus, a lilac scion, grafted on an ash-stock, will live just a little while—a summer or two. But the nearer the relationship, the greater the success; but even then, vegetable caprice has often to be contended with. For instance, many pears do well on quince stocks, others do not do well; and there is no knowing, except empirically, what the exact result will be. Therefore, if any gardener tells you gravely that he has budded a rose on a black-currant bush, or grafted a white-currant scion on a red-cabbage stump, look him full in the face; do not laugh, if you can help it; but set him down in your private memorandum-book as—I will not here say what.

Now though, theoretically, any one species of rose may be budded upon another, this general rule will scarcely be carried out in practice; because common sense would prevent your budding a vigorous species on a weakly one, or a hardy species on a tender one. There are families of roses—the tea-scented, for example—which are killed by any but our mildest winters, and must be treated almost as greenhouse plants. For general purposes, the best stocks are furnished by the dog rose (Rosa-canina.) Choose such as have grown in exposed situations, and have well-ripened wood, in preference to the green and immature, though pretty stems, that have been drawn up lank, under the shelter of trees. The sweetbriar is not sufficiently hardy. Extra robust and tall stocks may be obtained from the Highland rose, which grows in the valleys of the Grampian hills. If you want to cover a wall with a climbing rose on which to bud a number of varieties, the crimson Boursault will answer satisfactorily, and all the better that it is a thornless species. Beginners are apt to be too fond of over-tall standards; but experience will tame down their lofty ambition to from two feet to two and a half.

You will have remarked the beautiful effect of looking down upon a valley or a forest from the commanding eminence of a mountain side. Remember this principle when you are planting the stocks that are to form your future rose-parterre. Standard roses, once budded, grow but little, if at all, in height. They increase in thickness; and it is curious that in that respect the growth of the stem is subordinate to that of the head; that is, a vigorous head will form a corpulent stem, while under a puny head the body will remain puny—an apt lesson for administrations and governments in general.

Wild rose-stocks are now an article of commerce. By giving any order to proper persons you may obtain a supply to any reasonable amount. The nearer home they are found, and the sooner they are replanted in your nursery, the better. November is the month of months for the purpose. In the early dawn of rose-growing in England, you could not get what you wanted through such regular channels as now; but what you did get were finer stocks, in consequence of their being less sought after. I had an agent in my service who was an enthusiast. On being shown a collection of standard roses in splendid bloom, he instantly caught the idea, and impatiently longed for the arrival of autumn, to be let slip to scour the country. He seldom brought in large quantities at once—nor did I want them; but what he did bring were magnificent fellows, such recruits as are not easy to enlist at present.—One evening he came to me out of breath, but radiant with triumph. From a small bundle of clean, well-rooted dog-roses, he selected one, and waived it in the air, as a theatrical fairy waves her wand. "This, sir," he said, "cost me three whole days and part of a night; but I was determined you should have it. I had known of it all summer long, in a retired corner of Squire Preservem's park, and I had no need to tie a knot in my handkerchief, to bear it in mind. But the other day they warned me off the land; they thought I must be a poacher.—They wouldn't believe me, and treated me as a liar, when I said that I only wanted to stub up a few old briars for a gentleman of my acquaintance, to change into roses. But I watched my opportunity, and took it at last. I crawled up one ditch, down another; wet or dry, was all the same to me. I lay squat for hours in a bed of nettles, and afterwards crept on all fours through a thicket of furze and holly bushes. Never mind that; here it is, at last. Isn't it a beauty, sir?"

It was a beauty. The following summer I headed it with that bright-cheeked gallant, Brutus or Brennus (for he is so doubly christened,) who grew, and grew, till he formed a shade beneath which I could sit in my garden-chair.

In a few words, I will let you into the secret of converting a brier into a standard rose; but still, you must take lessons of some obliging friend, like mine. You must see the thing done, and then practise it yourself on the first straggling hedge-rose that falls in your way. Note, too, that cherries, peaches, and apricots may be budded in the same way as roses.

Your pupils arrive, in autumn, at your seminary for young roses. You will have previously engaged a sufficient number of what the French call tuteurs, tutors, or stakes, to support them in an upright course of behaviour. Arrange them into forms, or classes, according to height. Inspect carefully their lower extremities; remove all corns, bunions, straggling roots, and whatever is likely to sprout into proud flesh, or suckers. Plant them at exactly the same depth as you observe them to have grown in in their native site. Fasten each individual stock either to a stake of its own, or to a long horizontal twig supported at each end by two upright posts. They will thus pass their winter vacation, though they will not remain absolutely idle; for they will be making themselves at home and pushing root-fibres at times when you believe them to be fast asleep. In spring, watch the swelling buds that show themselves the whole way up the stem. When they are about a quarter of an inch long, cut off all but two, which will be allowed to grow, to be budded, at the height required. Of course, select strong, healthy buds, as near to and as opposite to each other as possible. Into these the whole vigour of the brier will be directed.

In July, after a thunderstorm, or when the ground has imbibed a soaking shower, some kind friend will send you a twig of a matchless rose. Take it into your left hand, look out for a plump, healthy, dormant bud; cut off the leaf, leaving half-an-inch of the footstalk; insert your knife a quarter or a third of an inch above the bud; cut downwards, and bring it out a quarter of an inch below; remove with your thumb-nail the woody portion, leaving a small shield of bark with a bud in the centre. This is the bud you want to make grow on your brier. To keep it moist, while you are preparing its new resting-place, you may drop it, if you like, into a glass of water; a snugger and more convenient receptacle is at hand—your mouth.

On the branch to be budded, make two slits in the bark like the two straight lines which form the letter T. The perpendicular stroke will run along the branch and terminate where it springs from the main stem; it must be a little longer than the bud you intend to insert. The horizontal stroke will be formed by a cut across the branch, and must be a little wider than the bud you want to put in. You must just cut through the bark, without dividing the wood beneath.—Cut those slits with a pen-knife on a piece of paper, or on any fresh twig whose bark peels readily, and you will instantly see what their object is. With the handle of your budding-knife gently push or lift the bark on each side of the perpendicular slit, or stem of the T. so as to cause it to rise. Or you may do it with your thumb-nails. As fingers were made before knives and forks, so thumb-nails were invented before ivory-handled budding-knives. Do nothing that can injure or irritate the interior of the wound. If you poke inside it for half an hour, and plough up the skin, you will injure its delicate organization, and in nine cases out of ten you may whistle for your bud. Instead of that, the bark once raised, take the bud out of your mouth, and slip it in gently till it reaches its place. Be as quick as if you wished to spare your patient's sufferings. It really is a surgical operation. The bud once settled between the divided bark, bind up the wound with ligature of softest lamb's wool. If you have not been clumsy, the bud will grow; and then you must unbind it, and let nothing else grow on the briar either at top or bottom. At the end of two or three summers you will have a handsome-headed rose-tree, from which you may gather basketsful of bouquets, if you prune it properly—sometimes if you abstain from pruning it.

