

(Quanah Parker Lake to French Lake). South of the Central Lowland is the Quanah Granite. Extensive deposits of the Permian Post Oak Conglomerate can also be discerned.

These lineaments clearly identify major fractures and were the basis for the fault patterns shown originally on the State geologic map of Oklahoma (Miser, 1954) and carried forward to the 1:250,000-scale map in Havens (1977). Gilbert (1982) has argued that there is no evidence for faulting (offset) on most of them and has cited evidence against faulting on certain ones. These fractures are interpreted as having been caused by Pennsylvanian deformation during the Wichita Uplift. Because the granites probably behaved as brittle sheets during uplift, relative to the underlying gabbros and overlying carbonates, strain was accommodated by breaking into regional blocks with apparently little offset. The orientation of 942 fractures of minimum 100-m length was determined from topographic maps and aerial photos in the eastern Wichitas (fig. 22). These are chiefly in units of the Wichita Granite Group. From their size, they are thought to be Pennsylvanian fractures with little contribution from the Cambrian ones discussed earlier, which are of smaller scale. Almost all of these fractures are high-angle to vertical, as seen by the way in which they transect the topography. The prominent orientation is N. 70°–80° W., but there are many at N. 30°–10° W., N. 0°–30° E., and N. 60°–90°

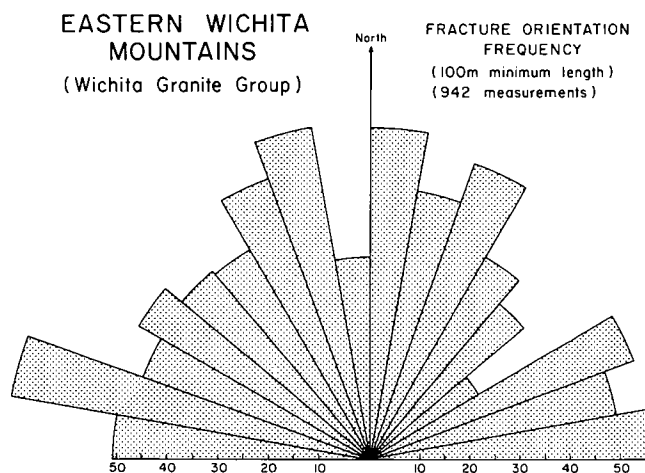


Figure 22. Fracture orientation determined from topographic maps and aerial photos.

E. The fold axes shown in figure 20 also have azimuths at N. 70°–80° W. Structural trends in the Arbuckle region are more nearly N. 60° W., whereas in the far western part of the Wichita axis, in the subsurface, they are N. 80° W. The change in trends appears to occur in this region, which is here called the Lawton Bight.

A peculiar relationship is noted when the frequen-

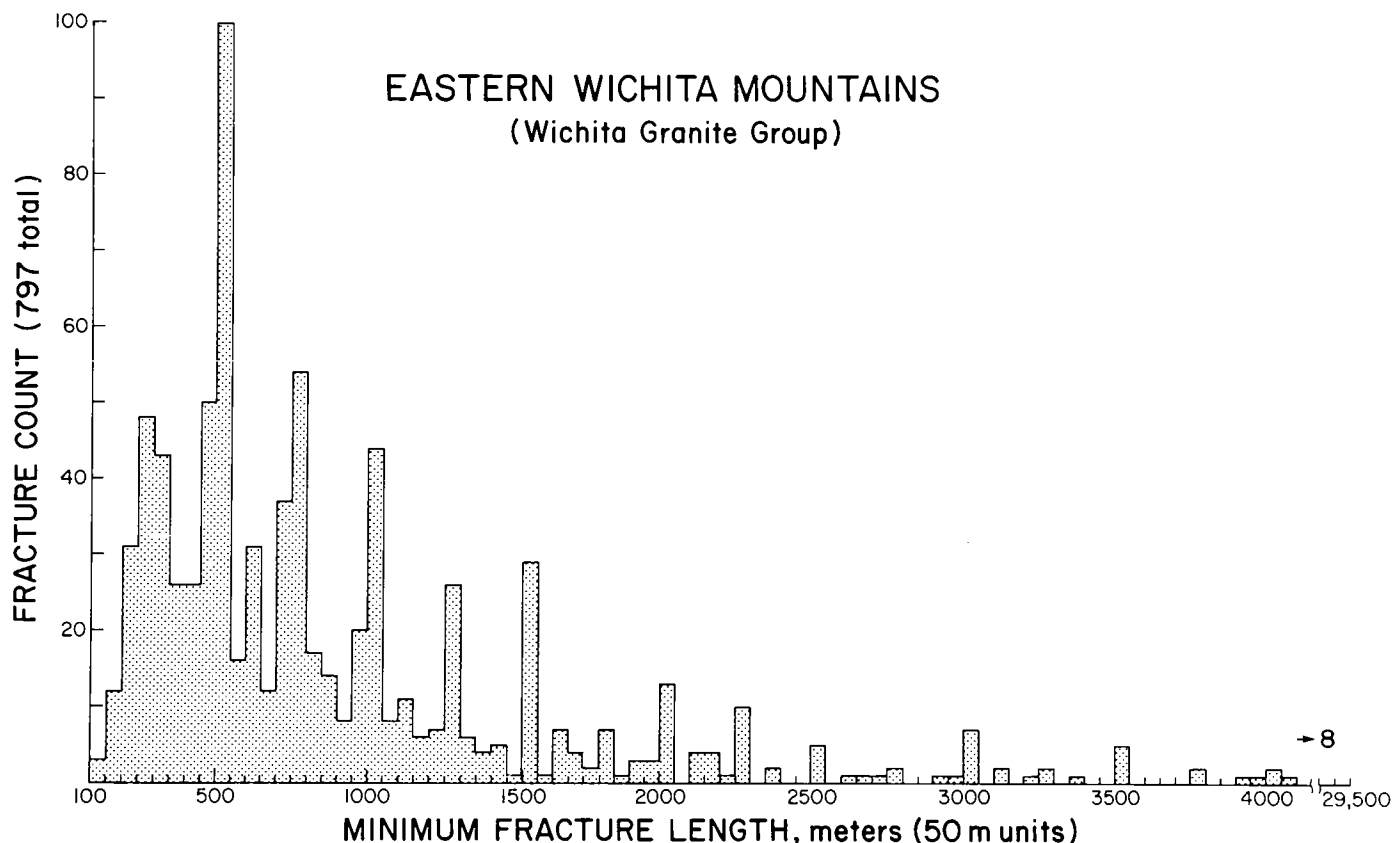


Figure 23. Fracture lengths determined from topographic maps and aerial photos.