

ABSTRACT  
PETROLOGY AND DEPOSITIONAL ENVIRONMENT  
OF THE CHAPPEL BIOHERMS OF  
HARDEMAN COUNTY, TEXAS

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Fenestrate bryozoan banks are developed in the Chappel Formation of the Mississippian Osage Group in the Hardeman Basin, Hardeman County, Texas. The Chappel Formation has three recognizable facies: bank core, bank flank, and interbank. The bank core facies consists of micritic mudstones and wackestones containing fenestrate bryozoans, crinoids, and brachiopods. The growth of the bank core was aided by the mud trapping characteristics of the fenestrate bryozoans. The core facies grades laterally into a bank flank facies of crinoidal and fenestrate bryozoan packstones and grainstones. The bank flank facies deposits in the Hardeman Basin are the most common bank deposits. The interbank facies is composed of sponge apicule mudstones and wackestones. Chert is a major constituent of the interbank facies, and decreases in importance toward the core facies. The entire bank complex is capped by the oolitic grainstones of the St. Louis Formation.

Porosity development in these banks is secondary due to fracturing, dolomitization, and leaching. Even in the originally porous crinoidal grainstones of the flank facies primary intergranular porosity is absent because of epitaxial cementation.