The other day I saw an outer barbarian clipping the head of a standard rose with a pair of shears. I thought, and was very near telling him, that he deserved to have his own nose thrust between the blades.—There are roses, such as the old unrivalled cabbage yellow, and the pretty little Banksias, with their white or nankin-coloured tufts of tiny violet-scented flowers, which, I believe, cannot bear even the smell of iron. They will refuse to flower if you come near them with a knife in your pocket, even if you do not take it out and open it. You may get rid of their dead and used-up wood as well as you can, by breaking it off; but the scent of steel agrees not with their con-

stitution. What becomes of them, then, when they fall into the hands of these merciless butchers and assassins of roses?—Many other roses, and exquisite ones too, if cut too close back, will produce nothing but leaves, year after year. Fearfully numerous instances of this wanton ill-treatment may be seen in the suburban villas that swarm round large cities, where simple people get ignorant jobbing gardeners to prune their roses by the year. But rose-pruning is a fascinating amusement which grows upon you, like billiards or chess; and I had as soon engage a fellow to eat my dinner, take my walks, or perform any other pleasurable action for me by the year, as prune my roses. It is true, different roses require different pruning, and you say you know nothing of the art. Never mind. Try. By entering thus into intimacy with your roses, you will become acquainted with every phase and condition of their existence. You will learn to distinguish one from another by the look of the twig, as well as by the aspect of the flower. Your humble servant would readily name a hundred varieties of roses, on being shown a handful of leaflets, trimmings, and prunings. That, however, is nothing.—Doubtless, Rivers, Paul, or Mitchell, have men in their employ whose more practised eye would extend the list further. One of the great hyacinth rearers in old times, in Holland, has asserted that he could recognise, by the bulb, almost every variety out of a collection of two thousand!

The sports of roses deserve to be mentioned, because several beautiful varieties have resulted from their antics. The New York and Lancaster will now and then bear blossoms one half side of which is white, the other half red. The common Provins took it into its head to send forth a branch bearing the crested Provins, which the art of budding has rendered more or less permanent. The darling little moss Pompone metamorphosed itself out of the common Pompone (itself a miniature beauty of the highest merit,) some say in the neighbourhood of Bristol, others in the garden of a Swiss clergyman. The caprices of roses must be complied with, if you would have them smile upon you. The coal-smoke of cities disgusts them utterly; the most tolerant of a highly carbonated atmosphere being perhaps the maiden's blush and the old double white. It is of little use to plant yellow roses within I don't know how many miles of Temple Bar. I have never seen that admirable rarity, the old double yellow cabbage, blossom well, except when growing at the foot of a low wall, over the top of which it could straggle as it pleased. Nor has any good been done with it by budding, that I am aware. Perhaps we have no stocks on which to bud it, but must ransack the wilds of Persia, to find them. The enemies of roses are legion. Of insect vermin the host is fearful. The maggots and worms and caterpillars and grubs which attack your heart's delight in spring, must be picked out patiently with finger and thumb. Aphides, "our little green cousin who lives on the rose," are comparatively harmless. A thunder-storm proves an excellent preventive; but thunder-storms are not always to be had at command. I take the tip of each twig in my hand, and brush off the clustering parasites with a painter's brush. An amateur (who deserves to be looked upon favourably,) has invented a double aphis-brush, closing with a spring handle, which, says the advertisement, in a very simple and easy manner, instantly cleanses the rose from that destructive insect the green fly, without causing the slightest injury to the bud or foliage. Finally, encourage lady-birds and the sightless grubs of lace-wing flies, which latter though blind, find out the succulent aphides, and instead of reserving them to act as milch-cows, pump them dry at once and throw away the empty husk, exactly as you would treat a St. Michael's orange.

There are roses which ought to make more way than they do—they are too shy, retiring, and perhaps fastidious in their habits. The microphylla, or small-leaved rose, bears most voluptuous flowers amidst delicate foliage; yet it is, like the cuckoo bird, seldom seen though often heard of. The multifloras, a charming family, comprising the seven sisters, would gratify us by making more frequent public appearances. The white Chinese anemone-flowered rose is all that is simple, and pure. It is clear that certain roses have suffered somewhat, both from evil tongues as well as evil eyes. Listen to the indignant complaint of that high-spirited horticultural traveller, Robert Fortune. "In the first volume of the Journal of the Horticultural Society I noticed the discovery and introduction of a very beautiful yellow or salmon-coloured rose. I had been much struck with the effects produced

by it in the gardens of North China, where it was greatly prized, and I had no doubt that it would succeed equally well in this country. But from some cause—probably ignorance as to its habits or to the treatment required—my favourite wag-jan-ve, as the Chinese call it, was cried down. It had been planted in situations where it was either starved or burnt up; and in return for such unkind treatment, the pretty exotic obstinately refused to produce any but poor miserable flowers. Then the learned in such matters pronounced it quite unworthy of a place in our gardens amongst English roses; and I believe in many instances it was either allowed to die or dug up and thrown away. Five or six years had elapsed since the introduction of this fine climber, and it had never been seen in its proper garb. But the results in two places proved it to be a rose nearly as rampant as the old Aryshire, quite hardy, and covered from the middle of May, with hundreds of large, loose flowers, of every shade, between a rich reddish buff and a full copper-pink. The old standard plants in the open ground were one mass of bloom, the heads of each being more than four feet through. The successful cultivators would inform you that no great amount of skill was necessary in order to bring the rose into this state. It is perfectly hardy, scrambling over old walls, but it requires a rich soil and plenty of room to grow. The Chinese say that night-soil is one of the best manures to give it. Only fancy a wall completely covered with many hundred flowers, of various hues—yellowish, salmon, and bronze-like, and then say what rose we have in the gardens of this country so striking; and how great would have been the pity if an introduction of this kind had been lost through the blighting influence of such ignorance and prejudice, as have been shown by the person to whose care it was first intrusted." I have eased my mind by speaking a word in favour of ill-used, mismanaged roses. I will now mention a woeful blank which some enterprising rose-raiser ought to fill forthwith; we sadly want a thoroughly double Austrian briar, with the petals orange-scarlet above and yellow beneath. The desideratum only bides its time.

As to gathering roses;—when you wish to offer your affianced love something as charming and as fresh as herself, avoid making the attempt in windy weather. If a gentle shower will not come to your aid, water liberally all day long. Next morning, at three o'clock, or a little before, turn out of bed and cut the choicest specimens,—none of them more than three-quarters opened,—before the sun has had time to kiss the dew off their leaves. Arrange according to your own, and your Dulcinea's fancy, and tie with a true-lover's knot of blue satin ribbon. When done, put the bouquets, in water, in a cool, unoccupied room, with the blinds drawn down, till the moment arrives for the roses to appear in the divinity's presence.

