

dance in many mineral waters, as at Ballston and Saratoga, in the State of New York; it is produced by the composition of wood and charcoal, by the fermentation of liquors, and by the decomposition or putrefaction of vegetable substances; but the largest store of it is that enormous quantity solidified or rendered solid in all the immense beds of limestone with which every part of the globe abounds.

Of limestone, 45 parts in every hundred are computed to be carbonic acid.

As before observed, when uncombined with any other substance, it always exists in the state of gas. It is heavier than atmospheric air. If this gas be poured from a wide-mouthed jar upon a lighted candle, it will be as effectually extinguished as by water.

*Efferescence* is a sudden disengagement of gas taking place within a liquid, and separating from it with a hissing noise.

*Chemical Affinity* is a term used to signify the attraction or tendency there is between the particles of certain substances, of different natures, to unite, thereby forming a third substance possessing properties altogether different from those of either of the two substances of which it is composed. Thus potash and oil have a tendency to unite, thereby forming soap, which is a third substance very different from the oil or the potash, of which it is composed.

These substances which are capable of uniting in this manner, are said to have 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.

*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 organization 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.

**CULTIVATION OF FRUIT.**—The following is an extract from a very excellent agricultural address, delivered in October last, by Rev. Charles B. Kittridge of Westboro', before the Agricultural Society of Westboro' and vicinity:—

'But there is another source of profit to the agriculturist too often overlooked and neglected: I refer to the production of fruit. I refer to it now simply as a source of pecuniary profit, or a means of wealth.—Good fruit is an article which never wants a market; and the demand will doubtless increase, for many years at least, with the supply. There is nothing, perhaps, produced with so little labour and expense, which, at the same time, yields so abundant a reward.—There is a single tree in this town, reared by the hand of one of your members, which though not yet ten years old, produced the last year, four barrels of prime winter fruit. These were sold for not less than \$1.50 per barrel; paying an interest at six per cent. on \$100. One hundred such trees might be set upon an acre of ground. The original cost of the trees we will suppose to be \$100 or one dollar each, and the value of the land \$100. During the first ten years after their sitting, we will suppose that the trees pay the annual interest on their original cost, together with the expenses of cultivation, which is far below their actual yield. The land during this period, is

equally valuable for cultivation as before the setting of the trees, and may reasonably be supposed to pay its own interest. In ten years, then, under proper management, we have one hundred trees in a bearing state like the one above referred to, which, with the land they cover, have cost \$200. Now deducting two hundred per cent. from the simple tree for unfruitful years, and causes of unproductiveness, and \$50 per annum for expense of cultivation, and \$12 interest on the original cost, there remains a net profit of \$138 per annum on a single acre, which is equal to the interest at six per cent. of \$2,500! Or in other words a single acre of land in this state is worth \$2,500.

'Take another fact: In an adjoining town I have occasionally passed a row of quince trees set along by the garden wall, some six or eight rods in length. These bushes for several years have been worth to the owner some \$600 or \$700; that is, they have an annual interest at six per cent. on that sum. More than six hundred trees of the same kind might be judiciously set upon an acre of ground; which yielding at the same rate would give the owner the pretty little sum of \$1,200 per annum!

But deducting one half for unfruitful trees and half of the remainder for expense of cultivation and causes of unproductiveness, and there remain still the handsome profit of \$300 on a single acre, or an interest at six per cent on \$5,000! If these estimates be sound, and I see not why they are not so, where, I ask, is the highway to wealth, if the agriculturist has not found it?'

**EGGS.**—Almost every body loves good fresh eggs, and with or without glasses or silver spoons, can contrive to eat them. Whether boiled or fried, raw or roasted, made into custard with sugar and spices, or swallowed gently with a bordering of old port, they agree with the palate and the stomach, and neatly laid out with fair slices of bacon they form a repast within the reach of all, and to be despised by none. But though most farmers keep fowls, and raise their own eggs, there are many who have not yet learned the difference there is in the richness and flavor of eggs produced by fat and well fed hens, and those from birds that have been half starved through our winters. There will be some difference in the size, but far more in the quality. The yolk of one will be large, fine coloured, and of good consistence, and the albumen or white, clear and pure, while the contents of the other will be watery and meagre, as though there was not vitality or substance enough in the parent fowl to properly carry out and complete the work that nature had sketched. In order to have good eggs, the hens should be well fed, and also provided during the months they are unable to come at the ground, with a box of earth containing abundance of fine gravel, (if limestone so much the better,) that they may be able to grind and prepare for digestion the food they receive. Fowls form no small item in the profits of the small farmer, and few creatures better repay the care and attention they receive. Of eggs, those of the domestic hen are decidedly the best; but those of both ducks and geese may be used for some of the purposes of domestic cookery. Eggs can be kept any length of time, if the air is perfectly excluded, and the place of deposit kept at a low temperature."—*Genesee Farmer.*

**ROTATION OF CROPS.**—Mr. Benj. H. Hart, of Dutchess County, practises the following course with success: first year, corn and roots—the second, oats with clover seed, and to remain two years in