

Those substances which are capable of uniting in this manner, are said to have an affinity for each other, as oil and potash, but oil will not unite with water, and therefore those substances which do not form a chemical union, are said to have no affinity.

56. *The Primitive Earths*—are four, viz: clay, sand, lime, and magnesia.

These are the only earths which enter into the composition of soil; they enter also in very minute portions into the organizations of plants.

Sand and clay are by far the most abundant; lime is required but in small proportions; every soil, however, is defective without it. Magnesia is found but in few soils; its place is well supplied by lime; its entire absence, therefore, is not considered any defect.

(To be continued.)

## GARDENING.

[By John Morris.]

The first things to be taken into consideration, to ensure a good degree of success, is the proper construction and management of the seed beds; a failure in the first effort to obtain a crop, is almost always attended with a partial failure at least, of the second or third. A seed bed should, in the first place, be located in a door-yard pathway, or some place where the ground is trodden, and frequented during the growth of the plants. The bed should be made in shape, not to exceed two feet in width, and as long as may be required, also be raised six or eight inches by perpendicular board edging. Previous to putting in the earth, let it be thrown in a pile, and a fire made thereon, sufficiently hot to destroy all insects, or germs of weeds that may be in it; place the earth so prepared in the frame of the seed bed, and as soon as it is sufficiently cooled, sow in the seed, patting firmly with the back of the spade. For celery, and such tender plants, a covering of brush, to partially protect them from the heat of the sun, may be necessary. One of the first vegetables of importance in the list of culinaries, is—

**Cabbages.**—When the plants have attained to a size for transplanting, the ground should be prepared by thorough plowing, and laid out in furrows three feet apart; on the side of these furrows set the plants, after pinching off the downward root; two feet apart in the rows. As cabbages are inclined to bind the soil, to their own detriment, they must be freely cultivated with the plow, until they have attained almost their full size. No sprout should be left to grow on a seed cabbage but that which shoots from the centre of the head.

**Onions.**—In the cultivation of onions, a spot of ground should be selected that can be used for the purpose several years in succession. After laying out the ground in drills 16 inches apart, sowing and covering the seed, sprinkle over leached ashes freely, roll or pat the ground firmly; leave no lumps or litter on the bed for destructive insects.

**Tomatoes**—are becoming so generally used on our tables, that a few remarks on the culture may not be out of place. The seed may be sown in the fall or very early in the spring, in a sheltered situation; if the plants appear too early to escape frost, they may be protected by some covering. Set the plants in the poorest ground you have, four feet apart each way, in hills made for the purpose, three or four inches high, and as they grow, continue to hill up, as long as the plant remains upright. One or two plants are enough in a hill.

**Lettuce.**—The lettuce bed should be well manured with hen dung. If transplanted 16 inches apart, in a bed well prepared, they will afford a much better salad than if left to grow in a cluster in a seed bed, as is too generally the case.

**Transplanting from seed beds.**—If the weather should prove so dry as to endanger the plants which you may want to put out, it may be done with safety by thoroughly wetting the seed bed then prepare a liquid of fresh cow-dung and water, draw the plants, dip the roots in the

liquid, and transplant, in the evening, watering freely when done.

In raising seed, the following has been the result of my observation:—Cucumbers will destroy the flavor of melons, pumpkins of squashes, squashes of the melons, rutabagas will incline cabbages to grow clubfooted, different varieties of the melons will sometimes produce a better variety, but two thirds will be good for nothing. Different varieties of the same species will always mix, and almost always lose the size and flavor. Fifteen rods is my rule of distance between plants of the same species.

### Prevention of Mildew on Peach Trees.

—We find the following remedy for mildew on Peach and Nectarine trees, recommended by the sagacious Loudon:—

“Take sulphur and rain or river water, proportions of two ounces of sulphur to every four gallons of water. Put the quantity which may be required into a copper or boiler, and let it (after it commences boiling) boil for half an hour; after which it may be taken out, or suffered to remain until it becomes of a tepid state, when it ought to be applied to the trees by means of a garden engine or syringe, as in a common washing with water. The time for applying it is annually, as soon as the fruit is set and considered out of danger.”

**Grafting Grape Vines.**—The following is the mode practised by the late Mr. Herbermont, of South Carolina. “Take away the earth around the vine to the depth of four or five inches—saw it off about two or three inches below the surface of the ground. Split it with a knife or chisel, and having tapered the lower end of the scion in the shape of a wedge, insert it in the cleft stock, so as to make the bark of both coincide, (which perhaps is not necessary with the vine;) tie it with any kind of string merely to keep the scion in its place, so as to leave only one bud of the graft above the ground, and the other just below the surface, and it is done.”

