

inquiry brings before us the minute structure or texture of rocks, and throws great light upon their origin and history."⁹⁸

Four types of rock-structure are revealed by the microscope. A, holocrystalline; B, hemi-crystalline; C, glassy; D, clastic.

A. HOLOCRYSTALLINE, consisting entirely of crystals or crystalline individuals, whether visible to the naked eye, or requiring the aid of a microscope, imbedded in each other without any intervening amorphous substance. Rocks of this type are exemplified by granite (Figs. 15 and 29) and by other igneous rocks. But they occur also among the crystalline limestones and schists, as in statuary marble, which consists entirely of crystalline granules of calcite (Fig. 28).

According to the classification proposed by Prof. Rosenbusch the holocrystalline structure is *idiomorphic* or *panidiomorphic* when each of the component crystals has assumed its own crystallographic form, and *allotriomorphic* when it has its outlines determined by those of its neighbors. When interspaces have been left between the crystals or crystalline grains the structure is *miarolitic* or *saccharoid*.

The holocrystalline eruptive rocks (p. 269) are typically represented by granite, hence the term *granitoid* has been adopted to express their microscopic structure. Varieties of this structure are designated according to the relations of the component minerals. Where no one mineral greatly preponderates, but where they are all confusedly and tolerably equally distributed in individuals readily observable by the naked eye, as ordinary granite, the structure is

⁹⁸ The first broad classification of the microscopic structure of rocks was that proposed by Zirkel, which, with slight modification, is here adopted. "Mik. Beschaff." p. 265. "Basaltgesteine," p. 88. See also Rosenbusch's suggestive paper already cited, Neues. Jahrb. 1882 (ii.), p. 1.