area in Kirkcudbright, hundreds of dikes and veins of various felsitic or elvanitic rocks occur (see p. 959).[10]

Similar features are presented by the granite bosses of Devon and Cornwall, which have risen through Devonian and Carboniferous strata. The Dartmoor mass is specially instructive. As shown by the early work of De la Beche, it passes across the boundary between the Devonian and Carboniferous areas, extending chiefly into the latter, so that it cuts across strata of different ages. In doing so it has risen irresistibly through the crust, without seriously affecting the general strike of the rocks. It cuts volcanic bands, as well as grits and shales into which it sends veins.[11]

Connection of Granite with Volcanic Rocks.—The manner in which some bosses of granite penetrate the rocks among which they occur strongly recalls the structure of volcanic necks or pipes (p. 969). The granite is found as a circular or elliptical mass which seems to descend vertically through the surrounding rocks without seriously disturbing them, as if a tube-shaped opening had been blown out of the crust of the earth, up which the granite had risen. Several of the granite masses of the south of Scotland, above referred to, exhibit this character very strikingly (Fig. 282). That granite and granitoid rocks have probably been associated with volcanic action is indicated by the way in which they occur in connection with the Tertiary volcanic rocks of Skye, Mull, and other islands in the Inner Hebrides. Jukes suggested many years ago that granite or granitoid masses may lie at the roots of volcanoes, and may be the source whence the more silicated lavas proceed.[12]

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[10] Explanation of Sheet 9, Geological Survey of Scotland. The contact-metamorphism of these granite bosses is described on p. 1008.

[11] De la Beche, "Report, Devon and Cornwall," p. 165. J. A. Phillips, Q. J. Geol. Soc. xxxiv. p. 493. Compare the action of the Tertiary granites of Skye, Trans. Roy. Soc. Edin. xxxv. 1888, Fig. 56, p. 170.

[12] "Manual of Geology," 2d ed. p. 93; Geikie, Trans. Geol. Soc. Edin. ii. p. 301; Trans. Roy. Soc. Edin. xxxv. 1888, p. 150; Judd, Quart. Journ. Geol.