

RECENT DOMAL STRUCTURES

IN SOUTHEASTERN NEW MEXICO¹

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ABSTRACT

Domal structures that range from several hundred to several thousand feet in diameter are present in southeastern New Mexico. The structures examined are characterized by brecciated cores of stratigraphically displaced rock and by the deformation of rocks, apparently including those as young as the Recent caliche.

The stratigraphic sequence of the region is characterized by as much as several thousand feet of evaporites, chiefly halite and anhydrite, belonging to the Castile, Salado, and Rustler formations (from oldest to youngest) of late Permian age, overlain by a few hundred feet of red siltstone and sandstone belonging to the Pierce Canyon red beds of Permian or Triassic age and the Santa Rosa sandstone of Triassic age.

Although these domal structures occur as abundantly as six or eight per square mile locally along

¹ The complete paper will appear in a forthcoming issue of the Bulletin of the American Association of Petroleum Geologists.

the Pecos River, the best exposed are a group of four located about 18 to 20 miles east of Carlsbad adjacent to U. S. Highways 62 and 180. These four structures involve the doming of rocks as young as Recent caliche and contain cores of brecciated Santa Rosa sandstone in fault contact with Pierce Canyon red beds. Although these domal structures are similar in certain respects to those attributed to an igneous or volcanic origin or salt intrusion in other areas, they are thought to be more closely related to sinkholes modified by later deformation. It is suggested that they may have originated as circular sinkholes that resulted from removal of anhydrite in the Rustler formation. The collapse of insoluble rocks into the sink formed a brecciated core. The domal structure was produced later. Three possible mechanisms for the later formation are considered: differential solution of salt, intrusive flow of salt, and alteration of anhydrite to gypsum.

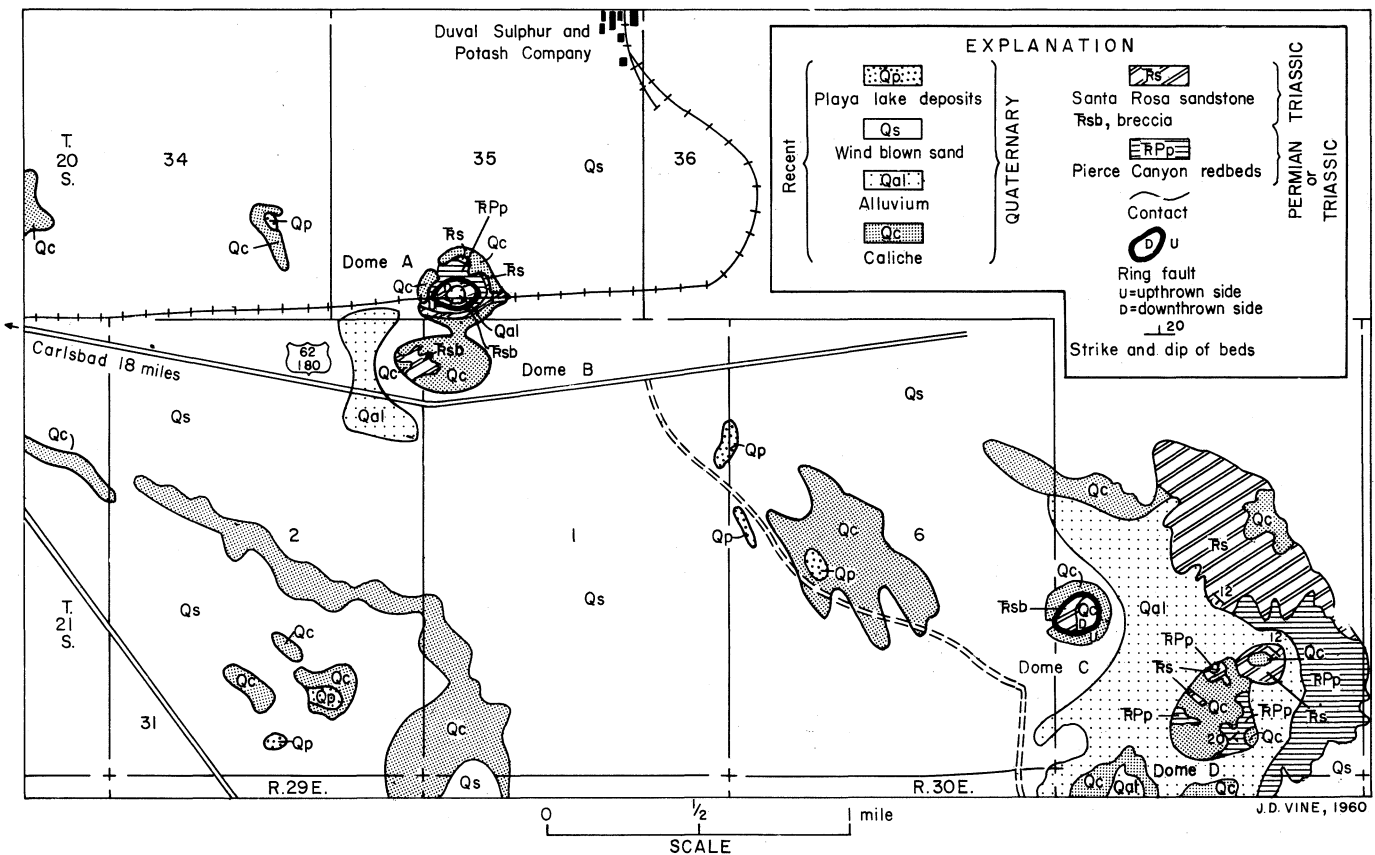


Fig.—Geologic map of Domes A, B, C, and D, in Eddy County, New Mexico, 18 miles northeast of Carlsbad.

