

CORRELATIONS AND STRATIGRAPHY FROM THE BASE OF THE PINE ISLAND TO THE BASE OF THE NORPHLET IN THE ARK-LA-TEX

James M. Forgotson and
James M. Forgotson, Jr.¹

ABSTRACT

A correlation network based on electrical logs relates previously defined or described formations in a consistent manner throughout the Ark-La-Tex. Previous definitions are restricted or clarified to provide a nomenclature that conforms to the stratigraphic framework. Original type sections, if they are adequately defined, are related to the formations shown in key wells and those units which are redefined or restricted are extended laterally from the type wells by a consistent correlation network.

The Coahuilan Series, comprised of the Sligo and Hosston Formations, is conformably overlain by the Pine Island, the basal formation of the Trinity Group. The gray to black shales and limestones of the Sligo grade transitionally downward into the red sandstones and shales of the Hosston. Basinward, both units thicken and the base of the Sligo becomes stratigraphically lower.

The basal Cretaceous Coahuilan Series rests unconformably on the Schuler Formation of the Upper Jurassic Cotton Valley Group. The Schuler Formation, predominantly composed of sandstone and siltstone, is unconformable to and oversteps the predominantly shale Bossier Formation of the Cotton Valley near the basin margins, but deposition may have been continuous in the deeper basin.

The Cotton Valley lies unconformably on the Louark Group. The red shales and pink to white sandstones of the Haynesville, the uppermost formation of the Louark in southern Arkansas and northern Louisiana, grade laterally into the Gilmer Limestone in East Texas and basinward into black shale lithologically similar to the Bossier Shale. The Haynesville or Gilmer Limestone (commonly called Cotton Valley Lime) rests unconformably on the Buckner or Smackover Formation. The Buckner (primarily red shale, sandstone, anhydrite, and limestone lenses) is transitional with the underlying Smackover Limestone. On certain large structures, the Gilmer Limestone rests unconformably on the Smackover. In the basinward parts of the area, deposition may have been continuous from the Smackover-Buckner into the overlying Haynesville or Gilmer Limestone, or their basinward shale equivalents.

The Smackover conformably overlies the Norphlet Formation which is composed predominantly of sand, shale, and conglomerate. The Norphlet is not included in the Louark Group and is probably Middle Jurassic based on age designations published by Todd and Mitchum. The Norphlet unconformably overlies the Louann Salt and older units near the margins of the basin where the Louann was not deposited or has been removed by erosion.

¹Burk, Bakwin and Henry, Shreveport, Louisiana.