Every one is acquainted with the French fashion of decorating graves with flowers. The way in which those flowers are generally respected, is an equally well known fact. But every body does not know the severity with which any violations of the little grave-gardens are punished. The Moniteur for September the twenty-second, eighteen hundred and fifty-two, states in its police report, that a woman named Badé, employed to keep up the flowers on a certain tomb in the Cimetère du Sud, conceived a singular method of fulfilling, without cost to herself, her office, which was liberally recompensed. Two handsome rose-trees, which overshadowed this tomb, withered and died. Shall she go and buy others to replace them? By no means. She remembers that, on another grave some distance, there are growing two magnificent plants of the same species. She takes them up; steals them; and employs them to adorn the grave which is entrusted to her care. The guardian of the Cemetery had already noticed a similar abstraction on the part of that bad woman. A complaint is made, and she gets for her pains—a year's imprisonment! Better law this, I think, than we usually get at home. Dear reader, I write as one—may you not read as one!—who has put Roses on the graves of the beloved.

A beautiful oriental proverb runs thus:—"With time and patence the mulberry leaf becomes satin." How encouraging is this lesson to the patient and desponding! And what difficulty is there that man should quail at, when a worm can accomplish so much from a mulberry leaf?

The secret pleasure of a generous act is the great mind's great bribe.—*Dryden*,

The Southern Planter.

RICHMOND, VIRGINIA.

Puffing vs. Advertising.

We copy from our neighbors of the "*American Farmer*" their Editorial on a subject in which all agricultural Editors are alike interested. It expresses precisely our own sentiments, and we shall follow suit, that we too may "show our hand," that subscribers and advertisers, may know what our course is, and will be, in reference to articles occupying the space in our columns devoted to reading matter. We have never received one cent for anything published *there*—while we have always charged certain rates for every advertisement inserted in our sheet devoted to that purpose. This is the proper place for advertisers; nor can we afford to let them occupy any other part of our paper.

We take it for granted that each one of our readers has caution and good sense enough, to look well into the merits of all articles presented by vendors to their notice, before purchasing them, and is capable, consequently, of protecting himself, in most instances, from being *humbugged*. We certainly do not expect to be held responsible as the endorser of each and every advertiser. We expect our advertising sheet to be filled up by persons wishing to make public the quantity, quality, and variety of wares which they wish to sell—but every man is expected to put his own value on the advertisements he reads, and determine to buy or not, as his own good sense may dictate.

We do not intend, nor can we afford, to pay the printer's bill for an advertiser's benefit—thus giving *him* the benefit of a "quasi-editorial endorsement," while *we* "pay the Piper."

These remarks are called forth by present circumstances. We have lately received a long advertisement from parties interested in the manufacture of a certain article, (of which we have never used one pound,) with the request that we would "copy." No doubt by our compliance with so unreasonable a request, *they* would, to a certain extent, be benefitted, while we would have the costs to pay and the responsibility to bear, which belongs exclusively to, and must remain with them. While we are no believers in "one-sided bargains," we must announce our readiness, at all times, to do anything in our power, that is just, and of "good report," to promote the well-being, happiness and comfort of any of our fellow-men.

We have, during a part of our previous life, had the good or evil fortune to practise physic in a large country neighborhood. In this position we acquired as large an experience as we desire to possess, of the comforts and profits derived from "working for nothing and finding yourself." For instance, we have carried our disposition to accommodate other people, so far *as to lend our tooth-drawers to a man, to pull his own teeth*—uncomplainingly giving up our own fee in the case. We think this is going far enough, and as we wish to retain possession of our molars, and to have employment for them too, we cannot consent to furnish the instruments for their extraction, merely for the amusement of other folks.

We hope, therefore, that all advertisers will in future be willing to pay their own way into public notice, and to shoulder their own responsibilities.

ADVERTISING *vs.* PUFFING.

We have received from a gentleman, a city paper, containing a favorable notice of an article of merchandize, in which he is interested, and marked "please copy." With a disposition to oblige every body, as far as we can, there are reasons why we must decline applications of the kind, and not to appear unreasonable or disobliging, we will give them.

First—a due regard to the prosperity of our advertising columns forbids, that an article, which is a legitimate subject of that portion of our publication, should be inserted as reading matter. To copy such an article as a matter of interest, and thus give it a *quasi* endorsement, would be worth much more to the party interested than an ordinary advertisement, and *much less* to us.

In the second place, our readers have a right to infer, that whatever we present to them in our columns of reading matter, is, in our opinion, of sufficient interest to command their attention, and if we, as a matter of favor, insert a special commendation of one super-phosphate, for instance, or one plow or implement, to the exclusion of others, we not only do injustice to others, so far as our opinion is worth anything, but allow a false inference as to our estimate of its value.

In the third place, we abominate the practice of "puffing," and will allow no man to stand behind our editorial chair, for the purpose of "blowing" his wares into public favor. An advertisement, where a man in his own name offers his goods to the public, is a fair, open, legitimate transaction. The party interested says what he has to say, or what others have said, in favor of his goods. No one is necessarily misled by it, even if it is over-colored or untrue; because the very type gives him warning that he is to be on his guard, to discriminate between the absurd exaggerations of flash "catch-pennies," and the sober man of business, who, in the consciousness that he has an article of substantial value for sale, is satisfied to say what he has to say, without designedly overstating or unduly exaggerating its merits. But an advertiser who "climbs up some other way" into notice, and gets the editor, either for pay or favor to say for him, what he thinks might not be believed or attended to as coming from himself, does, in our opinion, what he ought not to do. He intends to make a false impression on the public mind, that there are peculiar merits in his merchandize, which challenge the spontaneous notice of intelligent and disinterested parties. This we call "puffing," as distinguished from advertising.

We wish our own course to be distinctly understood on this point. We have not unfrequently had it suggested as a legitimate business transaction, that a favorable editorial notice would be paid for as an advertisement. The answer to this is, that when a matter of the sort is, in our view, of sufficient interest to put into the body of our Magazine, it is our duty to put it there, and we would not, of course, receive pay for doing so. If it is not of such interest, it is an imposition upon the reader to have it there at all. If it conveys a false impression of the editor's opinion, it is a fraud. The only value of such a notice, is in the reader's reliance upon the candor and good faith of the editor; and it would be a gross abuse of that confidence, to subject his opinions to any such bias.

While our rule, therefore, does not exclude a proper notice of new and interesting matters of merchandize, under no circumstances do we, or will we, for any consideration, take advertising matter to appear in any other than our usual advertising type, or receive compensation for one line that goes into the body of our Magazine.

Home Embellishment.

It gives us great pleasure to witness any and every attempt to improve and adorn the country homes of our own State. While, to us, she is more attractive than any other in the Union, and we are proud to claim her as "mother," still, we should love her none the less for devoting somewhat more to her *dress* and *appearance*.