**To Kill the Peach Tree Borer.**—Mr. James Camack, of Athens, Georgia, in a letter published in the Magazine of Horticulture, recommends fish brine, diluted with an equal quantity of water, and a pint to be turned round each tree in the spring or fall. The trees on which he used this liquid were 2½ to 3 inches in diameter. To smaller trees he thinks less brine should be applied.

## THE EFFECTS OF AGRICULTURAL PAPERS ILLUSTRATED:

### Or, The Story of Uncle Tim and his Son.

Mr. Timothy Treadmill, was about the tightest man that ever came from “down east”, but although penurious in the last degree he never became very rich. He was a firm believer in the doctrine of “following in the footsteps of his predecessors,” and practiced it to an iota. The way his father planted corn, he planted it—the same time in the moon that his father sowed peas, he sowed them. The last pair of cart wheels that were seen wearing a streak tire, wore Uncle Tim’s—and the last of the old wooden plows was seen mouldering into its original elements at the back of his wood-house. In short, with the exception of adopting some few improvements in the way of implements, he was precisely as good a farmer the day he left his father’s roof, as he was forty years afterwards.

That there was any better way of farming than that practiced by his father and the rest of the good people down in old Connecticut for so long a time, nothing short of actual demonstration could make him believe. The idea of improvement in farming seemed to be as absurd in his mind, as that the bees should set about making an improvement in the construction of their cells, or the birds in building their nests.

Book farming and new notions were his utter abomination. What! such men as Judge Buel, who never pretended to be a farmer till he was forty years old, undertake to teach him how to raise corn and potatoes, who had been a farmer all his days, and his father before him. He take a newspaper to learn how to farm?—no—he knew better than to pay his money for such foolery as that. If any body wanted to read the big stories of them new fangled farmers about Albany, about their great crops and their new fashioned kinds of cattle and hogs, he was willing they should, but for his part, he believed he could farm about as well as those that printed new-papers and raised spotted hogs to sell.

His farm was “suitably divided into mowing, pasturing, plough, and wood-land,”—what was in pasture when he bought the farm remained in pasture still, and what was “mowing at that time, the plowshare had never disturbed, and what was ploughed then remained still the same, his manure always laid at the barn till fall, because it was so much better for corn after it was nicely rotted, and his barnyard was so situated that the water would run from it in all directions—of course it was always nice and dry. When he happened to have a little manure left after planting, he had been known to put a little sprinkling on some spot in his meadow, where he thought daisies and June grass were likely to run out—but as long as the daisies flourished well he was not alarmed, for he said the farmers down in Connecticut, thought they made about the best hay of any thing. In hosing he was not over anxious about the weeds, for he said they kept the ground light and moist, and that where the quack grass was thickest, he always had the best corn. But as Uncle Tim was not deeply read in natural philosophy, it did not occur to him that the corn and quack both would grow most luxuriantly on the richest spot of ground.

But as I said before, Uncle Tim never grew very rich—for, although he saved every thing, the fact was he had not much to save. His cattle and his fields being lightly fed, fed him lightly in return. It seemed to him that all he gave his cattle beyond what was barely sufficient to keep skin and bone together, was about the same as thrown away, and every hundred of hay he could save to sell in spring, was so much clear gain. And as for laying out any expense to increase his quantity of manure, it was a thing he never dreamed of. But as I said before, starving his cattle and his crops proved to be a bad business, for there seemed to be a fair prospect that it would end in starving himself. He could perceive that the products of his farm gradually diminished from year to year, still he never seemed to suspect that the cause was to be attributed to bad management.

There were, however, good things about Uncle Tim. And although errors and prejudices of this kind seemed to be, in a great measure incurable, his were entitled to as large a share of charity as those of most other men. There was one thing about which he evinced quite a commendable degree of liberality. He had a son growing up to manhood, and his better feelings induced him to go so far as to say he thought young people now-a-days ought to have a better education than they had 40 or 50 years ago, when he was a young man. In fact he afforded his son a very tolerable opportunity for acquiring a good common education. And finally young Timothy was becoming quite a reading, and consequently, intelligent young man. This, however, led to consequences entirely unforeseen by the father, and which for a while gave him a good deal of uneasiness.

In his intercourse with the more intelligent of their neighbours the young man had occasionally met with agricultural papers, and perused them as far as opportunity permitted, with a good deal of interest. He saw that many of his father’s notions about farming were erroneous. The evidences that great and important improvements were taking place, were to his mind altogether irresistible. And although he well knew that his father would oppose any innovations, he began occasionally to make known the result of his reading and reflection on the subject, by pro-