"From her unpolluted dust,
Shall violets spring,"

can readily be admitted, without poetical license.

The mode in which the various changes incident to vegetation are effected deserves a passing notice. In the process of germination, the sprouting of the seed, oxygen is absorbed, heat is developed, and probably acetic acid is formed, whose use is to extract from the soil bases useful for the further progress of the plants. The substance of the seed (starch and albumen) becomes soluble, and undergoes certain changes by which the woody fibre required for the stem and leaves is produced. The plant now must absorb from the air and soil, matter necessary for its growth.

By means of its roots, the necessary mineral matter is taken up, and also ammonia and some portions of its carbonic acid. By far the greater portion of the latter is, however, absorbed by numerous pores on the bottom of the leaf, and under the influence of light, carbon necessary for its woody fibre, gum, &c., is separated and retained; whilst oxygen, fit for the respiration of animals, is thrown out by pores on the top of the leaf. During daylight, plants are continually absorbing carbonic acid and giving out oxygen; in the night the contrary, to some extent, prevails; they then throw out carbonic acid. This explains partially the fact of the greater and more rapid growth of vegetable life during the summer season, when the days—the period of light in which the plants assimilate carbon and build up their structure—are much longer than in other seasons of the year.

Oxygen.—Another of the elementary constituents of organic matter is oxygen, and one of the most generally diffused in nature; though, contrary to what some have said, it performs no more important part than any of the other elements.

All are necessary; each performs the special part assigned to it; they are all links in the great chain of matter. It forms a large part of the atmosphere which surrounds the earth, about eight-ninths of all the water in existence, besides forming a very large proportion of rocks, minerals and soils. In water, it is in chemical union with hydrogen, and in the air it is only mechanically mixed, not chemically combined with nitrogen, both elements of organic matter hereafter to be described; but in soils and rocks it is combined with various bodies, affecting their properties in a very great degree. In its pure state it is invisible, colorless, tasteless, and without smell. It has a very strong affinity for almost all bodies. The *act* of combining with oxygen is called *oxydation;* and the compounds thus formed are called either Acids or Oxyds. The former of these possesses the general properties of acids; the latter of bases,