

STOP 11—HIGHWAY 19 AREA

Sedimentology of lower Paleozoic limestones beneath Permian Post Oak Conglomerate, exhibiting karst features below the unconformity. Along State Highway 19, about 5 miles northeast of Blue Creek Canyon, in Caddo County, Oklahoma. **R. N. Donovan.**

On State Highway 19, about 5 miles northeast of Blue Creek Canyon, the road has been excavated through a hill of lower Paleozoic limestone. This hill has been exhumed from beneath Permian Post Oak Conglomerate cover (fig. 163); the top of the road cut is very close to the original Permian land surface. Features of interest (in addition to the sedimentology of the lower Paleozoic limestones) include karst fissures developed beneath the unconformity. Essentially two types of fissures occur, both developed preferentially along north-trending joints in the limestone. Detritus-filled fissures that presumably were in direct contact with the Permian land surface are found at the eastern end of the exposure (fig. 164).

The detritus consists of limestone fragments firmly cemented by reddened micrite. The second type was not in direct contact with the surface and consists of small, open vadose cave systems (fig. 165). Various types of flowstone line these fissures.

Arguments for a Permian age for these small cave systems are strong but not definitive. Two sets of major joints cut the lower Paleozoic limestones, along azimuths of about 100° and 170° (fig. 163). The 170° set has been greatly widened by cave development, and the 100° set, less so. This indicates a major vadose drainage with a northerly trend. Existing exhumed relief indicates a vector to the north. This vector is in accord with surface drainage directions as indicated by cross-bedding in the Post Oak Conglomerate. Although modern drainage is also in the same general direction, this drainage is incised within the Post Oak Conglomerate; it is difficult to account for the development of recent karst fissures in a recently exhumed lower Paleozoic hill.

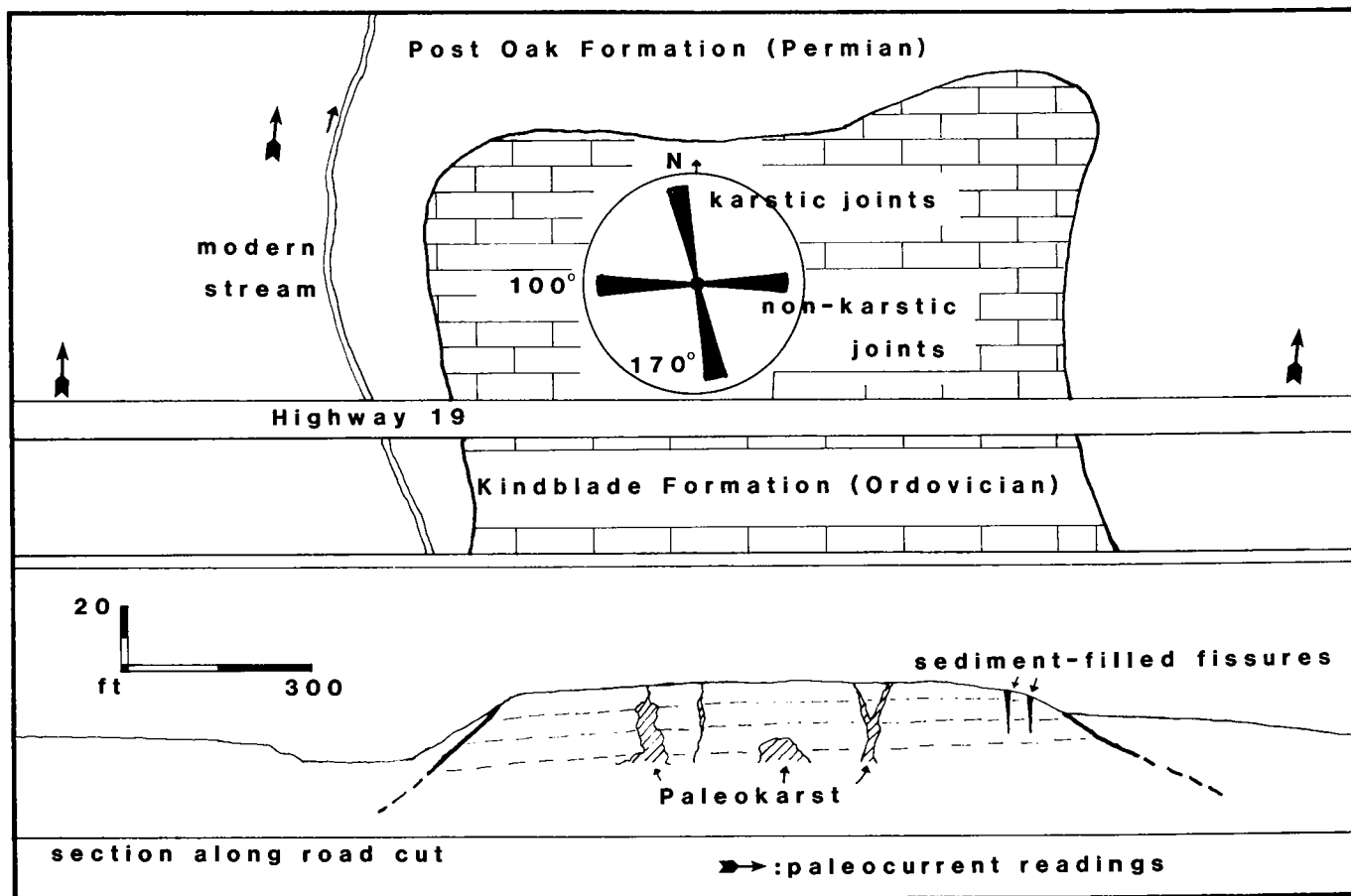


Figure 163. Sketch map and section through road cut on State Highway 19, showing exhumation of Permian topography and karst. Rose diagram shows joint maxima (based on 43 readings).