sorbing from the atmosphere and soil organic matter which, having an affinity for oxygen, decomposes peroxides and reduces them to protoxides. This change is especially noticeable among iron-oxides, as in the familiar white spots and veinings so common among red sandstones. These rocks are stained red by ferric oxide (hæmatite), which, reduced by decaying organic matter to ferrous oxide, is usually removed in solution as an organic salt or a carbonate. When the deoxidation takes place round a fragment of plant or animal, it usually extends as a circular spot; where water containing the organic matter permeates along a joint or other divisional plane, the decoloration follows that line. Another common effect of the presence of organic matter is the reduction of sulphates to the state of sulphides. Gypsum is thus decomposed into sulphide of calcium, which in water readily gives calcium carbonate and sulphuretted hydrogen, and the latter by oxidation leaves a deposit of sulphur. Hence from original beds of gypsum, layers of limestone and sulphur have been formed, as in Sicily and elsewhere (p. 124).[51]

3. *Solution.*—A few minerals (halite, for example) are readily soluble in water without chemical change, and without the aid of any intermediate element; hence the copious brine-springs of salt regions. In the great majority of cases, however, solution is effected through the medium of carbonic acid or other reagent. Limestone is soluble to the extent of about 1 part in 1000 of water saturated with carbonic acid. The solution and removal of lime from the mortar of a bridge or vault, and the deposit of the material so removed in stalactites and stalagmites (p. 620), likewise

[51] The reducing action of organic acids is further described in Section iii.