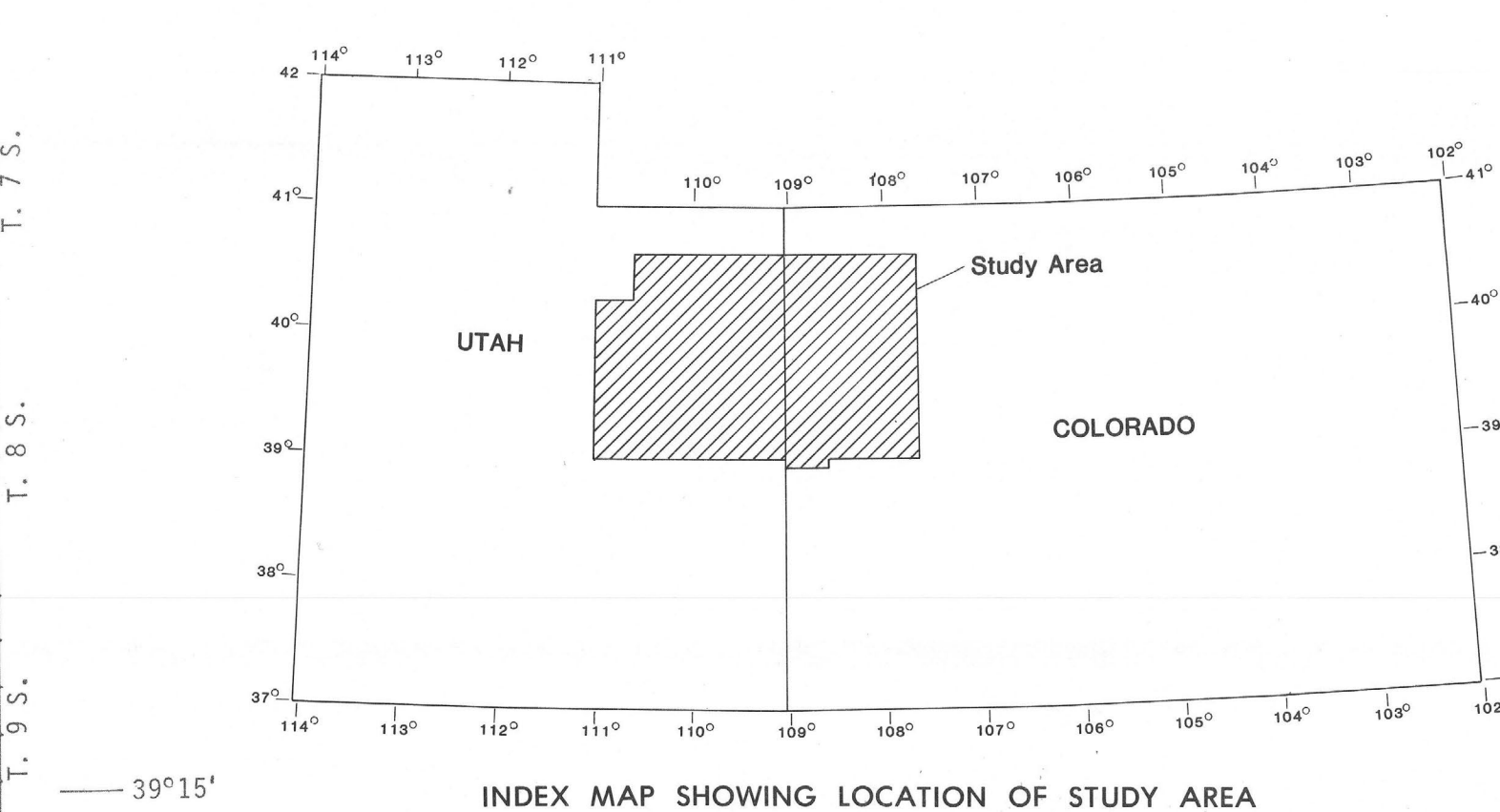


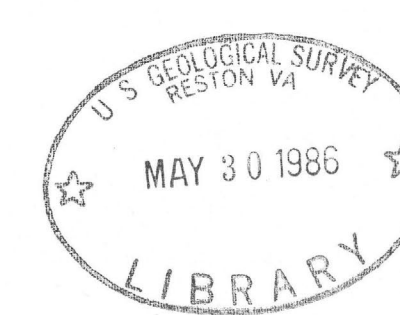
A structure contour map of the top of the Castlegate Sandstone was constructed for the eastern two-thirds of the Uinta Basin and the western and northern parts of the Piceance Creek basin to facilitate a study of the lower-middle Tertiary sandstones of Cretaceous age in the Uinta and Piceance Creek basins. Available surface mapping and drillhole logs were used for control. The Castlegate was used for contouring because it occurs throughout a large area and is, in most cases, identifiable on well logs. The name Castlegate Sandstone was applied by Forrester (1918), Spiker and Reeside (1925), and Clark (1928), to a prominent, cliff-forming, sandstone sequence of Late Cretaceous age that locally forms a topographic feature called the Castle Gate in Price Canyon about 10 mi northwest of the town of Price, Utah, and was formally named a member of the Price River Formation by Spiker and Reeside (1925). The Castlegate was elevated to formation rank by Fisher, Erdmann, and Reeside (1960). The unit was traced on an outcrop eastward along the Book Cliffs to within 2 mi of the Utah-Colorado border by Fisher (1956) where it pinches out into Mancos Shale. Fisher, Erdmann, and Reeside (1960) described the changes in the Castlegate along the Book Cliffs (p. 14): "Between Sunnyside and the Green River, the Castlegate is not pronounced; it is different in any respect from older sandstones of the Blackhawk formation; it is simply another cliff-forming sandstone, which, however, is a very definite continuous unit. . . . East of the Green River, the Castlegate is not pronounced; its topographic expression is unique in that it forms the dip-slope surface capping a bench as much as 2 miles wide at the base of the second line of the Book Cliffs." Fouch and others (1983) believed that the upper part of the Castlegate in Price Canyon, included beds that were the lithologic and temporal equivalent of the Bluecastle Sandstone Member of the Neelm Formation. They also thought that the Castlegate splits into two units to the east, forming the Bluecastle Sandstone and what has traditionally been called the Castlegate Sandstone