We have never felt it possible that any one could enter into, and participate in, the enthusiasm and effection for *home*, as described by the poet in the beautiful old song "Sweet Home," who was the occupant of a dismal, lonely, dilapidated and uncomfortable house. Such an one, if he can believe "there is no place like home," must find its delights solely in the feeling of independence he there experiences, and which he might express "my right there is none to dispute." Certainly there can be no pleasure to anybody in witnessing the want of taste, convenience and adaptability, so often conspicuous about the residences of farmers who can afford to do better. We are no advocates for *mere display*, of any kind; but we like to see some attention paid to beauty in building a house, when this can be secured without any sacrifice of important features of utility and purpose, or proper regard to economy.

We, like most others, must confess our fondness for "creature comforts," and this, perhaps, may be a sufficient reason why we should urge upon our readers more attention to the subject of building than it has hitherto received. But there is a *reason*—a good one too—why many of the old-fashioned structures should be altered, or at least have no imitators, viz: a residence in a house, badly ventilated, is injurious to health, the best boon of a good Providence. Pure air is vitally essential to comfortable life. Little share of air, fit for breathing purposes, can be secured in a low-pitched, small room. In such rooms, the air is breathed over and over again, to the injury of its occupant, and the rapid diminution of his stock of "*good blood*," and nervous energy. Into such buildings disease is apt to enter, and to find there a ready coadjutor of his attacks. Good chimneys, too, are a most essential item of a comfortable house, as well as large windows. A smoky house would destroy not only the eyes of the inmates, but the temper of an angel. As an evil, it has ranked always with a *scolding wife*. Of course, none but "Benedicks" can appreciate the force of the comparison. May it never fall to the lot of our "worst enemy" to possess them both at the same time.

Again—surrounding objects exert, to a greater or less degree, their influence on the mind. Witness the effects, upon most people, of an evening's walk through a grove of pines, with the wind sighing and moaning through their branches. Under such circumstances, it might be said of almost any man, that "Melancholy had marked him for her own." But the same person, in a different place, taking in at a glance the various beauties of a landscape, neat houses

beautiful trees and smiling flowers—breathing an atmosphere warmed and purified by th bright rays of a genial sun, would be cheerful in feeling and thought. Delights for the eye tend to promote a happy gaiety of disposition. It is natural to admire the beauties of nature—those of art, deserve appreciation and imitation.

Home, of all places, should be the most attractive. Nothing should be left undone to make it so. While it is well to be serious sometimes, *gloom* should be banished from the domestic hearth. There should be the shrine of innocent gaiety, to which every member of a family should bring his offspring.

"Do not keep a solemn parlor," says Ike Marvel, "into which you go but once a month with the parson, or Sewing Society. Hang around your walls pictures which shall tell stories of mercy, hope, courage, faith and charity. Make your living room the largest and most cheerful in the house. Let the place be such, that when your boy has gone to distant lands, or even perhaps he clings to a single plank in the lone waters of the wide ocean, the thought of the still homestead shall come across the desolation, bringing always light, hope, and love. Have no dungeon about your home: no room you never show: no blinds that are always shut."

"Whatever leads man to assemble the comforts and elegancies of life around his habitation, tends to increase local attachments, and render domestic life more delightful: thus not only augmenting his own enjoyment, but strengthening his patriotism and making him a better citizen. There is no employment or recreation which affords the mind greater or more permanent satisfaction, than that of cultivating the earth and adorning our own property."

Cottage Homes.

HOME, Jan. 10th, 1859.

MR. EDITOR:

Taking a deep interest in your valuable publication, we wish to call your attention to a subject that never fails to interest and excite our feelings. We are much pleased to see the gradual improvements in farming in this beloved land of ours. But why is it that so little is done for the "Cottage Homes of Virginia" in the way of embellishment? You may drive to houses through fields (thanks to the use of guano) as green as Erin, but will be pained to see unsightly enclosures, broken down, or perhaps none at all. The steps wanting repair, and things about the premises having a "Castle Rack-rent" look, that give no promise of the comfort within doors, the good cheer, and warm-hearted hospitality which greets you at every homestead.

Mr. Editor, we like the simple style of living in the country homes of Virginia. The extempore ways which will make a gentleman ride a mule instead of a saddle-horse, rather than stay from church,—and gentlewomen, never thinking themselves compromised by riding in a cart if the carriage is away. We wish to see progress in attention to turf, and trees, and beautiful flowers, which are as free to the poor as to the rich, and which beautify every dwelling however lowly its inmates.

These things belong not only to the "Palace Homes" of Virginia, those noble relics of olden times which we admire and love, without one spark of envy. If you can stir up your readers to bestow greater attention to this subject, which has the power to make home attractive, and to refine, elevate, and purify the heart, you will make your mark on the age in which you live, and we will honour you as a benefactor to your native State.

These improvements cost little money, and amply repay any expenditure of time and taste, which is one of the wants of the age. Let the poor man go to the forest, and remove carefully, at the right season, the beautiful trees which a kind Providence has bountifully supplied us. Let him aid his wife, mother, or sister, in her endeavours at raising flowers, however simple they may be. We honour every such attempt, if it be only a Hop-vine or Convolvolus, or even a Marygold, growing in a tin pan for want of a flower-pot.

Hoping you will excuse the warmth with which we have written, and give a corner to this subject,

We remain sincerely yours,

ST. MARTIN'S PARISH, VA.

Plowing and Plowmen.

Now that the time has arrived when all the team of the farm will be employed continually, it will be well for each farmer to look closely into the manner in which this work is done—that neither the land nor team may suffer from hard usage, and improper treatment. We take it for granted that every man who knows the importance of attending to his own business' interests, will see to it, that his land is no plowed too wet, and that the furrow slice is ent tirely cut loose and turned over, so as to ensure as thorough pulverization as is practicable with the plow alone.

But we have not as much faith in their proba-

ble practice, so far as keeping a strict eye to the necessities, and comforts of their team is concerned. While we know that every plowman will do his duty more thoroughly, if he is looked after by his employer—every man has not an eye *for* a horse, nor *to* a horse either. Many persons use and abuse them—taking no care of them after work hours. We recommend, therefore, to look closely into the condition of the gear—collars especially—and back bands. See to it that the first are not too large, or you will have a used up team, from shoulder bruises and "Swinney." Keep the collars free from any accumulation of sweat and hair upon the inside. Scrape them off clean, and oil and beat them, until the surface which goes next to the shoulder of the horse is soft. Don't allow your plowman to slip the back-band too far back of the shoulder, especially as the means of preventing the plow from "going too deep in the ground." It is a usual thing to do this; but it is death, (in the course of time,) to horse-flesh. If the horse is tolerably formed, the centre of motion will be just behind the shoulder-blade. There will be the strongest point to bear up against weight and pressure—while if the back-band works nearer to the "quarters," the nearer it does, the harder is it for the horse: he will be liable to greater fatigue, and a difficulty in bringing his hind feet well up under him. When the teams are brought to the stable, they should have at least enough currying to "straighten the hair," and remove the conglomerations of dirt and perspiration: But the more rubbing they get, the better they thrive. "Rub him hard, his skin wont come off," while the process brings about an equal, general circulation of the blood through his tired muscles, keeping up thus, health and nervous energy.

