

in varying proportions ; felspar being generally the predominant ingredient, and quartz more plentiful than mica—the whole being united into a confusedly granular or crystalline mass. Occasionally it passes insensibly from fine to coarse-grained granite, and the finer grained is even sometimes found embedded in the more coarsely granular variety : sometimes it assumes a porphyritic texture. Porphyritic granite is a variety of granite, the components of which—quartz, felspar, and mica—are set in a non-crystallised paste, uniting the mass in a manner which will be familiar to many of our readers who may have seen the granite of the Land's End, in Cornwall. Alongside these orthoclase crystals, quartz is implanted, usually in grains of irregular shape, more rarely crystallised, and seldom in the form of perfect crystals. To these ingredients are added thin scales or small hexagonal plates and crystals of white, brown, black, or greenish-coloured mica. Finally, the name of *quartziferous porphyry* is reserved for those varieties which present crystals of quartz ; the other varieties are simply called *porphyritic granite*. *True porphyry* presents a paste essentially composed of compact felspar, in which the crystals of orthoclase—that is, felspar with a potash base—are abundantly disseminated, and sometimes with great regularity.

Granite is supposed to have been “formed at considerable depths in the earth, where it has cooled and crystallised slowly under great pressure, where the contained gases could not expand.” \* “The influence,” says Lyell, “of subterranean heat may extend downwards from the crater of every active volcano to a great depth below, perhaps several miles or leagues, and the effects which are produced deep in the bowels of the earth may, or rather must, be distinct ; so that volcanic and plutonic rocks, each different in texture, and sometimes even in composition, may originate simultaneously, the one at the surface, the other far beneath it.” Other views, however, of its origin are not unknown to science : Professor Ramsay and some other geologists consider granite to be metamorphic. “For my own part,” says the Professor, “I believe that in one sense it is an igneous rock ; that is to say, that it has been completely fused. But in another sense it is a metamorphic rock, partly because it is impossible in many cases to draw any definite line between gneiss and granite, for they pass into each other by insensible gradations ; and granite frequently *occupies the space that ought to be filled with gneiss*, were it not that the gneiss has been entirely fused. I believe therefore that granite and its allies are simply the effect of the extreme of metamor-

\* Lyell's “Elements of Geology,” p. 694.