

Figure 90. Photomicrograph of Glen Creek Gabbro showing rounded, anhedral olivine grains (*ol*) and plagioclase laths (white) optically enclosed by augite (*cpx*). Pyroxene is optically continuous over entire picture. Bar is 1 mm. (Sample MP-12.)



Figure 91. Photomicrograph of Glen Creek Gabbro showing thin rims of amphibole (*a*) along grain boundaries of plagioclase (*pl*), olivine (*ol*), magnetite (opaque), and augite. Note platelets of ilmenite exsolved from augite. Bar is 0.5 mm. (Sample WM-138.)

in subequal amounts, together commonly totaling 5 percent of the mode. Primary red-brown phlogopite and primary pale-pinkish-brown amphibole (titanian magnesian hastingsite) are ubiquitous but vary in amount. Phlogopite ranges from 0 to 6 percent, and amphibole, from 0 to 21 percent; one or the other hydrous phase—usually both—is invariably present. They appear to be relatively late in the crystallization sequence, forming interstitial, sometimes sub-poikilitic grains and, where less abundant, thin rims on pyroxene and oxide grains (fig. 91).

The amphibole locally exceeds 20 percent and occupies the textural position of augite in other samples, forming large poikilitic grains enclosing olivine and oxide crystals (fig. 92). The amphibole is invariably well crystallized and clearly a primary magmatic phase, unlike the fibrous, uralitic amphibole formed locally in hydrothermally altered rocks of the Raggedy Mountain Gabbro Group. (See the section on the Sandy Creek Gabbro, Stop 3.)

Orthopyroxene is less abundant than clinopyroxene in the Glen Creek Gabbro, ranging from 0 to 10 percent (average 1–2 percent). Typically, it forms discrete grains and only rarely occurs as reaction

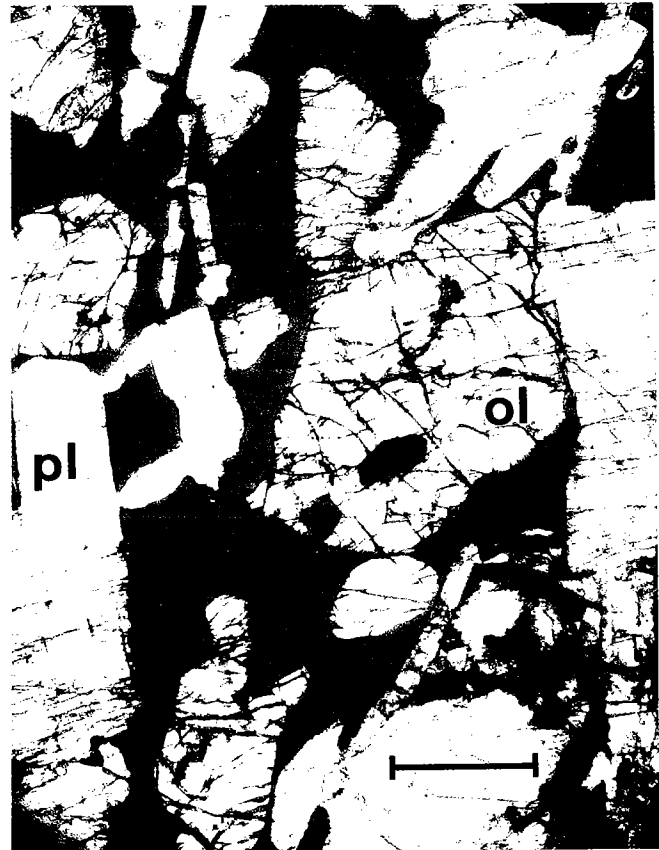


Figure 92. Photomicrograph of Glen Creek Gabbro showing abundant optically continuous kaersutitic amphibole (*a*) poikilitically enclosing olivine (*ol*), plagioclase (*pl*), and ilmenite and magnetite (opaque). Sample is from a lens of gabbroic material surrounded by ultramafic material; it contains abundant phlogopite, and the illustrated kaersutite, but contains no pyroxene. Bar is 1 mm. (Sample MP-27.)