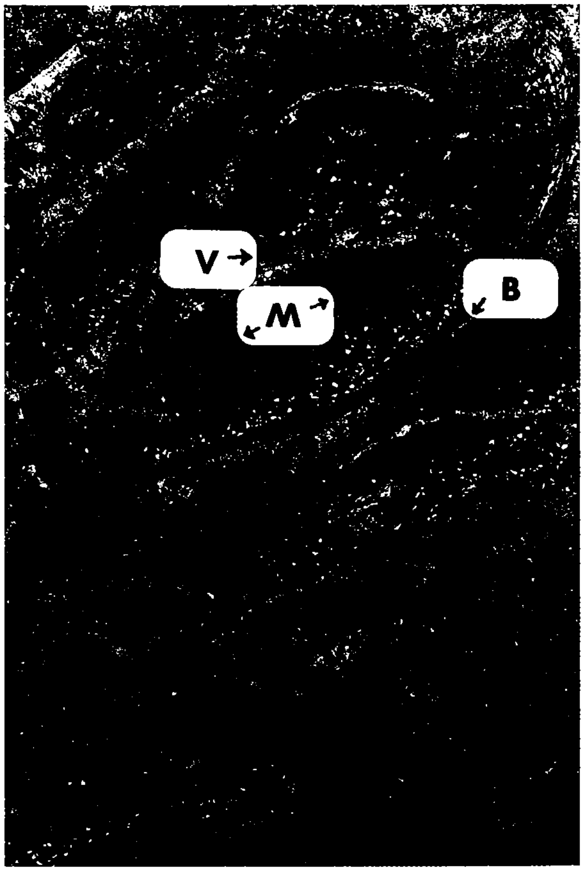

Figure 54. Honey Creek Formation; biomicrite. Rock consists of more or less complete orthid brachiopod valves (*B*) (with fibrous texture), micrite (*M*), and minor quartz, glauconite, and sparite (*V*). Brachiopod valves formed a stable shell bank that trapped carbonate mud, quartz, and glauconite. Each valve acted as a sediment baffle (note grading in fines above some valves). Following shrinkage of carbonate mud, shelter porosity developed beneath some valves; pores were later filled with drusy sparite, later generations of which are ferroan. Carbonate is stained. View 4 × 2.5 cm.

Figure 55. Cool Creek Formation; oosparite. Allochems are ooliths (nucleated on pellets and other carbonate fragments) and intraclasts of lime mud with quartz grains (*L*); rounded quartz grains (*Q*) are present. Cemented first by silica (evidenced by syntaxial overgrowths (*O*) against existing pore space) and then by sparite (*S*). Ordinary light; view 4.5 × 3 mm.

traformational conglomerates, and some graded units. A variety of forms of stromatolites is present, most of which are massive; delicate branching forms are rare. Major build-ups are not present. The depositional environment is interpreted as a somewhat restricted shallow-water carbonate setting. Whereas the general level of energy was not great, the frequent occurrence of intraformational conglomerates and the absence of delicate stromatolites suggests that the area was subjected to storms. The origin of the quartz is uncertain; most of the grains are of medium size and appear to have been moderately to well rounded before diagenesis (fig. 55). In addition, quartz grains are widely scattered through lime mudstone. Where quartz and oolitic grains are mixed, it is noteworthy that quartz grains have rarely acted as nuclei for oolite growth. These two observations suggest that the carbonate sediment and quartz had separate histories before coming together. One is tempted to regard some of the quartz as an eolian contribution, subsequently reworked to varying degrees in shallow waters.

Secondary silica is abundant in this formation, taking a variety of forms, the most common of which is chert nodules and lenses. These lenses commonly are intimately associated with siliceous sponges. Other examples of silicification were fabric-controlled and appear to be related to the presence of aragonite. Thus, oolitic calcarenites may show selective silicification of ooliths rather than carbonate cement (figs. 56, 57). Presumably, aragonite macrofossils such as gastropods may be silicified (fig. 58), and stromatolites may have silicified interiors. Some of the silicification was penecontemporaneous, because reworked chert nodules occur in some intraformational conglomerates. In a few examples, these nodules have been stacked in an imbricate fashion (fig. 59).

POST–LOWER PALEOZOIC–PRE-PERMIAN STRUCTURAL GEOLOGY

In the northern part of the Wichita Mountains (fig. 46), the principal faults are the Meers, Blue Creek Canyon, and Mountain View Faults (Harlton, 1951, 1963, 1972). These three faults have an overall trend