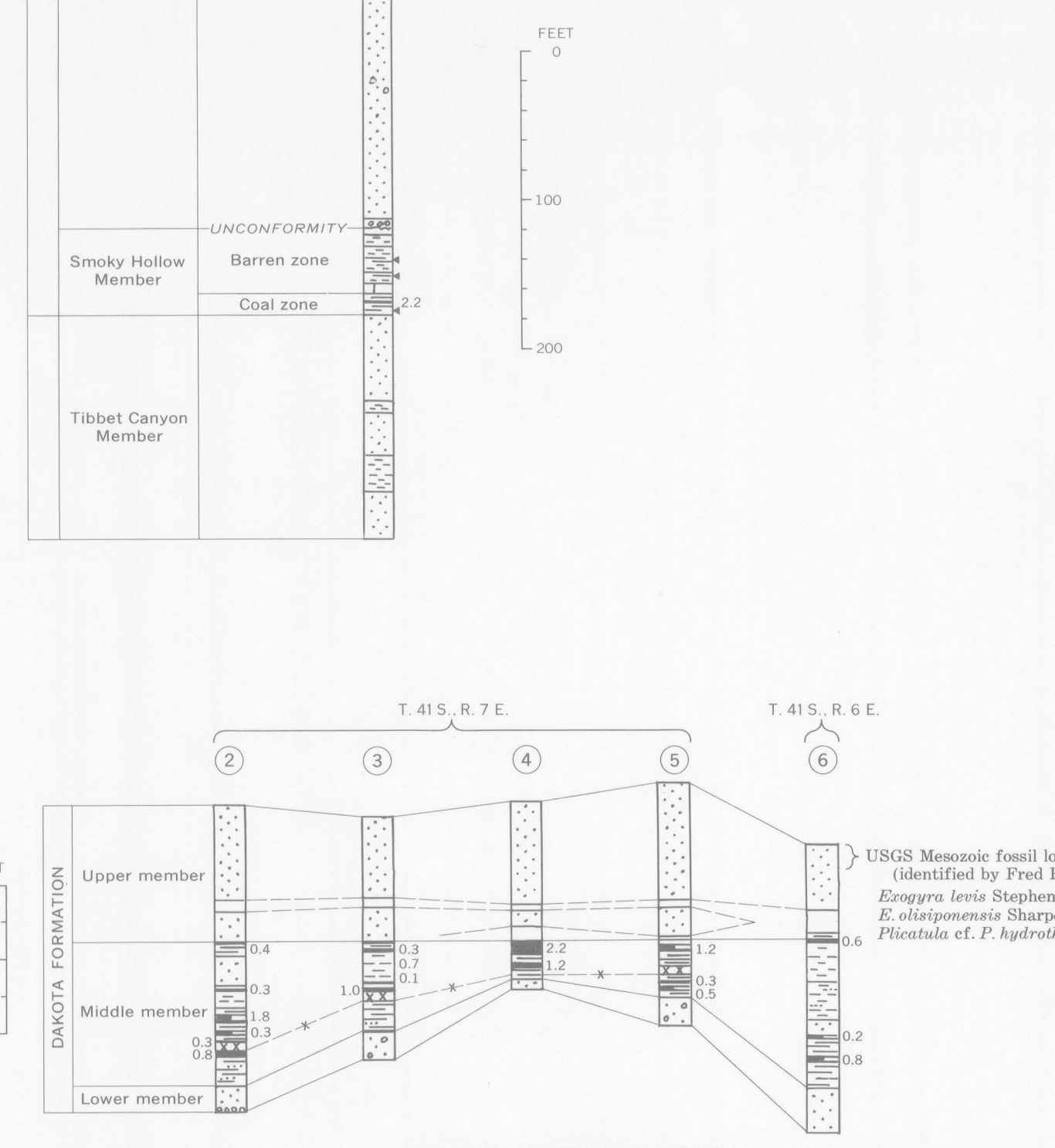
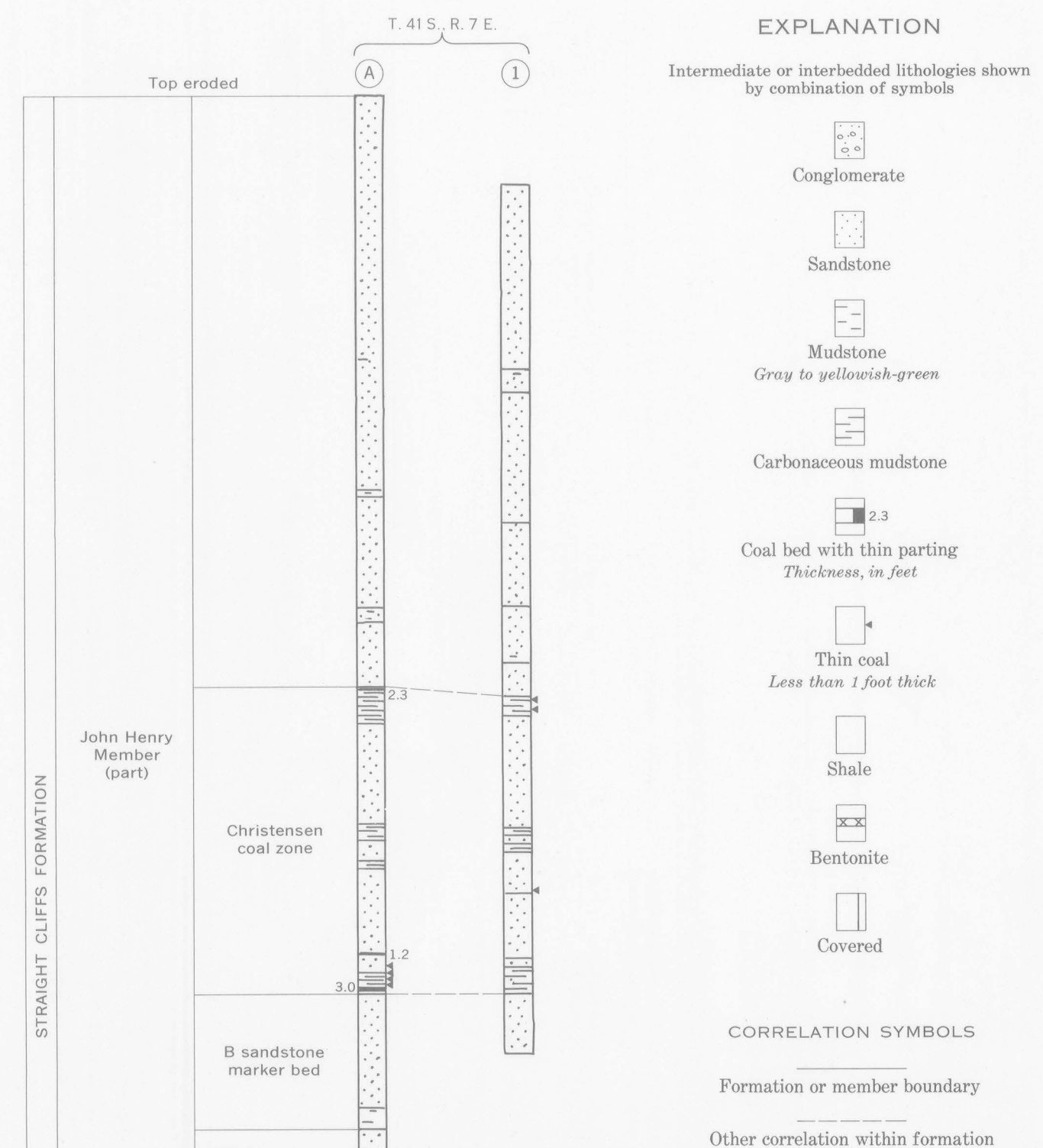