Bathing the shoulders in cold water will harden the skin, so as to prevent any abrasions of it by the collar.

The ankles should be kept perfectly clean: the fetlocks cut off, and if you should find any of them with scratches, make up the following ointment, and use it by rubbing over the ankles after having washed them well. Our word for it, it will soon make a cure:

Soft soap, . . .	2 parts.
Sulphur, . . .	1 part.
Lard, . . .	1 part.

The next thing to be considered is the proper feeding. Those who may have reconciled it with their system of economy to have saved it, and consequently have a plenty of nice, well-cured fodder, or may have a good supply of hay, and a well stored corn-crib, need little instruction on this head. To them we can only say, feed with a *liberal* hand. Your generosity in this respect will cause you no loss, by the time the season for hard work is over. You will be amply repaid for your expenditure, in the increased efficiency, (to say nothing of the improved appearance,) of your team.

Feed at *regular hours*, and change the food as much, and as often, as the resources of the farm will allow. Don't forget to give your stock of every kind *green food*, as soon as you can procure it. Several acres planted in "Chinese Sugar Cane," will furnish a large quantity of green food of the very best quality, for all kinds of farm animals. We refer to the interesting article of our contributor, in the February number of the Planter, signed "STOVER," on this subject. In the absence of green food, give your mules and horses some wheat bran, to open the bowels, and act as a "refrigerant" to the system. A few carrots given every day, will greatly aid in keeping them in health and good condition. Their beneficial effects are speedily manifested in the softness and gloss of the coat, and the looseness of the hide.

Keep an ample supply of air-slacked lime, mixed with two thirds of its bulk of salt, within reach of your horses, or give them a handful of the mixture several times a week, in their food.

An old friend of ours has been in the habit of keeping a small trough, (nailed to the manger of each horse,) filled with this mixture, for many years. He has had scarcely ever a sick horse, since he commenced the practice of allowing them access to lime and salt, whenever they pleased, while his teams attract very general remark, for the superior condition in which they are kept.

Edney's New American Pump.

(PATENT APPLIED FOR.)

In our advertising sheet will be found a drawing of this Pump, with Mr. Edney's advertisement. We got one of them from him, which we have put into operation on our farm, and like it so far very much. It brings up a *continuous* stream of water, with little or no labor to the person working it. If it shall prove durable, (and we see no apparent cause why it should not,) it must meet with a ready sale, and speedily grow very popular.

New Wheat Drill.

Our friend, George Watt,—the *Plow man*, as he calls himself,—showed us, a few days since, a Patent for a new Drill, which he has just gotten out. From the drawings and description, which we examined, we think it a "good thing." The Drill has some entirely new features—one of which is, that no part of a stubble, which has been plowed under, can be dragged up, while the seed sowed will be covered as deeply as is usual with any other Drill. He expects to get Messrs. Samson & Pae to put up some of them as soon as possible. Their manufacture by these gentlemen will be a guarantee for the excellence of their construction. While *we* have such confidence in the mechanical ingenuity and practical good sense of both Messrs. Watt and Samson, that we should feel very well assured, if *they* pronounced the Drill a good one, that "there is something in it." It has a guano attachment.

Tobacco-Handler.

A gentleman from Powhatan county, Va., has showed us a model of a simple and effective machine for putting the bundles of tobacco into good shape before prizing. It works admirably, and as soon as he receives his Patent, (applied for,) we shall have one at our office, open to inspection, together with some tobacco which has been subjected to its operation.

Anecdotes of Love. By Lola Montez, Countess of Landsfelt.

We are indebted to Messrs. J. W. Randolph & Co., for a copy of this new and amusing work, which is the last production of the well-known authoress. It seems to be a record of the doings of the "little god" for a "*considerable*" time past, and will serve to make more of his pranks known to the public, than he ever had exposed, at one view, to their scrutiny before.

Our New Office.

Our country friends will find us at the old stand of Messrs. Baldwin, Cardwell & Co., on Main street, opposite to Messrs. Kent, Paine & Co. We will be glad to see them there whenever they may choose to "drop in," and can safely promise (unless they have a note to pay) to make them feel at home, and comfortable.

Articles intended for publication in our paper should be marked, "For the Southern Planter."

Do not write on both sides of the paper. If this rule is not regarded, mistakes are very apt to occur in printing.

Green Food for Work-Horses.

We trust our readers have not regarded the able and instructive communication of our correspondent "Stover" on "*Sorghum and other substitutes for Blade Fodder*," which appeared in our February number, as of that ephemeral character, which they might dismiss from their thoughts as soon as read, or retain in their memories only for a day.

Far, very far different is our estimation of it. We regard his suggestions as of national importance.

Their full adoption into general practice throughout the State, would inaugurate a new era in Virginia husbandry by adding hundreds of thousands to the annual profit of our agriculture through the retrenchment of expenses effected in this one branch of farm economy—namely: the maintenance of our teams. And not simply their maintenance—but, as compared with the present system, a decided improvement in their condition, rendering the application of their power the more effective in proportion to their gain of strength and endurance in the performance of their labor, heightened by the increased activity and sprightliness of their movements resulting from the healthful effects of the larger amount of green provender afforded them. With these views of the importance of green food for work horses, we suggest for the consideration of our readers the importance of arranging ther plans for the present season so as to secure a sufficient variety, and regular succession of green crops for the use of their teams during the progress of the season. Those who have a field of rye for this purpose already on hand, have a good resource to begin with; clover too, will hold an important place in the general arrangement; in addition to this, sorghum may be planted, at different dates, so as to secure successive crops adapted to different stages of the season, oats may be sown in like manner, for the same purpose, and so also of Indian corn, millet, &c., &c.

We conclude these brief suggestions, with the following interesting letter addressed by a gentleman in Georgia to his friend in this city, which will be found to corroborate the views expressed by Stover, and to enforce the recommendations we now submit to our readers:

My Dear Sir:—I informed you last summer of my enlarged experiments this year with the Sorghum or Chinese Sugar Millet, and also promised to inform you of the re-

sults. All my expectations have been realized, both for Syrup and Forage, and in some respects exceeded. I plant in latitude 33° 30′ in Central Georgia. I this year planted 50 or 60 acres on all the quality of land in my farm, from rich creek alluvions to my most exhausted uplands—all did well—produced a more luxuriant crop than any other plant I cultivate on the same kind of soil, and on exhausted soil a much heavier crop than I supposed the soil capable of producing in any thing, even peas.

