form of nitrates, phosphorus in the form of phosphates, sulphur partly in the form of sulphates and partly as a constituent of albumenoids.

As has been stated, carbon is the most abundant of the dry matter of plants. The great source of vegetable carbon is the carbonic-acidgas of the atmosphere. This gas is a union of oxygen and carbon, is always produced by the union of these elements as by the breathing of animals, the burning or decaying of vegetable substances. In some way or other, which we cannot very well understand, the leaves of plants have the power of absorbing this gas, and in the presence of sunlight the carbon acid thus absorbed is decomposed, the oxygen being set free and the carbon retained by the plant.

The plant thus plays a part directly opposite to that of the animal. The latter breathe in oxygen, which unites with the carbon of the food consumed, giving off as one of its products carbonic acid, which is expelled by the animal at every breath. This gas is poisonous to animal life, but it serves as food to the plant. Plants, on the other hand, breathe in (so to speak) the carbonic acid, and breathe out oxygen purified for the use of the animal.

Probably a small quantity of water is also absorbed by the leaves of plants, particularly in dry seasons, but the great source of water is from the soil by means of the roots of the rlant. A small quantity of nitrogen in the form of nitric acid, or ammonia, is also absorbed by the leaves of plants, but most plants seem to have no power to appropriate the uncombined nitrogen which comprises four-fifths of atmospheric air. They are thus dependent for their supply of nitrogen, which is one of the most important constituents of plant food, upon the soil chiefly. The humus or decayed vegetable matter of soils has its origin in the dead roots, leaves, etc., of a previous vegetation. It is the principal nitrogenous constituent of the soil. A black soil rich in humus is sure to be rich in nitrogen, a soil destitute will contain scarcely any nitrogen. The nitrogen contained in humus is not in insoluble state, but by the action of a minute bacterium present in all soils, humus and ammonia, are oxidired, and their nitrogen converted into nitric acid; then in the presence of some base as calcium, carbonate or potassium, this is converted into some of the soluble nitrate salts. Of all the readily soluble salts the nincates are of the greatest