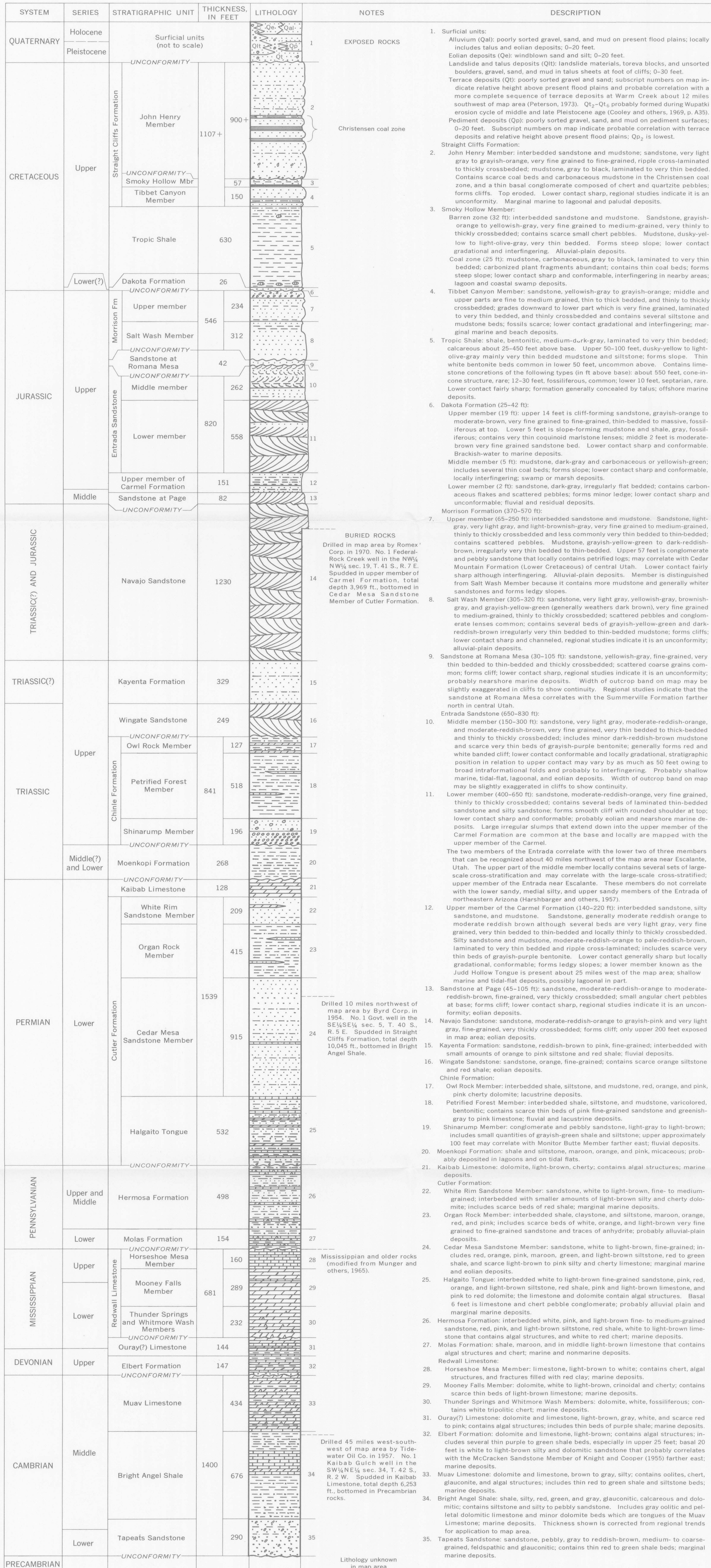