I planted at different times, from the middle of March to the 17th of July, it all matured, but the late planted did not bunch so much as the early. After ridging up and planting, it requires about half the amount of culture that corn does, and I think produces about double as much of forage for stock as corn does per acre, and matures two or three weeks earlier than our common crop corn, and if you can get a stand, it will grow and mature with almost no rain. It also grows well on land too moist either for corn or cotton. I have been feeding my hogs, horses and cows on it almost entirely since the first of August, and never had them to thrive and do better, and no deaths have occurred that I could trace to the Sorghum. I planted also 7 different varieties of the African Millet or Imphe. I have thrown all that away as inferior to the Sorghum except one, a white seeded millet that I am going to try this year as a bread corn—(we will see,) I have now, I think, an abundance of millet forage to carry my stock through the winter, and then seed enough to mix in the corn half and half to feed my work stock 10 or 12 weeks next summer. In the summer I grind the corn and millet seed and feed it on cut stuff. In this way I fed millet seed last summer with the most satisfactory results. I feed about 150 head of stock cattle, but the cows also have the corn shuck, and do not appear to be so fond of the millet as my other stock. I think it peculiarly valuable to feed to hogs and horses not at heavy work, but some of my neighbours have fed their riding and work horses with *it alone, and they say they stand work as well as when fed on old corn, but then the seed and stalk should be fully matured and fed together.* I don't think the plant is nourishing and probably not healthy *for stock* until the seed and saccharine matter are matured. It will wait on you in the field to cut for either forage or syrup 6 or eight weeks after the seed is fully hard, and for syrup I think it improves for 4 or 5 weeks after the seed have dried. The sap diminishes, and it requires less hauling, and I think the syrup has less of the peculiar vegetable matter.

I made this year 12 or 13 hundred gallons of the syrup. The apparatus, an iron mill, 2 rollers 12 inches long and 12 inches in diameter, and 4 shallow iron kettles holding about 60 gallons, each put up in furnaces. (I would prefer the kettles to hold 75 gallons.) The stalk has the tassel and seed cut off and stript of the fodder, then cut and hauled to the mill, and pressed through the rollers, strained and emptied into one of the kettles over a slow fire until the kettle is full. By that time there will be a thick skum on the top, skim that off and then kindle a strong fire and boil it as rapidly as you can, stirring it all the time, and the faster you boil it the better the syrup. Say boil it down to 1-6th in four hours, and if your cane is dry and fully matured, it will at least make 1 gallon of syrup to 6 of the juice, if sappy and green about 1 to 7 or 8. My mill expresses about 300 gallons of juice in the day, and that makes from 45 to 60 gallons of good syrup according to the condition of the cane. The 2d, 3d, and 4th kettles are filled and disposed of in the same way, and I think dry, sap-wood that will make more blaze is much better to use as fuel than hard wood, the heat is too intense from the hard wood. All my syrup this year is depositing quantities of crystalized sugar, and I have no doubt an economical mode of making sugar from it will be discovered yet.

I have planted the Sorghum 4 years, and my experience has drawn my attention to another idea. In a rotation of crops in restoring the peculiar fertility for other of our cultivated plants, it may turn out valuable as it feeds on and develops sugar or elements not used by our other cultivated crops. (We will see.) My observations this summer in the mountains of Tennessee and Virginia led me to think that it does not grow so luxuriantly there as here. If it does it will be immensely valuable *as a forage crop,* and also for syrup, as they can make it at a leisure season of the year, and save the expenses of transportation. You see I have given you my experience and my conclusions as short and as clear as possible without any effort at composition. I have striven more to be accurate than elegant.

Kind regards to yourself and family,
I am, dear sir, yours truly.

P. S.—I plant my seed thick enough to be sure of a stand, and let it stand until the plant is 6 or 8 inches high before I touch it, I then plow it and have it thinned out to a stand about twice as thick as I would leave cotton, and when 20 inches or 2 feet high, I plow or sweep it again just to clean it, and if thick enough, do nothing more.

A beautiful oriental proverb runs thus:—"With time and patience the mulberry leaf becomes satin." How encouraging is this lesson to the impatient and desponding! And what difficulty is there that man should quail at, when a worm can accomplish so much from a mulberry leaf?

For the Southern Planter.

Tobacco, not Necessarily an Exhausting Crop, and no Demoralizer.

[No. 2.]

MR. EDITOR:

In a previous contribution to the February number of your journal, I have reviewed, in part, an article, which, attempting to prove Tobacco "the bane of Virginia Husbandry," asserts that it is the most laborious and exhausting of all crops, and that "*it is a demoralizer in the broadest sense of the term.*" Your March number contains a continuation of the article I have attempted to review. I perceive my opponent is Gen'l John H. Cocke, of Bremo, one of the best farmers in the State; but the *identical gentleman*, to whom I have alluded as being possessed of an "Alabama adjunct" to his estate here, which enables him very well to dispense with the cultivation of tobacco in Virginia.

So far as relates to the charge, that tobacco is the most laborious of all crops, I have already shown, that this labor is so diffused throughout the year, as to be at no time oppressive, and that notwithstanding the care and labor incident to its cultivation, it PAYS better than any crop yet attempted in Piedmont and South-side Virginia. It has also been proven, by the testimony of all unprejudiced observers, that it is not necessarily an *exhausting* crop, but made so by *land-skinning* Vandals, who ignore rotation, and all means of keeping up the fertility of the soil, it matters not what be the staple cultivated. Your correspondent has sought to establish, that tobacco "is a demoralizer in the broadest sense of the term," that its cultivation involves labor that is oppressive on the producer, and that the effect of such cultivation, is to exhaust, and reduce to sterility, those sections where its cultivation obtains. Were these assertions unheard *beyond* the tobacco-growing region, they could produce no harm. *But*, when a writer of ability, and a resident of Virginia, known throughout the North, attempts to prove, through your journal, that *Southern men, with slave labor*, are *systematically* exhausting and impoverishing whole counties; that they are doing this by an unreasonable exaction of labor from their slaves, and that their energies, thus improperly spent, are employed in the cultivation of a poison, a "demoralizer in the broadest sense of the term," I cannot, though entertaining the highest respect for the gentleman, allow such unsupported assertions to go unquestioned. His strictures amount to a charge of immorality upon a large class of our rural population, which constitutes, as he has every means of knowing, one of the best elements in our social polity. He has attributed to gentlemen, engaged in the culture of tobacco, the habit of cutting tobacco *on Sunday*, to prevent damage from an anticipated frost on the Monday following; and in his last article, this is his remarkable declaration: "From time immemorial, in the history of tobacco, it has been the practice, when a moderate rain falls on a Saturday night, to plant on Sunday morning, rather than run the risk of losing the season, at a critical period of the year." This declaration is so expressed as to apply to tobacco-makers as a class. It is not confined to the few men, in every neighborhood, who habitually desecrate the Sabbath. No such system prevails. Not *one* planter in five hundred can be found, *who, once in ten years*, has been induced thus to violate the Sabbath. My associations have been with them from infancy, and I do not recollect one instance of Sabbath violation, occasioned by the crop, which any good or moral citizen has yielded to. Virginia, the enemies of her peculiar institutions have been accustomed to say, was once the mother of Presidents and statesmen, but is now the breeder of slaves. I protest against the completion of her degradation, in the eyes of Northern fanatics, on the part of your correspondent, who presents to the world this great mother of darkies, as tasking her slaves to the last limit of physical endurance, as desecrating the Sabbath, and exhausting the soil in the cultivation of "a demoralizer in the broadest sense of the term."

