

true volcanic rocks (as in the Tertiary granophyres of Mull and Skye), and forming, perhaps, the lower portions of masses which flowed out at the surface as lavas. Granite is thus a decidedly *plutonic* rock; that is, it has consolidated at some depth beneath the surface, and in this respect differs from the superficial *volcanic* rocks, such as lavas, which have flowed out above ground from volcanic orifices.

Quartz-Porphyry (Microgranite, Eurite).¹⁷¹—A fine-grained microgranitic ground-mass, composed mainly of felspar and quartz, through which are usually scattered conspicuous porphyritic crystals of one or other or both of the same minerals.

To the naked eye the ground-mass varies from an exceedingly compact texture to one where abundant minute crystals can be detected. Of the porphyritic constituents the quartz occasionally occurs in bi-pyramidal crystals; the felspar is usually orthoclase, while black mica occasionally appears. Under the microscope the structure of the rock is found to be microgranitic, with frequently a micropegmatitic arrangement of the quartz and felspar (granophyre).

The flesh-red quartz-porphyry of Dobritz, near Meissen, in Saxony, was found by Rentsch to have the following chemical composition: Silica, 76.92; alumina, 12.89; potash, 4.27; soda, 0.68; lime, 0.68; magnesia, 0.68; oxide of iron, 1.15; water, 1.97; total, 99.54—specific gravity, 2.49.

The colors of the rock depend chiefly upon those of the felspar—pale flesh-red, reddish-brown, purple, yellow, bluish or slate-gray, passing into white, being in different places characteristic. It will be observed in this, as in other rocks containing much felspar, that the color, besides depending on the hue of that mineral, is greatly regulated by the nature and stage of decomposition. A rock, weathering externally with a pale yellow or white crust, may be found to be dark in the central undecayed portion. When the base is very compact, and the felspar-crystals well-defined and of a different color from the base, the rock, as it takes a good polish, may be used with effect as an ornamental stone. In popular language, such a stone is classed with the "marbles," under the name of "porphyry."

The Quartz-porphyrines occur (1) with plutonic rocks, as eruptive bosses or veins, often associated with granite, from which, indeed, they may be seen to proceed directly;

¹⁷¹ Zirkel, "Microscop. Petrog." p. 71. See particularly Rosenbusch, "Mik. Phys." ii. p. 50.