

has been stated, in the preceding chapter, that granite by becoming finer grained, frequently passes to the state of porphyry. *The eurite* of the French geologists, and the *weiss-stein* or *white-stone* of Werner, is a granite in which the felspar is the principal constituent part, and is either finely granular or nearly compact. To this variety English geologists give the name of compact felspar: the white elvan of the Cornish miners is a porphyritic eurite.

Geologists have described four formations of porphyry, but it is generally agreed that there is much uncertainty with respect to the situation of these formations. The porphyry which occurs regularly imbedded in granite, or which appears to be formed by a mere change of structure in that rock, may properly be classed with primary rocks: it is not considered to be an extensive formation; the white elvan of Cornwall, and probably the porphyry associated with mica-slate in Argyleshire, belong to this formation. Porphyry also occurs in enormous masses, sometimes intersecting and sometimes covering primary mountains. The granite of Ben Nevis in Scotland is intersected by veins of porphyry; and at the head of Glen Ptarmagan, a cliff of porphyry 1500 feet high, shaped like an oblique truncated pyramid, passes through granite.\* Porphyry, imbedded in transition rocks, or associated with trap or volcanic rocks, must, generally, be regarded as cotemporaneous with the formations in which it occurs. Porphyry, in some instances, an undoubted volcanic formation, and presents a connecting gradation between granitic primary rocks, and those of a more recent igneous origin. Wherever porphyry occurs unconformably, covering other rocks, it is evidently, more recent than the rocks on which it rests, and must be classed with basaltic or trap-rocks; this porphyry will be described with them in a subsequent chapter.

Before taking leave of the rocks classed as Primary, it may be proper to notice that some of the rocks associated with granite, gneiss, and mica-slate, occur also in the transition class, and even in the lower secondary strata. The same causes by which they were formed among primary rocks have also operated at a later period: indeed, one of the well known rocks, limestone, has been deposited or formed in all the different classes of rocks except the volcanic, and must therefore receive its name from the class with which it is associated; as primary limestone, transition limestone, &c. In some instances, the mineral characters, or the fossils, serve to distinguish rocks of the same kind, that occur in the different classes or formations: thus, the rocks associated with primary rocks are generally harder and more crystalline than the same species of rock which occurs in the secondary class; but this is not invariably the case.

---

\* Phil. Mag.