GEOLOGIC MAP OF BRYAN COUNTY, OKLAHOMA

By

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EXPLANATION

Qal — Alluvium

Flood-plain deposits, consisting of sand, silt, and clay along Red River, Island Bayou, Mineral Bayou, Clear Boggy Creek, Blue River, and their tributary streams. Surface of flood plain is 10-15 feet above water level in Red River.

Qt, Qt, Qt, Qt, Qt — Terrace deposits

Qt—Cooke level: mainly sand, silt, and clay; surface 15-20 feet above Red River flood plain; as much as 20-30 feet above Red River channel; best development is along Red River below Denison Dam; currently assigned to late Wisconsinan.
Qt—Ambrose level: gravel, sand, silt, and clay; surface 10-15 feet above Cooke level and 30 feet above Red River flood plain; best developed on Red River below Denison Dam and along lower part of Blue River; classed as early Wisconsinan.
Qt—intermediate level: gravels and sands with minor amounts of silt and clay; surface 30-40 feet above Ambrose level; best developed on Red River below Denison Dam and Red River channel; well developed along Red River and along east side of Lake Texoma; currently assigned to Illinoian Stage.
Qt—Hardeman level: includes approximately 30 feet of gravel, sand, silt, and clay; uppermost surface 115-120 feet above flood-plain level; extensively developed in southwestern part of county along Island Bayou north and west of Durant; also locally present along Washita arm of Lake Texoma; well developed locally with exposed bedrock at edges; classed as Kansan.
Qt—Small patches of gravels near Fort Washita, consisting of silt and pebbles of ferruginous sandstone, and clay ironstone, 140-145 feet above flood-plain level.
Qt—undifferentiated deposits of gravel, sand, silt, and clay.

Residual gravel deposits: Scattered gravels, composed of pebbles of chert, quartzite, quartz, and igneous rocks let down from some previous surface, possibly Tertiary. Not mapped.

UNCONFORMITY

Kef — Eagle Ford Formation

Limestone, blue-gray, silty, thin-bedded, flaggy; weathers yellow and silty; thin beds of blue calcareous siltstone and blue silty shale. Poorly exposed along edges of terrace deposit in southern Bryan County; exposed thickness, about 25 feet.

Kwd, Kwd, Kwdb, Kwd — Woodbine Formation

Woodbine Formation subdivided into four units, in descending order: *Templeton Member*, Kwt, shale, mostly gray-black, fissile, with thin beds of yellow sandstone and clay ironstone; phosphatic nodules and calcareous concretions; contains abundant fossil wood; estimated thickness, 40-70 feet; restricted to southern part of County. *Lewisville Member*, Kwl, sandstone, yellow to reddish-brown, ferruginous, glauconitic, thin- to massive-bedded, cross-bedded; interbedded with tan to brown shales; thickness, approximately 120 feet. *Red Branch Member*, Kwb, sandstone, shale, and lignite; sandstone is ferruginous and tuffaceous in part; shale is gray, brown, and yellow brown to black; contains thin lignite seams; fossil wood abundant; thickness, 40-60 feet in upper part; estimated thickness, 60-70 feet. *Dexter Member*, Kwd, sandstone (80-90 feet) with subordinate amounts of shale; sandstones are yellow brown, ferruginous, fine to medium grained, cross-bedded; some ferruginous concretions, clay ironstones, carbonized wood; uppermost unit (*Rainbow Clay*) consists of 40 feet of varicolored clay shale. Also included in Kwd is a basal shale unit consisting of 0 to 37 feet of brown carbonaceous shale exposed along Chukwa and Newberry Creek cuts).

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Kgr — Grayson Marlstone

Marlstone, gray to light-greenish-gray; interbeds of gray to white nodular limestone; fossiliferous, with abundant *Dymalagyra aristata* (Roemer) and *Texigryphaea grayssona* (Hanton); thickness, 0-27 feet.

Kb — Bennington Limestone

Limestone, massive, blue-gray to yellow-brown, fine- to medium-crystalline, fossiliferous, with *Dymalagyra aristata* (Roemer); weathers pitted and honeycombed; thickness, 7 to 13 feet.

Klw, Klw, Kwd — Boryeito Formation

Sequence of clays, sandstones, and thin limestones, subdivided into five members, in descending order: *Pecanina Member*, Klw, clay, gray-brown, with abundant fossil oysters, interbedded with gray to brown sandy clay; *McNair Limestone*, Klm, gray-brown, fossiliferous, sandy limestone (Quarry Limestone of previous reports); Wreo Clay, Klw, brownish shales and thin interbeds of yellow-brown ferruginous sandstone with selenite crystals common; *Super Limestone*, Kls, a thin, persistent bed of gray, fossiliferous limestone ("Orbitolina texana" bed of previous reports); and Denton Clay, Klw, blue-gray shale with thin interbeds of siltstone and sandstone; locally limestone near top; thickness ranges from 150 to 200 feet.

Kc — Caddo Formation

Oklahoma equivalent of Fort Worth and Duck Creek Formations of Texas. Upper part (Fort Worth equivalent) consists of white to gray to cream-colored limestone; cream-colored, heavy-bedded limestone characterizes upper 7 feet. Lower part (Duck Creek equivalent) includes finely laminated blue-gray shales and beds of gray silty and shaly limestone containing abundant large cephalopods. Thickness, approximately 150 feet.

Kk — Kiamichi Formation

Dark-gray to black, platy to fissile shale interbedded in upper parts with thin beds of gray to yellow, fossiliferous limestones forming the so-called shell beds and containing abundant *Texigryphaea nana* (Hall). Thickness, approximately 40 feet.

Kg — Goodland Limestone

Limestone, white, massive-bedded, biomicritic; weathers gray to yellow; lower beds argillaceous and locally nodular; upper beds massive but exfoliate into thin, curved plates; may include equivalent of Walnut Clay in basal beds. Thickness, 20 to 25 feet.

Ka — Antlers Sandstone

Sandstone, white to yellow-brown, ferruginous, cross-bedded, fine- to medium-grained, nonfossiliferous, poorly cemented, friable; interbeds of varicolored clay to black to purple ferruginous clay; Marietta exposed thickness, 80 feet; subsurface thickness ranges from 250 to 400 feet.

QUATERNARY — Holocene; Pleistocene

CRETACEOUS — Comanchean; Washita Group; Fredericksburg Group; Trinity Group; Eagle Ford

Contact; dashed where inferred

Quarry

Sand or gravel pit

SCALE 1:63,360

0.5 0 1 2 3 4 MILES

1 0.5 0 1 2 3 4 KILOMETERS

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INDEX MAP OF OKLAHOMA SHOWING LOCATION OF BRYAN COUNTY

Base compiled from Oklahoma Department of Highways maps and U.S. Geological Survey topographic maps

Cartographic preparation by Oklahoma Geological Survey