that occurred when the granite sill was intruded into an area of weathered and previously reworked gabbroic regolith (Myers and others, 1981). The intermediate rocks in this locality are surrounded on all sides by massive Mount Scott granite. Interpreting them as a contact zone requires several hundred feet of structural displacement across the mountain, or considerable relief on the underlying gabbro surface. No intermediate rock has been found along the granite–gabbro contact on the north slope of the mountain. The slope is covered with granite float, however, and in many places the contact is obscured.

A deep prospect pit beside a small tank on the east side of Big Four Mountain (SE¼NE¼SE¼ sec. 3) reveals a dark, coarse-grained gabbroic rock (0.5–2–cm plagioclase, 1–3–cm mafic minerals) with blebs and veins of secondary quartz and white feldspar. Similar coarse-grained mafic rocks have been seen in isolated outcrops elsewhere in the Cooperton Quadrangle. Their relation to the intermediate rocks is not clear.

Hale Spring Pegmatites

Numerous dikes of Hale Spring pegmatite cut the Sandy Creek Gabbro in the central part of the N½ sec. 9 and the central part of the E½ sec. 4. Fragments of a Hale Spring dike can be seen cutting Mount Scott granite in the west-northwest-trending stream canyon in the southwestern corner of sec. 4. Veins and dikelets occur also on the granite hill in the NW¼ sec. 9.

These quartz–albite–microcline pegmatites bear large crystals of a sodic amphibole commonly referred to as riebeckite but more properly as arfvedsonite (Scofield and Gilbert, 1980; and this guidebook). The Hale Spring rocks occur in both pegmatitic and aplitic facies. These facies commonly exhibit conspicuous banding and alignment of amphibole crystals (figs. 120, 121, 122). Figure 122 is a photograph taken parallel to the layers. Parts of four separate layers can be seen, with alignment of crystals in each.

Al-Shaieb and others (1980) generated a large amount of trace-element data from pegmatoid samples. Some of these are shown in table 31. Comparison of these data with those for the Sandy Creek Gabbro (table 27) shows the expected contrast between mafic and silicic rocks. The gabbro is high in Sr, V, and Cu, whereas the pegmatoids are low in these. The Cu mineralization reported with the Hale Spring bodies may be due to remobilization of Cu

Figure 121. Typically banded portion of no. 1 pegmatoid dike of Johnson (1955). Light areas are feldspar and quartz, dark areas are abundant arfvedsonite and (or) acmite.

Figure 122. Photograph view is parallel to layers in pegmatite. Four different amphibole-rich layers can be discerned. Amphiboles in each layer are aligned consistently, although orientation changes as much as 10° to 30° among layers. Alignment thought to be due to crystallization from moving fluids.