All the impoverished fields of the Old Dominion have been attributed to the cultivation, either at present, or at some past time, of this staple. But the truth is, thousands of acres, in Virginia, *have never been impoverished. They have been poor since the Creation, and poor they will ever remain, until a redundant population, cultivating truck-patches instead of farms*, undertakes to supply what nature has denied, viz: wanting elements of fertility to the soil. Even where originally fertile, a regular diminution in the productiveness of the soil,

under improper cultivation, and where no tobacco is grown, is everywhere observable. Thousands of acres in the Southern States have ceased, from this cause, to repay the cost of cultivation. Though tobacco culture is unknown in South Carolina and upper Georgia, and Alabama, their sterile districts appal the traveller, by a barrenness unknown to Virginia. Examine the statistics of the New England states, with their annually decreasing yield of wheat, mark the diminished products of even the alluvial prairies of the West, under a system which ignores drainage, rotation and rest, and you will find, Mr. Editor, that exhaustion of the soil is nowhere caused by the cultivation of any *one* staple, but by the improper cultivation of *all;* that it is due to the neglect of known laws, and to that grasping spirit, which, exacting from the bosom of mother earth all its nourishment, returns nothing to keep up its supply. A bountiful Providence, seeking to mitigate the primal cause of labor, has everywhere provided remedial agents for the resuscitation of the soil, but ignorance and folly reject the boon, and are finally forced to leave their country "for their country's good." Such was the case in Tide-water Virginia. A few years ago it was a wilderness for miles. Broom-sedge and stunted pines had usurped the land; its population fled in dismay from a country which seemed to be under a curse, abandoning their homesteads, or selling them for a pittance. Yet underlying these deserted farms, were inexhaustible supplies of marl, which it was only necessary to apply to restore them to fertility. When that man, Edmund Ruffin, whom I honor more than the whole race of Virginia politicians, all put together, published his views, and the remedy which the remaining population had at hand, he conferred a boon upon Virginia, which, though for a time undervalued, entitles him, in the estimation of all, now, to the very first position among the benefactors of the State.

But to return to the objections advanced by Gen. Cocke. I will state that one of his great arguments against tobacco, that you have the crops of two years on hand at one time amounts to really nothing. If the crop is sold in winter order from January to March, the only work done for the new crop during this period, is the plowing of the tobacco land and preparation of the beds.—Farmers frequently sow their wheat crops before delivering the crop seeded the previous year, but I have never heard this presented as an argument against wheat culture. The "watching, nursing, and pushing forward of the plant beds," mentioned as one of the items going to prove the laborious character of the crop—does not usually commence until the 1st of May, and one hand, in about 10 minutes, does all that is necessary, an application of manure, or plaster, being all that is requirod. Your correspondent, in order to make out his charge that it is the most laborious of all crops, has entered into details, which include every process connected with the crop, and upon the whole, (though undesignedly I am sure) has written thus far the best essay I have ever read on the cultivation of tobacco, and is entitled to the premium offered by our Society. The history given by him of the manner of its cultivation is complete. It will be the guide of my whole future cultivation, and I recommend it to all enquirers as to the proper method of cultivating, housing and curing the crop. But as to the results, we differ. He says "Tobacco makers buy a large portion of their meat from Western drovers, and often not a small portion of their bread." In reply, I have to say, that it is well to make a crop which furnishes the means to buy bread when the seasons fail. "It rains on the just and unjust alike," and frequently for long seasons *rains on neither.* The farmer fails in corn, and consequently in meat, and has nothing to buy with, always supposing their is no "Alabama adjunct" in the case. But the tobacco planter can in unfavorable years, purchase to supply deficiencies with proceeds of his tobacco crop. He says the farmer cannot spare manure to keep a grass lot, or an acre or two of meadow. In reply, I have to say, that the best possible way to insure a stand of grass, and form a permanent meadow is to prepare the land by a crop of tobacco.—He says it is neither meat, drink nor clothing for man, nor provender for beast, and that it starves both man and beast. This remark strikes me as plausible, and to my knowledge, I do not know of its being used for the purposes above stated, but it *buys* clothing, meat and drink, it insures provender, if you will sow grass seed, and after enriching a lot with tobacco will keep it in corn. Believing that there is no force in the objections thus far urged against the cultivation of tobacco, not one of the various operations described, involving anything like the la-

bors of the harvest field, and premising that all this labor *pays*, I urge for its continued cultivation, in the districts where it is now grown, the following convincing reasons:

1st. It is a great conservative of the institution of slavery in our State, keeping thousands engaged in its culture and manufacture who would otherwise be sold out of it.

2nd It gives employment to the farm force in winter.

3rd. Thus preventing the exposure or idleness consequent to a force not employed at all, or if employed, subjected to the weather.

4th. It is the best possible preparation for the wheat crop, and will ensure a stand of grass when every other preparation fails.

5th. It encourages the making of farm-pen manures, and the husbanding of all the materials the farm affords for that purpose.

6th. It is the best of all crops to eradicate weeds and briers to prepare new land for general field culture.

7th. It is peculiarly adapted to small farms, and leads to the subdivision of estates, as the value of the yield per acre exceeds any other crop.

8th. It is a crop easy of transportation, costing less than any other to get to market.

9th. It stands drought better than any other crop.

10th. Consequently if the grain crop fails, it furnishes the means of purchase.

11th. By cultivating it, you are sustaining a vast industrial and manufacturing interest which keeps up the price of lands, and furnishes to Virginia commerce the most of its exchange upon the North and Europe; and finally, when connected with the cereals and the grasses, this system affords the largest share of comfort and profit from the products of the soil, and affords reasonable prospects of maintaining, if not increasing the productive powers of the earth for an indefinite time.

In conclusion, Mr. Editor, I hereby declare my intention, with your kind permission, to defend this much abused weed from any farther assaults of your respected correspondent. I apprehend nothing from a fair discussion of the subject, but that the arguments adduced for growing the crop, by your many correspondents, will too greatly stimulate its production, and lead to a decline in prices.

