

The uniform mineral character of large masses of granite seems to indicate that large quantities of the component elements were thoroughly mixed up together, and then crystallized under precisely similar conditions. There are, however, many accidental, or "occasional," minerals, as they are termed, which belong to granite. Among these black schorl or tourmaline, actinolite, zircon, garnet, and fluor spar, are not uncommon; but they are too sparingly dispersed to modify the general aspect of the rock. They show, nevertheless, that the ingredients were not everywhere exactly the same; and a still greater variation may be traced in the ever-varying proportions of the felspar, quartz, and mica.

*Syenite*.—When hornblende is the substitute for mica, which is very commonly the case, the rock becomes Syenite: so called from the celebrated ancient quarries of Syene in Egypt. It has all the appearance of ordinary granite, except where mineralogically examined in hand specimens, and is fully entitled to rank as a geological member of the same plutonic family as granite. Syenite, however, after maintaining the granitic character throughout extensive regions, is not uncommonly found to lose its quartz, and to pass insensibly into syenitic greenstone, a rock of the trap family. Werner considered syenite as a binary compound of felspar and hornblende, and regarded quartz as merely one of its occasional minerals.

*Syenitic granite*.—The quadruple compound of quartz, felspar, mica, and hornblende, may be so termed. This rock occurs in Scotland and in Guernsey.

*Talcosed granite*, or Protogine of the French, is a mixture of felspar, quartz, and talc. It abounds in the Alps, and in some parts of Cornwall, producing by its decomposition the china clay, more than 12,000 tons of which are annually exported from that country for the potteries.\*

*Schorl rock, and schorly granite*.—The former of these is an aggregate of schorl, or tourmaline, and quartz. When felspar and mica are also present, it may be called schorly granite. This kind of granite is comparatively rare.

*Eurite*.—A rock in which all the ingredients of granite are blended into a finely granular mass. When crystalline, it is seen to contain crystals of quartz, mica, common felspar, and soda felspar. When there is no mica, and when common felspar predominates, so as to give it a white color, it becomes a felspathic granite, called "whitestone" (Weisstein) by Werner, or *Leptynite* by the French, in which microscopic crystals of garnet are often present.

All these and other varieties of granite pass into certain kinds of trap, a circumstance which affords one of many arguments in favor of what is now the prevailing opinion, that the granites are also of igneous origin. The contrast of the most crystalline form of granite, to that of the most common and earthy trap, is undoubtedly great; but each member of the volcanic class is capable of becoming porphyritic, and the base of the porphyry may be more and more crystalline, until the mass passes to the kind of granite most nearly allied in mineral composition.

\* Boase on Primary Geology, p. 16.