organic source, they cannot be distinguished from mere mineral-grains. In this way, a cycle of geological change is completed. The calcium-carbonate originally dissolved out of rocks by infiltrating water, and carried into the sea, is secreted from the oceanic waters by corals, foraminifera, echinoderms, mollusks and other invertebrates. The remains of these creatures collected on the sea-bottom slowly accumulate into beds of detritus, which in after times are upheaved into land. Water once more percolating through the calcareous mass, gradually imparts to it a crystalline structure, and eventually all trace of organic forms may be effaced. But at the same time, the rock, once exposed to meteoric influences, is attacked by carbonated water, its molecules are carried in solution into the sea, where they will again be built up into the framework of marine organisms.

E. Alteration of Rocks by Meteoric Water.—An important revelation of the microscope is the extent to which rocks suffer from the influence of infiltrating water. The nature of some of these changes is described in subsequent pages. (Book III. Part. II. Sect. ii. § 2.) It may be sufficient to note here a few of the more obvious proofs of alteration. Threads and kernels of calcite running through an eruptive rock, such as diabase, dolerite, or andesite, are a good index of internal decomposition. They usually point to the decay of some lime-bearing mineral in the rock. Some other minerals are likewise frequent signs of alteration, such as serpentine (often resulting from the alteration of olivine, Figs. 33, 34), chlorite, epidote, limonite, chalcedony, etc. In many cases, however, the decomposition products are so indefinite in form and so minute in quantity as not to permit of their being satisfactorily referred to any