Yours, very respectfully,

J. B. McClelland.

March 10th, 1859.

Economical Hints.

1. Have a work bench and a few tools in your woodshed, or in a little room at one end of your barn. There are many small jobs in the course of a year, which any man of common ingenuity can do as well as a professed carpenter. And there are many rainy days and "odd spells" when these jobs can be done. And how much waiting and patience this would save!

2. Have a place for everything and everything in its place. Those tools—why should they be lying around, the auger here, the jack-plane there and the saw yonder, and the adz and screwdriver no where? Don't put away a shovel, hoe, spade or any implement without cleaning it. This may seem needless care, but in the long run it is a saving of time and money. Rust corrodes and weakens the best made tools. There are men who leave their plows standing in the furrow, or lying by the side of the fence from one year to another. And the "bran new" scythe is often left dangling from the crotch of an apple tree month after month. Hear what a sensible farmer says: "Drive in stout wooden pins to hang your yokes upon, nail strips of board from joist to joist to hang chains upon, make a rack overhead for pitchforks, rakes, turning sticks," &c. To all of which we respond, So let it be!—*Am. Agr.*

Tomato Wine.

Superior wine from the tomato is now manufactured. It is made with no other ingredients than the pure juice of the tomato and sugar, and very much resembles champagne—a light transparent color, with a pleasant, palatable flavor. It can be made equal to the best champagne.

To gain a correct acquaintance with human nature, it is not necessary to move in a public or extensive sphere. A more limited circle of observation conduces to greater minuteness and accuracy. A public mode of life is favorable to knowledge of manners; a private, to a knowledge of character.

One's breeding shows itself nowhere more than in his religion. A man should be a gentleman in his hymns and prayers.—O. W. Holmes.

The secret pleasure of a generous act is the great mind's great bribe.—Dryden.

An April Day.

When the warm sun, that brings
Seed-time and harvest, has returned again,
'Tis sweet to visit the still wood, where springs
The first flower of the plain.

I love the season well,
When forest glades are teeming with bright forms,
Nor dark and many-folded clouds foretell
The coming-on of storms.

From the earth's loosened mould
The sapling draws its sustenance and thrives;
Though stricken to the heart with winter's cold,
The drooping tree revives.

The softly-warbled song
Comes from the pleasant woods, and coloured wings
Glance quick in the bright sun, that moves along
The forest openings.

When the bright sunset fills
The silver woods with light, and the green slope throws
Its shadows in the hollows of the hills,
And wide the upland glows.

And, when the eve is born,
In the blue lake the sky, o'er-reaching far
Is hollowed out, and the moon dips her horn,
And twinkles many a star.

Inverted in the tide,
Stand the gray rocks, and trembling shadows throw,
And the fair trees look over, side by side,
And see themselves below.

Sweet April!—many a thought
Is wedded unto thee, as hearts are wed;
Nor shall they fail, till, to its autumn brought,
Life's golden fruit is shed. LONGFELLOW.

Waiting.

"Wherefore dwell so sad and lonely,
By the desolate sea-shore;
With the melancholy surges
Beating at your cottage door?

"You shall dwell beside the castle,
Shadowed by our ancient trees!
And your life shall pass on gently,
Cared for, and in rest and ease."

"Lady! one who loved me dearly
Sailed for distant lands away;
And I wait here his returning
Hopefully from day to day.

"To my door I bring my spinning,
Watching every ship I see:
Waiting, hoping, till the sunset
Fades into the western sea.

"Every night, behind my casement
Still I place a signal light;
He will see its well-known shining
Should his ship return at night.

"Lady! see your infant smiling,
With its flaxen curling hair;—
I remember when your mother,
Was a baby just as fair.

"I was watching then, and hoping;
Years have brought great change to all;
To my neighbours in their cottage,
To you nobles at the hall.

"Not to me—for I am waiting,
And the years have fled so fast
I must look at you to tell me,
That a weary time has past!

"When I hear a footstep coming
On the shingle,—years have fled,—
Yet amid a thousand others.
I shall know his quick light tread.

"When I hear (to-night it may be)
Some one pausing at my door,
I shall know the gay soft accents,
Heard and welcomed oft before!

"So each day I am more hopeful,
He may come before the night;
Every sunset I feel surer,
He must come ere morning light.

"Then, I thank you, noble lady;
But I cannot do your will:
Where he left me, he must find me,
Waiting, watching, hoping still!"

All's for the Best.

All's for the best, be sanguine and cheerful,
Trouble and sorrow are friends in disguise,
Nothing but folly goes faithless and fearful,
Courage forever is happy and wise.
All's for the best, if a man would but know it,
Providence wishes us all to be blest,
This is no dream of the pundit, or poet,
Heaven is gracious, and all's for the best.

All's for the best, set this on your standard,
Soldier of sadness, or pilgrim of love,
Who on the shores of despair may have wandered
A way-wearied swallow, or heart stricken dove.
All's for the best, be a man but confiding,
Providence tenderly governs the rest,
And the frail bark of his creature is guiding,
Wisely and warily, all for the best.

All for the best, then fling away terrors,
Meet all your fears and your foes in the van,
And in the midst of your dangers or errors,
Trust like a child, while you strive like a man.
All's for the best, unbiassed, undoubted,
Providence reigns from the East to the West,
And by both wisdom and mercy surrounded,
Hope and be happy that all's for the best.

M. F. TUPPER.

UNIVERSITY OF VIRGINIA.
May 13th, 1858.

Gentlemen—In my letter of last week I gave you a percentage for the Phosphate of Lime in your SOMBRERO GUANO you sent me for analysis, which I suspected at the time to be too high, and informed you. An error was probably made in the weighing.

The analysis has since been repeated by both Dr. Tuttle and myself, and I submit the following as a reliable result:

Phosphate of lime,	83.43
Carbonate of lime,	3.45
Insoluble matter,	1.18
Moisture and organic matter,	11.47
	99.53

The organic matter in the Guano was too inconsiderable to be deemed worthy of separate determination.

Very respectfully your ob't serv't,
S. MAUPIN.

Messrs. EDMOND & DAVENPORT, Richmond, Va.

The above was an average sample of Sombrero Guano from the bark Christiana's cargo, (500 tons). We refer to a former advertisement as to what other eminent chemists think of this Guano; and among planters of our own State, to whom we would refer, we name the Hon. J. S. Armistead, of Cumberland, who has purchased for himself and friends some twenty tons of it.

EDMOND, DAVENPORT & CO.
July 1858—tf

THE SOUTHERN PLANTER

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Twenty do do	30
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And one copy free to persons sending us the NAMES and MONEY for thirteen or more new subscribers.

All money remitted to us will be considered at our risk *only*, when the letter containing the same shall have been *registered.* This rule is adopted not for our protection, but for the protection of our correspondents, and we wish it distinctly understood that we take the risk only when this condition is complied with.

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