

ly associated with granite: the passage of one rock into the other by the increase or decrease of felspar, may frequently be observed in the same mountain. When hornblende and felspar are more intimately blended, they form the rock called by the Germans *Greenstone*, by the French *Diabase*; and with other rocks of similar composition, are frequently described as trap-rocks, and by the French as *roches amphiboliques*: these will be more properly noticed in the subsequent chapters. When the hornblende and felspar are so closely and minutely intermixed that the rock appears homogeneous, the trap has all the external character of a rock (hereafter to be more fully described) called Basalt.\* In examining the geological specimens of Saussure in the museum at Geneva, I observed, that the rocks which he so frequently mentions under the name of *Cornéenne*, are mixtures of hornblende and felspar, in which the former mineral predominates.

Hornblende intermixed with felspar, forming sienite and greenstone, occurs at the Malvern Hills, in Worcestershire; at the Charnwood Forest hills in Leicestershire; and in Cornwall, Cumberland, and North and South Wales. Very little well characterized hornblende-slate is found in any part of England, but, it occurs abundantly in the alpine parts of Scotland, and in most of the principal mountain ranges in Europe. The various intermixtures of hornblende and felspar, to which the name of trap-rocks is frequently given, may more properly be classed with transition rocks.†

*Porphyry* derives its name from a Greek word denoting *purple*; the rock to which it was at first applied had a purple colour. In the modern acceptation of the term, any rock which is compact or finely granular, and contains distinct imbedded crystals, is called *Porphyry*, whatever be its colour. The base or paste of most porphyritic rocks is felspar; and the imbedded crystals are also felspar, though there may be also small grains or crystals of quartz or other minerals. It

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\* The rock to which the French give the name of *Diabase*, the compact trap of Werner, resembles basalt (which the French call *Dolerite*) so closely, both in composition and physical characters, that the division into two species seems to have been made principally to serve the purpose of theory. *Diabase* is composed of felspar and hornblende, and *dolerite* of felspar and augite intimately combined. But, as hornblende and augite do not differ more in chemical composition, than one species of hornblende differs from another, and as these two minerals are to be distinguished only by their crystallization; when they occur uncrystallized, may they not be regarded as identical? It is true, augite occurs abundantly in rocks of undoubted igneous origin, and in the lavas of recent volcanoes; hornblende occurs also in basaltic lavas, but more frequently, in rocks of which the igneous origin is not so generally admitted: yet it may be fairly doubted, whether the distinction between compact *diabase*, and compact *dolerite*, has not been made in order to form gratuitous conclusions respecting the different origin of rocks, which are, in chemical composition and external characters, essentially the same.

† Dr. Macculloch states an instance in Shetland, where slate (clay-slate) appears to be converted into hornblende-slate by approximating to granite; but no inference can be fairly drawn from a solitary instance of this kind, as there is no evidence to prove that the hornblende-schist is not an original rock.