in which both Oxygen and Nitrogen form the atmosphere, is by their weight about 23 per cent. of the former, to 77 per cent. of the latter. Each particle of Oxygen is therefore mixed with about 4 particles of Nitrogen. By this arrangement a dilution of the pure Oxygen is effected and consequently its destructive influence upon living and dead bodies diminished, to such an extent as is in best accordance with the wants of nature.

Carbonic Acid is the product of the decomposition of organic substances, arising from the combination of Carbon with atmospheric oxygen. All organic substances consist chiefly of Carbon; and therefore when oxydized, produce Carbonic Acid, which escapes in gaseous form, and diffuses itself through the atmosphere.

The functions which this constituent of the atmosphere performs, are of high importance in the economy of nature. It is not alone the chief nourishment of plants, which by separating the Oxygen, appropriate to themselves its Carbon; but in its chemical character, which is that of a weak acid, it is a powerful agent under the influence of which, as will be seen below, the process of the degradation of rocks and formation of soils is produced. The quantity of Carbonic Acid contained in the atmosphere is not constant—it ranges however between certain limits, and depends on many particular circumstances; e. g. on the season of the year, on the time of the day, on the locality, on the weather, &c.

Ammonia, a substance composed of Hydrogen and Nitrogen, is also a product of the decomposition of organic bodies, (which contain Nitrogen,) and for this reason is likewise diffused through the atmosphere, of which it makes a constituent; and to it we must also ascribe important functions, though its quantity is comparatively very small. Experiments expressly made to ascertain its importance, have shown that plants can live and develop themselves without having any other source capable of furnishing them with Nitrogen, but the Ammonia contained in the atmosphere; and if practical experience has shown that a rational husbandman should not always rely on this supply of Nitrogen, the result of the experiments just mentioned nevertheless teaches us a fact which throws sufficient light on the high importance of this substance.

Water is, in the form of gas and vapor, another constituent of the atmosphere, of which it forms about one per cent. of its volume. Its quantity, however, varies very much on account of circumstances which have been noticed already, when speaking of Carbonic Acid. It originates in exhalations from the surface of our globe, and is dissolved by the atmosphere in form of a gas, the specific gravity of which is much lighter than that of the atmosphere itself. For this reason, it goes up to a certain height, where it is collected and finally condensed to water (clouds,) which when heavy, falls down (as rain) to its original place, the surface of our globe. Rain-water contains in solution small quantities of all the constituents of the