

CLASTIC DIAPIRISM IN THE GUEYDAN (CATAHOULA)  
FORMATION, LIVE OAK AND McMULLEN COUNTIES, TEXAS

Paul S. Freeman  
University of Texas, M. A. thesis, June, 1966

A B S T R A C T

Provinces of clastic diapirism ("sedimentary volcanism") are characterized by geologic phenomena which are common to the outcrop area of the Gueydan (Catahoula) Formation of South Texas.

Evidence for clastic diapirism in Live Oak and McMullen Counties includes: mudflow deposits containing relic gas vesicles and gasoclasts; relic "mud-volcano" vents (silica knobs) lying along faults and fractures; erratic deposits of pumice-pebble conglomerates; large igneous blocks and boulders, carbonate blocks, orthoquartzite blocks as much as 4500 cubic feet in volume; a diapiric, limestone-bearing, serpentine mass; numerous clastic dikes of various compositions; and deep-seated faults in a region of high-pressure gas reservoirs.

Natural gas provided the explosive energy necessary to transport many large, erratic blocks and boulders to the surface via gas-filled mudflows from thousands of feet below the surface upon which Gueydan sediments were deposited. Gueydan mudflows of Clayey, vitric tuff and sandy, pebbly, or conglomeratic clays were deposited contemporaneously with fluvial sandstones and rarer airborne ash beds.

Clastic diapirism associated with the Mirando-Provident City fault system continued to be active during the time of deposition of post-Gueydan sediments.