in the eastern part of the Book Cliffs, along the northeastern margin of the Uinta Basin and the northern margin of the Piceance Creek basin (Gill and Hall, 1975). Fouch and others (1983) revised the Bluecastle Sandstone as a tongue of the Castlegate. According to Fouch and others (1983, p. 335), "Our lithofacies and biostratigraphic analysis indicate that the Bluecastle Sandstone is a tongue of the Castlegate Sandstone and is temporally and lithologically equivalent to the upper part of the Castlegate in Price Canyon." The structure-contour map in this report is drawn on the top of the Castlegate as originally mapped by Fisher (1956). The map does not include that part of the western Uinta Basin where the Bluecastle Tongue and the main body of the Castlegate combine to form one unit, but does show the structure of a horizon equivalent to the top of the Castlegate in a large area east of the narrow pinchout of the Castlegate. By using a combination of electric and gamma-ray logs from closely spaced drillholes, the Castlegate Sandstone can be easily traced into a persistent silty or sandy zone in the Mancos Shale (see cross section). A very high gamma reading that occurs about 200-250 ft below the top of the Castlegate equivalent aided in mapping this unit throughout the western and northern parts of the Piceance Creek basin. Both the high gamma reading and the Castlegate equivalent disappear in the southeastern part of the basin.

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INDEX MAP SHOWING LOCATION OF STUDY AREA



## EXPLANATION FOR MAP

- STRUCTURE CONTOUR—Drawn on top of Castlegate Sandstone or its equivalent. Contour interval 500 feet. Numbers indicate hundreds of feet above sea level.
- DRILLHOLE—Used for structural control.
- ANTICLINE—Showing crestline.
- SYNCLINE—Showing troughline.
- THRUST FAULT—Sawtooth on upper plate.
- FAULT—Bar and ball on downthrown side.
- LINE OF SECTION—Numbers keyed to cross section.

STRUCTURE CONTOUR MAP OF THE TOP OF THE CASTLEGATE SANDSTONE,  
EASTERN PART OF THE UINTA BASIN AND THE WESTERN PART OF THE  
PICEANCE CREEK BASIN, UTAH AND COLORADO

By  
Ronald C. Johnson  
1986

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