

A

WEST

LOWER CLEAR FORK - WICHITA MINERALOGY

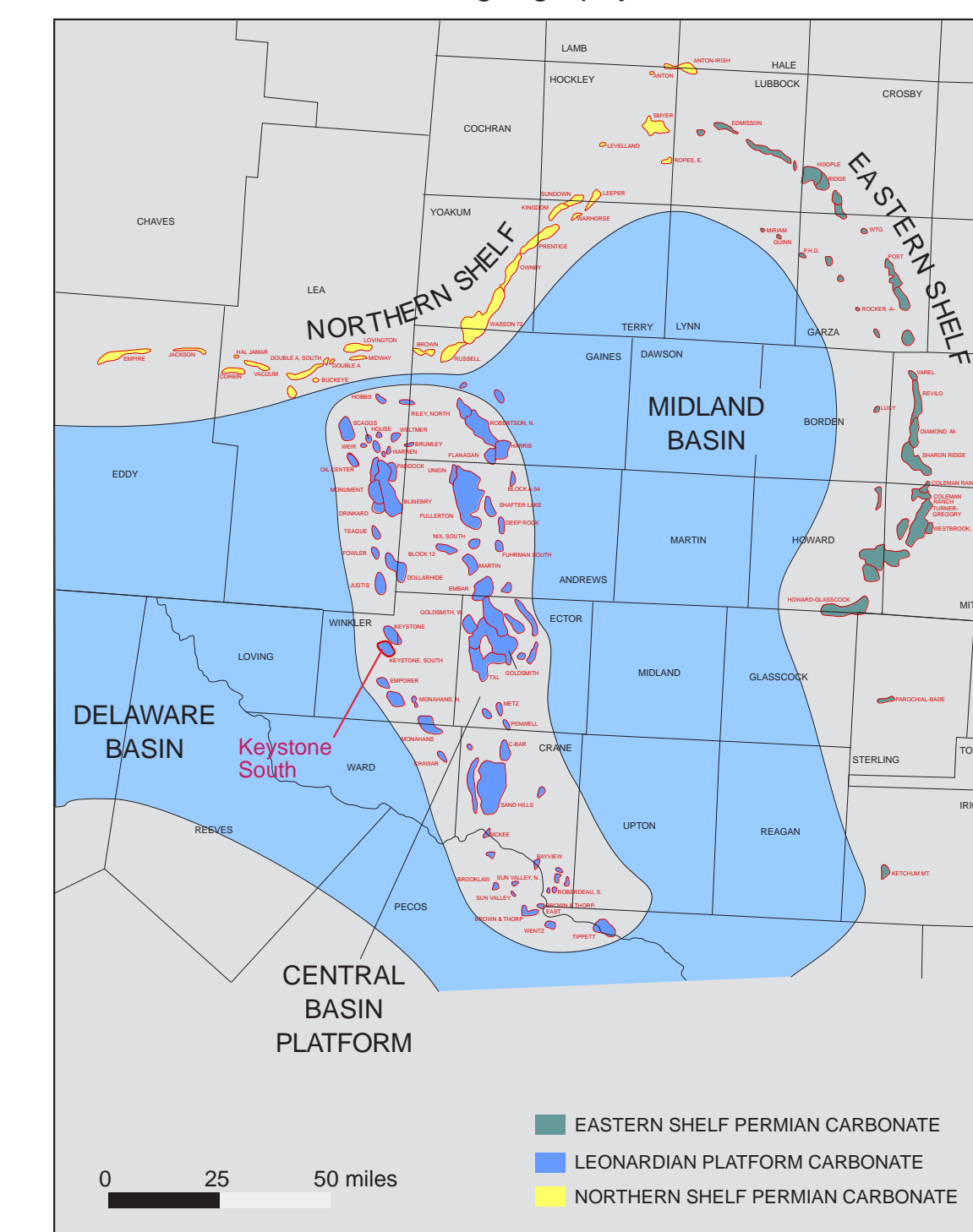
KEYSTONE SOUTH CLEAR FORK FIELD, WINKLER COUNTY, TEXAS

A'