COLUMNAR SECTION



ECONOMIC GEOLOGY
INTRODUCTION
Most of the quadrangle is included in the Glen Canyon National Recreation Area which is administered by the National Park Service. The Recreation Area was established primarily to include Lake Powell, the reservoir currently forming behind Glen Canyon Dam, which is about 17 miles southwest of the map area near Page, Ariz. The area is dissected into colorful buttes, canyons, and mesas that are carved in rocks of Triassic, Jurassic, and Cretaceous age.
Lake Powell, currently filling Glen Canyon and inundating the canyons in the southern part of the quadrangle, rose from approximately 3,450 feet to 3,600 feet above sea level while the area was being mapped; ultimately it will reach a maximum altitude of about 3,710 feet. The geology of the submerged lands was interpreted from aerial photographs flown in 1951, aided by a brief reconnaissance in 1963. The quadrangle was mapped primarily as part of the U.S. Geological Survey program of evaluating and classifying mineral lands in the public domain.

GROUND WATER
Several small springs or seeps issue from the clean sandstones in the Straight Cliffs Formation, and possibly some of these could be developed to produce small quantities of water. The Navajo Sandstone is an excellent aquifer because it is porous and permeable and because it is recharged from Lake Powell.

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COAL
Several thin beds of subbituminous or bituminous coal occur in the Straight Cliffs and Dakota Formations. The coal is of marginal value because the seams are thin and in rugged and isolated terrain and because thicker and more accessible seams occur 5 or more miles west of the map area in the main part of the Kaiparowits coal field.
A nearly complete section of the Straight Cliffs Formation measured 1,000-2,000 feet east of the quadrangle is included as section A of the coal sections for comparison. Only the thin coal bed at the top of the Christensen coal zone of the John Henry Member extends into the map area. The Smoky Hollow Member is largely covered in the area, but on the basis of correlation from section A to another section that was measured several miles north of the map area, the thin coal bed at the base is probably continuous through the northeastern part. Coal (on an as-received basis) in the Straight Cliffs Formation probably has a heating value of 10,000-12,000 British thermal units based on analyses of coal taken from abandoned mines about 16-18 miles west of the map area (Waldrop and Sutton, 1966).
The middle member of the Dakota Formation also contains several coal beds that are thin and lenticular. This coal (on an as-received basis) probably has a heating value of about 10,000-11,000 British thermal units based on an analysis of coal taken from an abandoned mine about 15 miles west of the map area (Waldrop and Peterson, 1966).
A summary of data pertaining to the coal deposits of the entire Kaiparowits coal field is presented by Doelling (1970).

OIL AND GAS
Rock Creek anticline in the northern part of the quadrangle is a fairly large structure that offers potential for oil and gas development.

GEOLOGIC MAP AND COAL RESOURCES OF THE NORTHWEST QUARTER OF THE CUMMINGS MESA QUADRANGLE, KANE COUNTY, UTAH

By
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1973