



Figure 116. Photomicrograph of fractionated Sandy Creek Gabbro showing granophyric intergrowth of quartz (white) and K-feldspar (gray) in mesostasis. Note crystal of primary, iron-rich hypersthene (opx). Large dark grain in lower right is augite; twinned grains are sodic labradorite. Polarized light. Bar is 0.5 mm. (Sample WM-360.)



Figure 118. Photomicrograph of hydrothermally altered Sandy Creek Gabbro showing replacement of pyroxene by fibrous amphibole mixed primarily with chlorite and "epidote." Plagioclase shows only incipient alteration (more pervasive in other samples). Bar is 0.5 mm. (Sample WM-307.)

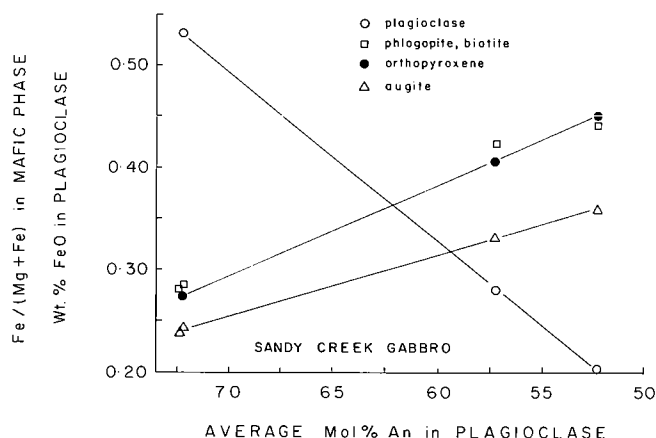


Figure 117. Cryptic variation in differentiated Sandy Creek Gabbro revealed in average compositions of coexisting ferromagnesian phases and plagioclase. Points to left ($An_{72.5}$) are from olivine gabbro; points at about An_{57} are in "saturated" gabbro (no olivine or quartz); points to right (An_{52}) are in quartz-K-feldspar-bearing gabbro. Line defined by open circles (plotting weight percent FeO in plagioclase, using same vertical scale) reflects declining FeO in magma with fractionation. Both trends are typical of tholeiitic systems.

rogeneses. Quartz and K-feldspar-bearing Sandy Creek Gabbro, as we have seen, is fortuitously intruded by granite. A similar situation exists on Mount Sheridan in the eastern Wichitas, where the rocks involved are ferrogranodiorite (fractionated from the Mount Sheridan Gabbro) and Mount Scott Granite. (See Powell and Fischer, 1976.) Elsewhere, quartz-bearing intermediate rocks in gabbro-granite contact zones probably resulted from assimilative reaction between older gabbroic rocks and younger granitic liquids. [Some of Huang's (1955) cited occurrences fall into this latter category, whereas others perhaps do not.] Both petrogeneses may be combined in a given situation, alteration/assimilation being imposed on rocks that already possessed an intermediate character from older, purely magmatic processes. Unfortunately, the two importantly different petrogeneses are not always readily distinguishable.

The possibility exists that the Sandy Creek Gabbro and the Glen Creek Gabbro are connected at depth or at least share a common origin. Perhaps they are separate intrusions from the same parental magma.