

Figure 56. Cool Creek Formation; oosparite. Sample shows selective silicification of oolites, which are approximately 0.75 mm in diameter.



Figure 59. Cool Creek Formation; chert nodules. Some nodules are stacked in an imbricate fashion, suggesting reworking.

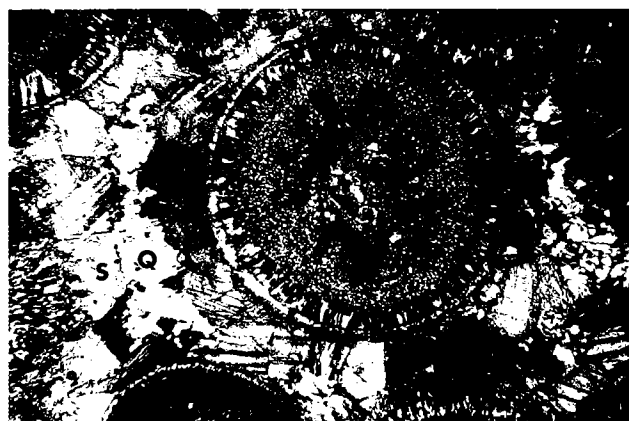


Figure 57. Cool Creek Formation; silicified oosparite. Large oolite is chalcedony (both fibrous and nonfibrous), and nucleus is calcite. Cemented first by drusy sparite (S), and then by void-filling micro-quartz (Q). Silicification may have been related to aragonite dissolution (indicating early diagenesis). Polarized light; view 2×1.5 mm.

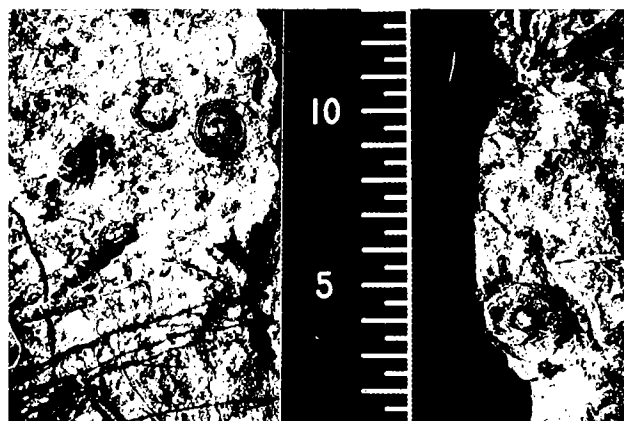


Figure 58. Cool Creek Formation; silicified gastropods. Photo courtesy of M. Munsil.

of N. 40° – 60° W., in common with many minor structures. However, in the area of the canyon itself, the Blue Creek Canyon Fault is well exposed as a north-trending structure. Segments of the Mountain View and related fault show similar anomalous trends (Harlton, 1972).

In the Slick Hills, the three major faults bound two complex tectonic units (fig. 46), termed the "Blue Creek Horst" and "Lawtonka Graben" by Harlton (1951). Lower Paleozoic strata in both units, particularly the graben, are comprehensively folded.

Blue Creek Canyon Fault

The principal structural feature of the Blue Creek Canyon area is the braided complex of faults known as the Blue Creek Canyon Fault. The net effect of this complex is to juxtapose the Carlton Rhyolite Group and overlying Cambrian formations with the Ordovician members of the Arbuckle Group (figs. 154 and 155). Fault movement was clearly pre-Permian. In general, the stratigraphic throw of the fault decreases from 2,400 ft to 1,800 ft to the north, whereas the dip increases from 45° to vertical (fig. 155).

Stratigraphic relationships and the attitude of the fault planes make it clear that the Blue Creek Canyon Fault is a high-angle reverse fault, approximately north-trending, which has variable downthrow to the west. This interpretation differs from that of previous workers (notably Harlton, 1951, 1963, 1972), who have interpreted the structure as a normal fault, with downthrow to the west. It is noteworthy that the main line of faulting lies within the limestones of the Arbuckle Group, and not at the Carlton Rhyolite–Timbered Hills contact, as indicated by the geologic map in Havens (1977).

The line of Blue Creek Canyon itself is a trench with considerable relief, now entirely occupied at the surface by alluvium of recent origin. The Post Oak Conglomerate certainly lies beneath this alluvium at the northern end of the canyon and may persist