

Arbuckle Mountains, but the upper third is represented by shales and a thin sandstone of the Rhoda Creek formation. The succeeding Union Valley formation is correlative with the Primrose formation of the Ardmore basin, an equivalent of the Hale of Arkansas.

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Geology of Oklahoma Part of Anadarko Basin

Isopachous studies of formation intervals within the Permo-Pennsylvanian systems of the Anadarko basin reveal marked change in depositional strike of the beds, thus indicating a progressive shift in axis of sedimentation in the basin.

The purpose of this paper is to direct attention to this condition and to indicate its importance in helping to solve many of the structural and stratigraphic problems in the Anadarko basin.

Variable rates of subsidence in the basin as reflected by ratios of thickening of individual units are shown by regional convergence studies of the area. Structural features are also revealed by this convergence mapping.

The change in axis of sedimentation in the Anadarko basin was of a gradual nature and conforms with no individual system, series or group boundary. Since these boundaries commonly lose their identity over broad areas, it becomes more convenient to map intervals between easily identified markers within the section in order to get an accurate over-all view of sedimentary conditions in the basin.

Positive correlation of beds in the Upper Mississippian (Chester) and the Lower Pennsylvanian (Atoka-Morrow-Springer) with their equivalents on the outcrop, and the placing of unconformable relationships within this section, remain unsolved problems in the Anadarko basin. This is due primarily to lack of well control in the depths of the basin. The author has inferred a set of correlations for this section from this study. A review is given of the various arguments and correlations concerning this all-important interval, pointing out the strong points and incongruities in each.

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Structural and Stratigraphic Relationship of Permian and Pennsylvanian Rocks of the Oklahoma Panhandle

Permo-Pennsylvanian sedimentation in the Oklahoma Panhandle has been primarily influenced, or controlled, by the Sierra Grande uplift, the Hugoton embayment, and the Anadarko basin. Sedimentary facies changes, because of these controlling features, grade from continental and near-shore deposits in western Cimarron County to shelf carbonates in Texas and Beaver counties, and finally to basinal sediments in southeast Beaver County.

Permo-Pennsylvanian deposition began with Morrowan shales and erratic sands upon an eroded Mississippian surface and continued almost without interruption throughout the system up into Wolfcampian time.

Division of the Permo-Pennsylvanian can be made on the basis of correlation from southwestern Kansas, since these units can be traced without great difficulty from this region.

Stratigraphic possibilities for oil and gas accumulation are favorable and appear to far outweigh the structural possibilities.

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Comparative Study of Lenticular Reservoir Sands

Lenticular reservoir sands, when studied in the light of their depositional environment, shed considerable light on their nature and distribution. Lower Pennsylvanian sands of the Oklahoma part of the McAlester-Arkansas Valley Coal basin are lenticular in character and occur on the fringing shelf areas of the embayment. Successive epochs of Early Pennsylvanian subsidence are characterized by the deposition of lenticular sands, principally of the deltaic type. Examples of deltaic lenticular sands are known to occur in the Booch, Bartlesville, and Prue sandstone formations. Depositional environments are reconstructed by means of drawing isopachs of the genetic stratigraphic intervals in which these sands occur. Such maps serve to negate any significance of present structure and reveal the (1) shoreline trends, (2) distribution of shelf areas, and (3) the principal direction from which the sediments were derived. Additional maps of the individual reservoir sands, such as structure, thickness, isopotential, and reciprocal isopachs, reveal the nature of the lenticular sands within the genetic units. A knowledge of the origin and distribution of such sand bodies, both ancient and recent, is considered essential to the discovery of new stratigraphic traps of this type and to their exploitation once they are discovered.

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Subsurface Geologic Cross Section from Logan County to Tulsa County, Oklahoma

Geologists should reach a general agreement on stratigraphic nomenclature in central-northern Oklahoma. The confusion which has resulted from erroneous correlations and misuse of formation names has retarded the progress of subsurface work. The correct use of the old names is all that is