Cache–Quanah Contact

Table 37 lists modal determinations for the Cache granite, one of its aplites, and the Quanah Granite. The Cache is a fine-grained, granophyric granite with a low color index (see table 6 for chemical data). Ferromagnesian minerals are oxides and biotite. In places, it has abundant miarolitic cavities, many of which are lined with coarser alkali feldspar and well-terminated quartz crystals. The Cache is highly fractured and normally does not support many trees.

The Quanah is a relatively coarse-textured rock (crystal sizes to about 1 cm) for the Wichita Mountains. It is noted for the presence of riebeckite (sodic amphibole) or biotite. In some other areas, these facies seem to be distinct, but at this stop both have been reported. Evidence for Quanah intruding Cache can be summarized as (1) quenching of Quanah near the contact (fig. 147), and (2) apophyses of Quanah protruding into Cache, although these are harder to find. This order of intrusion is consistent throughout the Wichitas, where fine-grained granites are older than coarse-grained granites. Presumably this is due to the continued build-up of the rhyolitic cover with time. Although the structural horizon where the granites intrude seems to be fixed, the overburden pressure increased with time as a function of the increasing stratigraphic thickness.

Table 38 presents trace-element data collected by Al-Shaieb and others (1980). The Cache is distinctly poorer in U, Zn, Li, Ba, Zr, and Nb. This might be expected if the Cache had lost its vapor phase quickly and had lost these elements with it. In contrast, the Quanah had a more effective cover and the vapor was contained; more hydrous phases formed on cooling to capture these elements.

Figure 145. Photograph looking northward across Eagle Park area. Coarse topography on left (west) side of hill in middle ground is younger Quanah Granite; smooth slope on east side is older Cache granite. This distinctive contact is visible from nearby roads and can be traced locally. Contact interdigitates farther north and east, becoming more complex and less easy to follow.

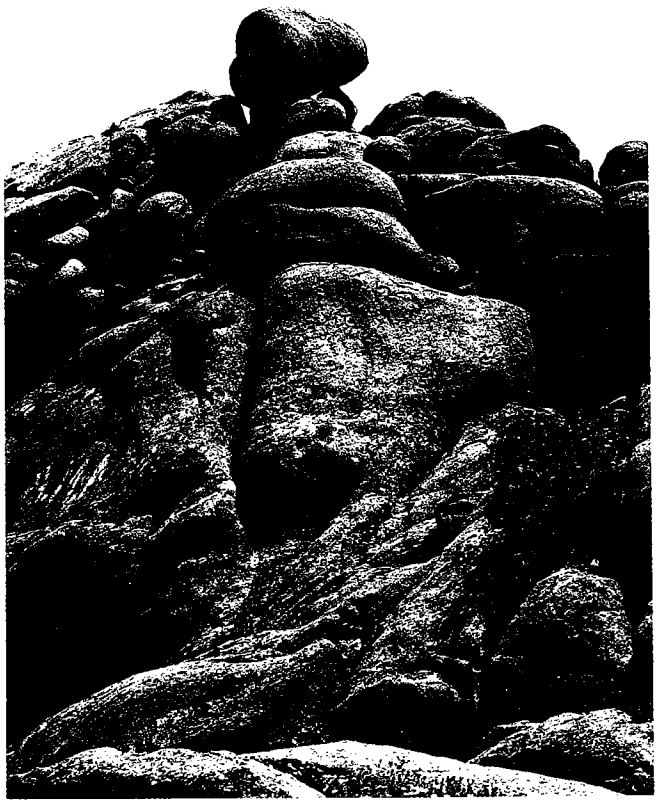

Figure 146. Photograph of a well-known feature of tor topography, known as a tor or inselberg or castle koppie (Twidale, 1976). Such turret features are a function of fracture spacing and original (Permian) *subsurface* weathering. This one in NE¼NW¼NE¼ sec. 12, T. 2 N., R. 14 W., is typical of those developed on Quanah Granite bedrock (see Gilbert, this guidebook, for discussion of tectonic significance).

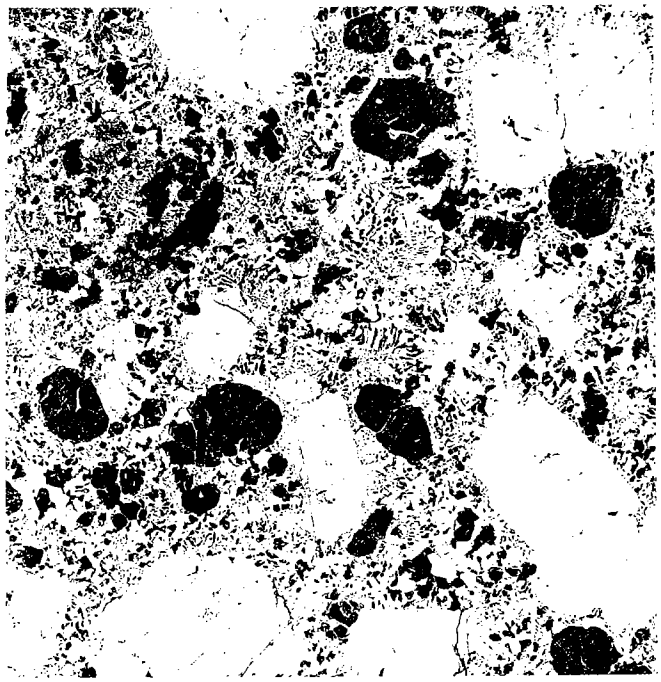

Figure 147. Photograph of a 1-inch-wide thin section of Quanah Granite (W–984) quenched upon intrusion against Cache. Early alkali feldspars and quartz (dark gray) are phenocrysts in micrographic matrix of quartz and alkali feldspar.