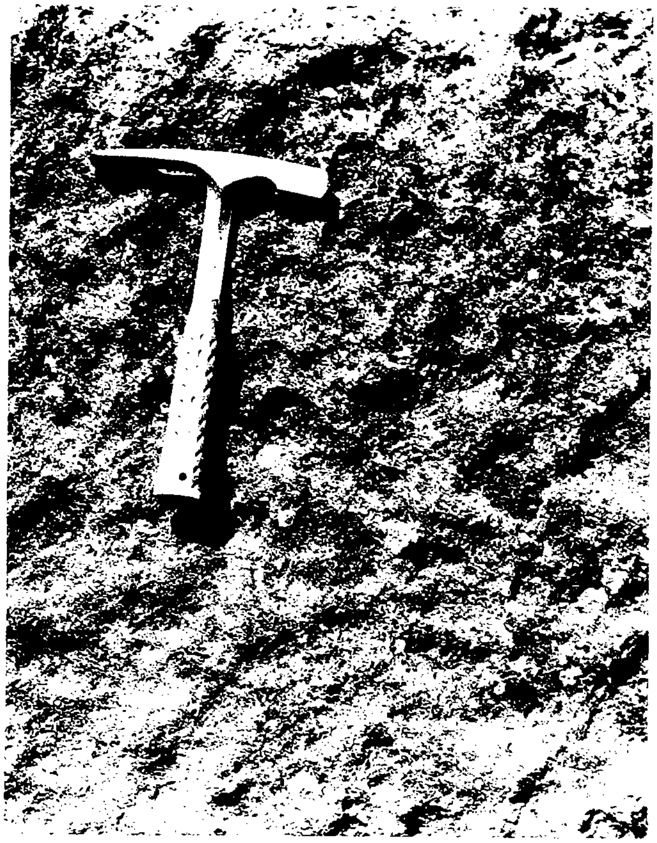

Figure 109. Typical scalloped weathering of Sandy Creek Gabbro.

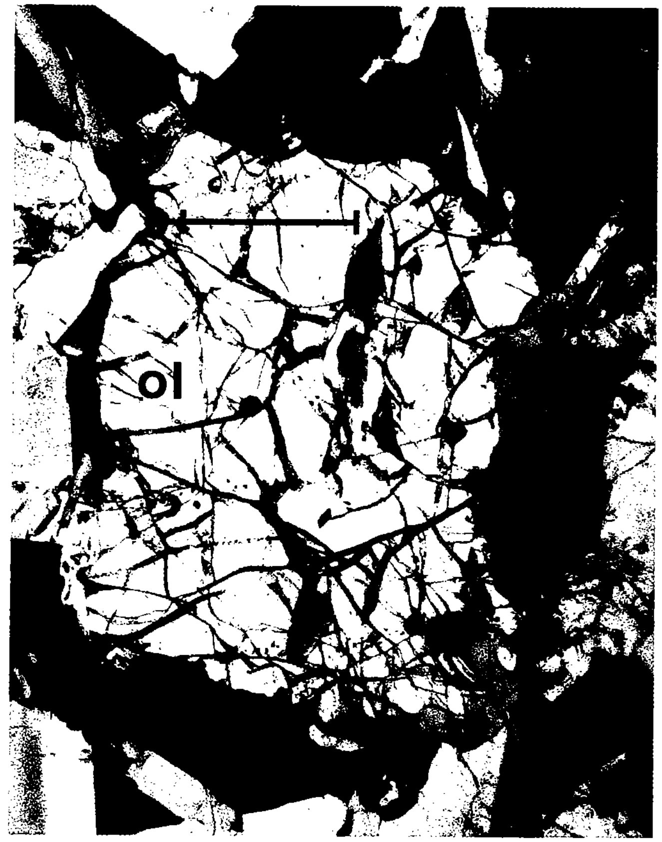

Figure 111. Photomicrograph of Sandy Creek Gabbro Member of the Roosevelt Gabbros showing olivine (*ol*) peritectic reaction. Note embayments in olivine and nearly continuous rim of bronzite (*opx*). Polarizers are partially crossed to highlight orthopyroxene which here appears dark gray. Plagioclase, magnetite, and ilmenite also are in picture. Bar is 0.5 mm. (Sample WM–385.)

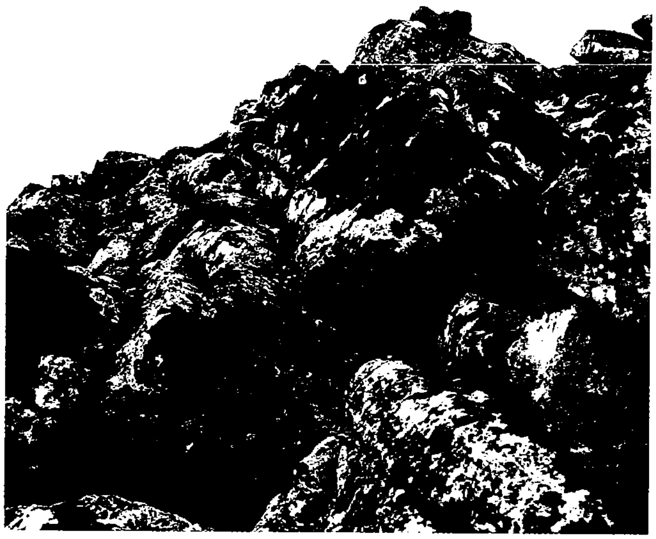

Figure 110. Looking northward at east-dipping, layered Sandy Creek Gabbro (SE¼NE¼NW¼ sec. 9, T. 3N., R. 15 W.), which is prominent west of State Highway 49.

becomes pigeonite after Fe/(Fe + Mg) ratios have evolved to about 0.30 or 0.35, because the temperature–composition curve for the magma passes into the stability field of pigeonite. A lower liquidus temperature for a given Fe/(Fe + Mg) ratio would keep orthopyroxene on the liquidus to more evolved (higher) Fe/(Fe + Mg) compositions. This appears to have been the case with the Sandy Creek Gabbro magma, and is tentatively attributed to its higher than average H_2O content.

Plagioclase ranges in composition from An_{72} in olivine gabbro to An_{52} in quartz-bearing gabbro. The feldspars are zoned, and the figures given are average core compositions. Representative olivine compositions are listed in table 23. Additional minor and accessory phases in the Sandy Creek Gabbro include ilmenite, Ti-magnetite, apatite, pyrite, chalcopyrite, and pyrrhotite.

Some samples of gabbro from secs. 3 and 4 lack olivine and contain intergranular quartz and (or) "granophyre" in the mesostasis (fig. 116). In fresh rocks, such occurrences appear to be primary and