have been thrown out, and lavas have flowed over the land or bed of the sea, at many different epochs, or have been injected into fissures; so that the igneous as well as the aqueous rocks may be classed as a chronological series of monuments, throwing light on a succession of events in the history of the earth.

Plutonic rocks (Granite, &c.).—We have now pointed out the existence of two distinct orders of mineral masses, the aqueous and the volcanic : but if we examine a large portion of a continent, especially if it contain within it a lofty mountain range, we rarely fail to discover two other classes of rocks, very distinct from either of those above alluded to, and which we can neither assimilate to deposits such as are now accumulated in lakes or seas, nor to those generated by ordinary volcanic action. The members of both these divisions of rocks agree in being highly crystalline and destitute of organic remains. The rocks of one division have been called plutonic, comprehending all the granites and certain porphyries, which are nearly allied in some of their characters to volcanic formations. The members of the other class are stratified and often slaty, and have been called by some the crystalline schists, in which group are included gneiss, micaceous-schist (or mica-slate), hornblende-schist, statuary marble, the finer kinds of roofing slate, and other rocks afterwards to be described.

As it is admitted that nothing strictly analogous to these crystalline productions can now be seen in the progress of formation on the earth's surface, it will naturally be asked, on what data we can find a place for them in a system of classification founded on the origin of rocks. Ι cannot, in reply to this question, pretend to give the student, in a few words, an intelligible account of the long chain of facts and reasonings by which geologists have been led to infer the analogy of the rocks in question to others now in progress at the surface. The result, however, may be briefly stated. All the various kinds of granite, which constitute the plutonic family, are supposed to be of igneous origin, but to have been formed under great pressure, at a considerable depth in the earth, or sometimes, perhaps, under a certain weight of incumbent water. Like the lava of volcanoes, they have been melted, and have afterwards cooled and crystallized, but with extreme slowness, and under conditions very different from those of bodies cooling in the open air. Hence they differ from the volcanic rocks, not only by their more crystalline texture, but also by the absence of tuffs and breccias, which are the products of eruptions at the earth's surface, or beneath seas of inconsiderable depth. They differ also by the absence of pores or cellular cavities, to which the expansion of the entangled gases gives rise in ordinary lava.

Although granite has often pierced through other strata, it has rarely, if ever, been observed to rest upon them, as if it had overflowed. But as this is continually the case with the volcanic rocks, they have been styled, from this peculiarity, "overlying" by Dr. MacCulloch;