

appearance and minute needles of it occur throughout the other mineral constituents. The micropegmatite, which forms the ground-mass, consists of quartz containing oriented inclusions of orthoclase, minutely charged with a great number of microscopic hornblende needles. Large masses of quartz occur which are usually, but not always, free from inclusions. Apatite in long needle-like crystals, and magnetite form the accessory constituents. This phase is believed to be a variation of the acid member of the banded gabbro.

Associated with the basic sills and sometimes with the banded gabbros, are small irregular dykes of aplite, which consist almost entirely of plagioclase and quartz in varying proportions, with minor amounts of calcite. With a decrease in calcite and plagioclase these dykes pass into quartz veins which represent the extreme differentiate of the gabbro magma. Associated with all these variations occur sulphides of iron and copper.

Quartz-Diorite or Transition Rock.—With an increase in quartz and micropegmatite the gabbro gradually passes into quartz-diorite which forms the transition type between the gabbro and the granite (micropegmatite). The quartz-diorite has a light greyish-green colour and, in the hand specimen, shows quartz, feldspar, hornblende, and biotite. Under the microscope, the shredded hornblende is seen to have the same pleochroism: *c*, bluish-green, *b*, dark green, *a*, yellowish green, as the secondary hornblende described as occurring in the hyporthene gabbro, and is embedded in a ground-mass of quartz and micropegmatite. In the latter the quartz holds the feldspar, which is clouded with a great number of dust-like inclusions. Plagioclase—andesine to labradorite—is rather plentiful, while biotite, in small plates, is present sporadically throughout the rock. Chlorite and zoisite occur as secondary minerals. The following analysis is given by Daly:—¹

¹ Daly, R. A. Festschrift zum siebenzigsten Geburtstage von H. Rosenbush, 1906, p. 217.