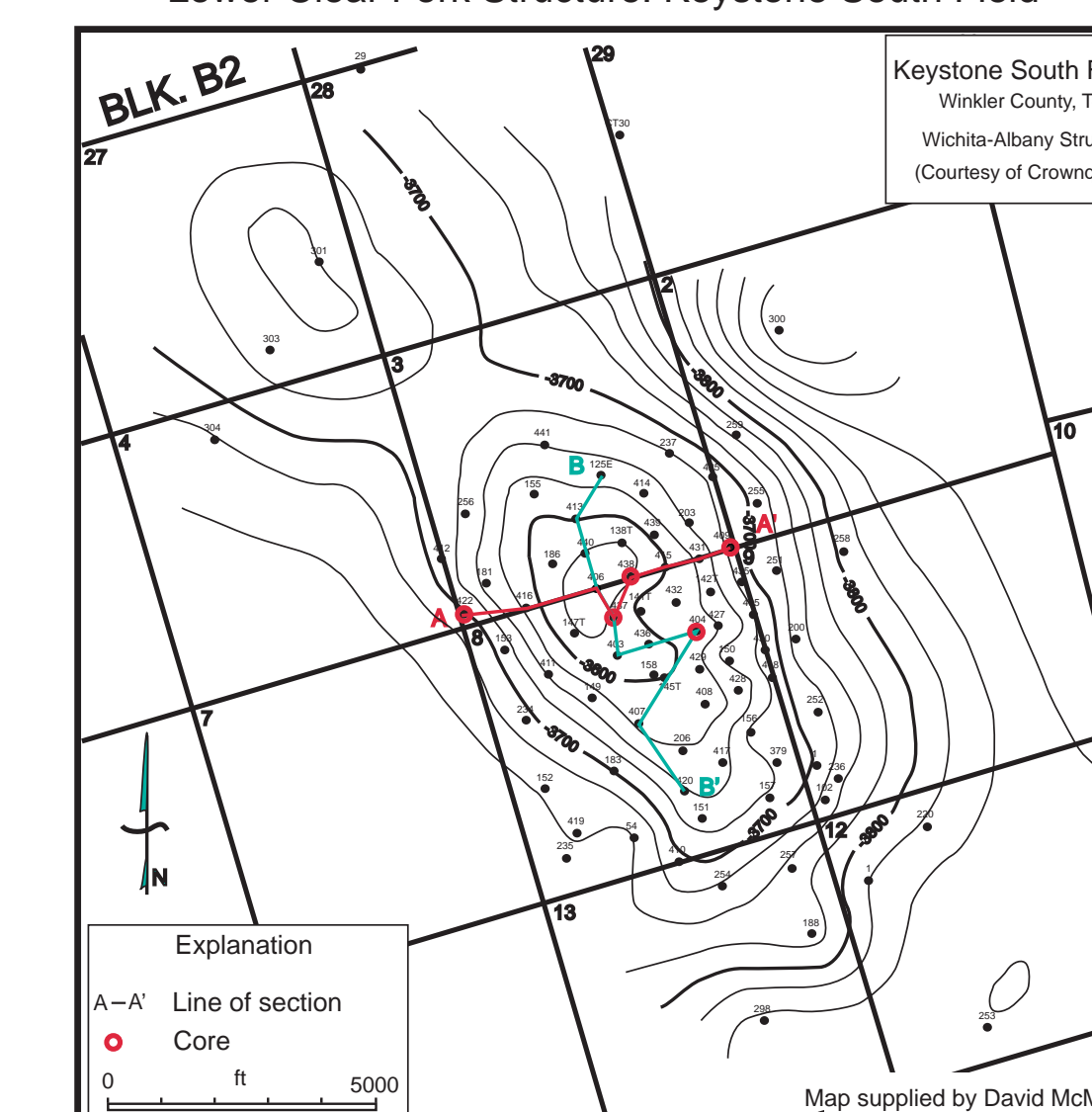
EAST



Middle Permian Paleogeography and Leonardian Fields



Lower Clear Fork Structure: Keystone South Field



PATTERNS IN MINERALOGY AND POROSITY

TUBB
The Tubb is composed of alternating layers of dolostone and siltstone. Siltstone intervals appear to be relatively continuous across the field. Previous studies show that these Tubb silt-rich rocks usually have very low permeability.

LOWER CLEAR FORK
The lowermost Lower Clear Fork sequence (L2.1) is dominantly composed of limestone whereas the upper two sequences (L2.2, L2.3) are essentially entirely dolostone. Although porosity is developed in both limestone and dolostone in L2.1, highest porosities appear to be associated with dolostone intervals. Dolostone increases in abundance to the west in sequence L2.1 in this cross section; this, combined with data from Section B-B', suggests that porosity in this sequence is highest in the southwestern part of the field.

WICHITA
The Wichita is composed of a lower dolostone-dominated section (W1) and an upper limestone dominated section (W2). Porosity is best developed in dolostones of the lower Wichita; W1 limestones are generally nonporous. Porosity is locally developed in the upper Wichita principally in dolostone intervals. However, some W2 limestones are also locally porous. Low porosity limestone intervals in W1 are relatively continuous and probably act as flow baffles.

EXPLANATION

- Mineralogy**
- Limestone: generally low porosity and permeability
 - Dolostone: generally higher porosity and permeability
- Core Facies**
- 1 Tidal flat
 - 2 Mudstone
 - 3 Peloid wackestone-packstone
 - 4 Skeletal wackestone
 - 5 Peloid packstone
 - 6 Peloid grain-dominated packstone
 - 7 Ooid/peloid grain-dominated packstone
 - 8 Siltstone/sandstone
 - 9 Fusulinid/peloid packstone
 - 10 Fusulinid wackestone
 - 11 Oncolite packstone
 - 12 Roof crackle breccia
 - 13 Polymict cave fill conglomerate
 - 14 Lithoclast breccia
 - 15 No core
- Correlations**
- Exposed cycle top
 - Subtidal cycle top
 - Correlation marker



By S. C. Ruppel, 2006