

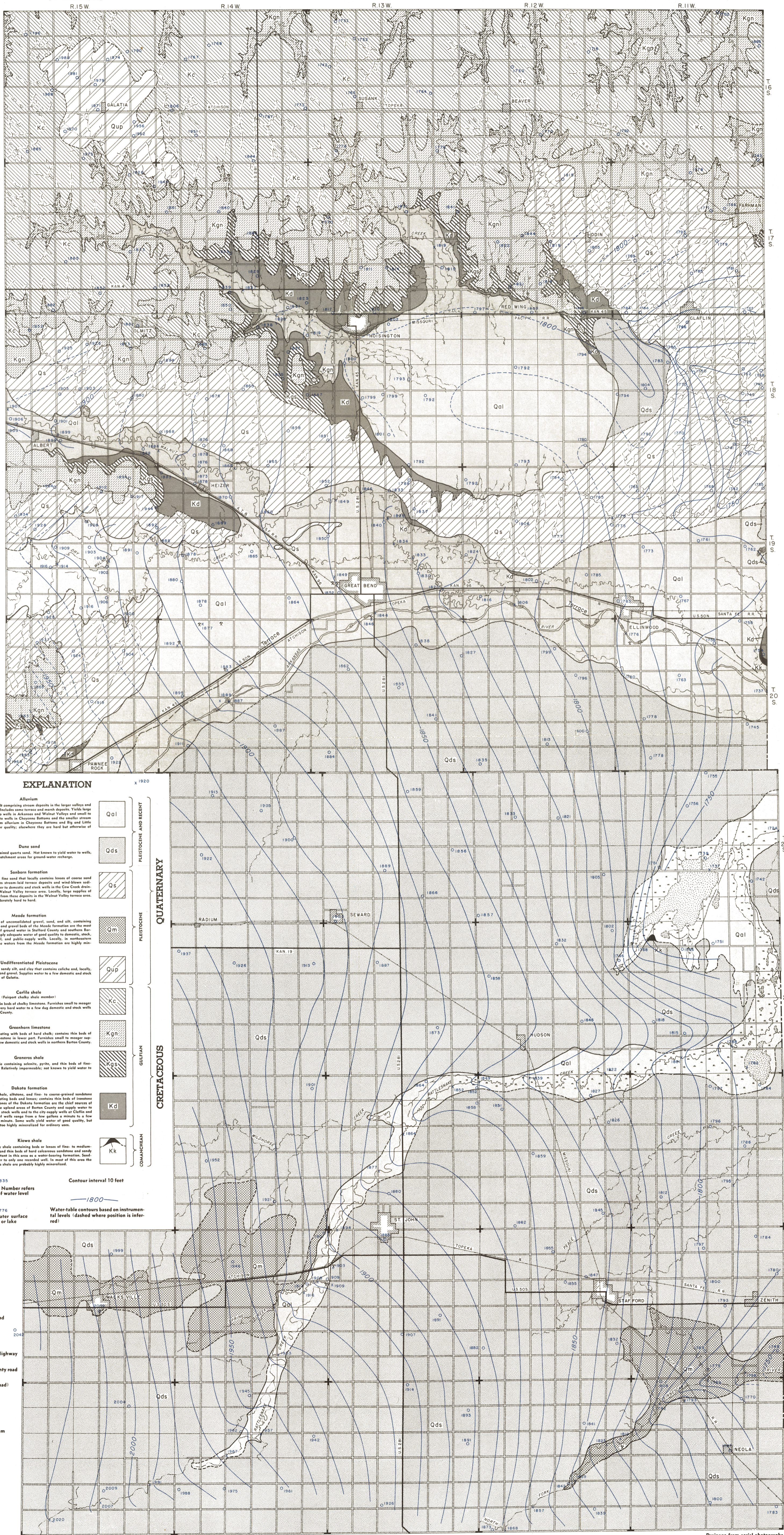
AREAL GEOLOGY OF BARTON AND STAFFORD COUNTIES, KANSAS

With Water-Table Contours

State Geological Survey
of Kansas

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1942, 1944

Bulletin 88
Plate 1



EXPLANATION

Alluvium
Gravel, sand, and silt comprising stream deposits in the larger valleys and Cheyenne Bottoms. Includes some terrace and marsh deposits. Yields large amounts of water to wells in Arkansas and Walnut Valleys and small to moderate amounts to wells in Cheyenne Bottoms and the smaller stream valleys. Waters from alluvium in Cheyenne Bottoms and Big and Little Marshes are of poor quality; elsewhere they are hard but otherwise of good quality.

Dune sand
Fine- to medium-grained quartz sand. Not known to yield water to wells, but is important catchment areas for ground-water recharge.

Sandborn formation
Silty, sandy silt, and fine sand that locally contains lenses of coarse sand and gravel. Includes stream-bed terrace deposits and wind-blown sand dunes. Supplies water to domestic and stock wells in the Cow Creek drainage area and the Walnut Valley terrace area. Locally, large supplies of water are available from these deposits in the Walnut Valley terrace area. The waters are moderately hard to hard.

Meado formation
Interbedded lenses of unconsolidated gravel, sand, and silt, containing much caliche. Sand and gravel beds of the Meado formation are the most important sources of ground water in Stafford County and southern Barton County, and supply adequate water of good quality to domestic, stock, irrigation, industrial, and public-supply wells. Locally, in northeastern Stafford County, the waters from the Meado formation are highly mineralized.

Undifferentiated Pleistocene
Unconsolidated silt, sandy silt, and clay that contains caliche and, locally, thin lenses of sand and gravel. Supplies water to a few domestic and stock wells in the vicinity of Galatia.

Carlisle shale
(Fairport cherty shale member)
Cherty shale and thin beds of cherty limestone. Furnishes small to meager supplies of hard to very hard water to a few deep domestic and stock wells in northern Barton County.

Greenhorn limestone
Cherty shale alternating with beds of hard chert; contains thin beds of hard crystalline limestone in lower part. Furnishes small to meager supplies of water to a few domestic and stock wells in northern Barton County.

Graneros shale
Nonschistose shale containing calcareous pebbles, and thin beds of fine-grained sandstone. Relatively impermeable; not known to yield water to wells in this area.

Dakota formation
Varicolored clay, shale, siltstone, and fine- to coarse-grained sandstone occurring in alternating beds and lenses; contains thin beds of ironstone and lignite. Sandstones of the Dakota formation are the chief sources of ground water in the upland areas of Barton County and supply water to many domestic and stock wells and to the city supply wells at Clifton and Ellinwood. Yields of wells range from a few gallons a minute to a few hundred gallons a minute. Some wells yield water of good quality, but others yield water too highly mineralized for ordinary uses.

Kiowa shale
Shale and sandy shale containing beds or lenses of fine- to medium-grained sandstone and thin beds of hard calcareous sandstone and sandy limestone. Unimportant in this area as a water-bearing formation. Sandstone supplies water to only one recorded well. In most of this area the waters in the Kiowa shale are probably highly mineralized.

Well location. Number refers to altitude of water level

Altitude of water surface in stream or lake

Water-table contours based on instrumental levels (dashed where position is inferred)

Contour interval 10 feet

Ancient beach ridge

Marsh area

Intermittent lake or pond

Federal or State Highway

Township or County road

Section line (no road)

Railroad

Perennial stream

Intermittent stream

Gravel pit

Base modified from map prepared by State Highway Commission of Kansas

Scale in miles

Drainage from aerial photographs of the U. S. Dept. of Agriculture