JURASSIC GEOLOGY OF ALABAMA & FLORIDA PANHANDLE

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ABSTRACT

Jurassic sedimentation in the study area reflects the influence of numerous Appalachian structural salients. These features include the Pensacola Arch, Chattahoochee Arch, Brevard Anticline, and the southwestward extension of the Appalachian structural front, as well as several pre-Jurassic igneous plugs. A great influx of clastics invaded the seaward margins of these structures, obliterating recognized formation boundaries in the Norphlet, Smackover and Haynesville.

An anhydrite member of the Louann Salt, previously unnamed, was described in wells from Clarke Monroe and Wilcox counties. This anhydrite, the Pine Hill member, occurs at the top of the Louann Salt when salt is present and reaches a maximum recognized thickness of 210 feet.

The Norphlet of Alabama is typically a red sand or conglomerate with igneous pebbles, anhydrite and minor amounts of shale. Over much of the area it grades upward into a grey, neritic sand which is believed to be Smackover age. The Norphlet-Smackover contact in this facies cannot be distinguished but the upper grey sand is considered to be a prime exploration target. In Choctaw and northern Washington counties, typical Smackover and Norphlet sediments can be recognized. In this area the oolitic facies of the Upper Smackover is a major objective, with production established at Toxey and Choctaw Ridge fields.

The Tombigbee Depression, a depocenter for Jurassic sediments, was so named because the axis of this low follows the Tombigbee River along the east side of Washington County. During Haynesville time, this depression received large quantities of anhydrite and salt. To the northeast along the shoreward margin of the evaporites, a shoal facies developed in a relatively narrow northwest-southeast trend. This facies has a major exploration potential.

Cotton Valley clastics are sands and conglomerates typical of the Schuler facies previously described in Mississippi.[1] Ingenous pebbles are also common to this section. Seaward, the Dorcheat facies is present, and with it a more favorable environment for oil accumulation.

This paper is not so much a documentation of the presently recognized Jurassic sediments as it is an interpretation of the projected facies and environments based on geological concepts. Alabama and panhandle Florida will become an important source of Jurassic production in the near future.

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[1] A Study of the Jurassic Sediments in Portions of Mississippi and Alabama, Oxley, Minihan & Ridgway, GCAGS, Vol. XVII, 967.