

quantities in all soils, and is, besides this, a product of the decay of all organic matter, whether animal or vegetable.

The carbon is now to be accounted for. The plant needs much of this; but carbon is a solid, and is insoluble in water; and so, under its own form, the plant cannot appropriate it. But carbonic acid gas exists in the atmosphere, is freely soluble in water, is imbibed by the roots after showers, and is even to some extent received through the leaves. Thus we see that the atmosphere contains all the elements necessary to plant-life, and that these exist under the fluid or gaseous form, the form best adapted for absorption; and we see, too, that while the atmosphere contains the food, the plant derives it mainly from the soil.

From such materials as these, Nature furnishes an enormous variety of food. It must vary according to the countries which animals inhabit. In northern countries the cereals, particularly wheat and corn, largely supply our daily bread; but, to secure the ripening of the wheat, there must be frost, otherwise it grows rank and bears no seed. In warmer countries there is no winter. In proportion as we approach the equator the seasons are less sharply defined. When wheat no longer ripens, other vegetables take its place. Their name is legion. A very curious one is the bread-fruit tree of Otaheite—a tree about 40 feet in height. Its fruit is globular, the size of a child's head, consisting of a thick green rind covered with hair. Its pulp, when ripe, is yellow, succulent, and gelatinous. The fruit ripens during eight consecutive months in the year, and is the main food of the natives. They bake it in an oven, and when ready to be eaten it is said to be white, tender as the crumb of French rolls, and differing but little in taste from wheaten bread.

In 1829, a traveler in Guiana met with a tree, of whose juice he says: "I had in the morning a glass of this milk for my coffee, and it proved so good a substitute for cow-milk that no one could have told the difference." It seems almost unaccountable that none of our enterprising New England sea-captains have attempted to graft the bread-fruit upon the milk tree. The advantages of such an undertaking are sufficiently obvious without further mention. On the banks of the Niger the natives gather their butter directly from a tree (*Pentadesma butyracea*), and sell it in their markets.

Another office of the vegetable kingdom is found in its purifying influence upon the air. Carbonic acid gas is a deadly poison. Those who desire to "shuffle off this mortal coil" can succeed by inhaling the fumes of burning charcoal. In a far less degree we all experience its bad effects. Bad air is one of the objections to the theatre. The best of us are liable to go to sleep in church; it is doubtless due as much to the carbonic acid as to the sermon; for I have observed in this very room, which the trustees have been solicitous to ventilate properly, some of the best and most industrious