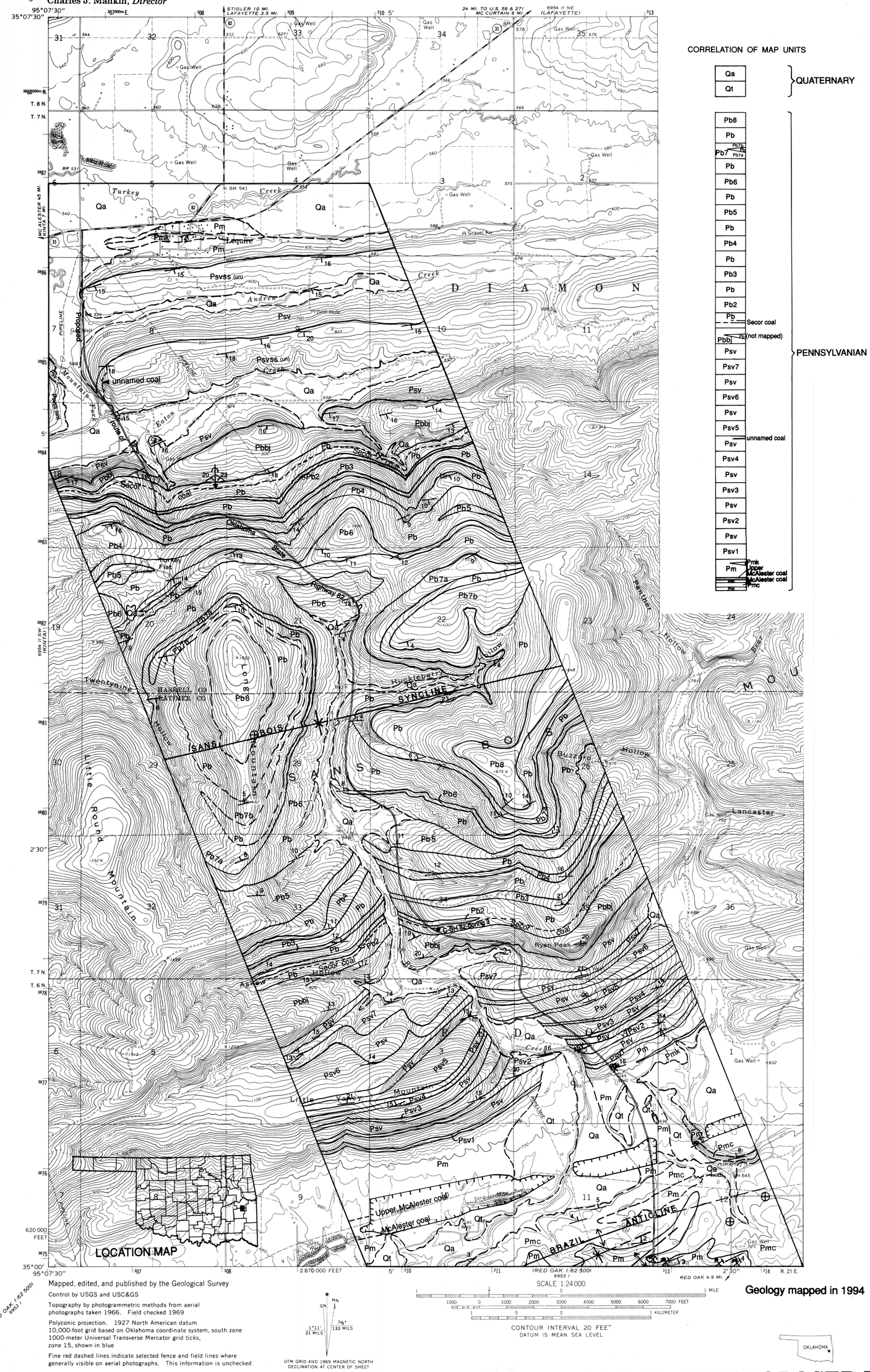
OKLAHOMA GEOLOGICAL SURVEY
Charles J. Mankin, *Director*

Open File Report 4-96



CORRELATION OF MAP UNITS

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1969

Polyconic projection. 1927 North American datum
10,000-foot grid based on Oklahoma coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1969 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

Geology mapped in 1994

DESCRIPTION OF UNITS

Qa ALLUVIUM (QUATERNARY)—Gravel, sand, silt, and clay on flood plains of present-day streams.

Qt TERRACE DEPOSITS (QUATERNARY)—Subangular to subrounded cobbles, gravel, sand, and silt, forming a veneer, generally about 4–10 ft thick, on the surfaces of terraces that stand about 40–50 ft above the beds of present-day streams.

Pb BOGGY FORMATION (PENNSYLVANIAN)—Predominantly sandy, silty, gray to olive-gray to grayish-black shales and siltstones (Pb) with scarp-forming sandstones. At base is the Bluejacket Sandstone Member (Pbbj), 150–200 ft thick. The Bluejacket Sandstone Member contains two major sandstone units separated by a gray to grayish-green silty shale unit that is ~100 ft thick in places. Both sandstone units contain shale beds. Numbered units (Pb2–Pb8) are mappable, scarp-forming, yellowish-brown, fine- to very fine grained sandstones, generally 10–45 ft thick. Pb7 is split into two mappable units (Pb7a and Pb7b) on the flanks of Long Mountain and in sec. 22, T. 7 N., R. 21 E. Some units (Pb2, Pb5, Pb6) appear to pinch out in places, or are too thin to be mapped continuously. The Secor coal bed and the overlying Secor Rider coal bed are known to be present in shale ~100 ft above the top of the Bluejacket Sandstone on the north flank of the Sans Bois Mountains, and may be present on the south flank also. Thin unmappable sandstone lenses are present in the shale units. Top of formation eroded. Thickness of remaining Boggy: 1,800–1,950 ft.

Psv SAVANNA FORMATION (PENNSYLVANIAN)—Predominantly brown to olive-gray to dark-gray shales (Psv) with several mappable brown, very fine grained sandstone units (Psv1–Psv7). The sandstone units contain abundant sedimentary features such as soft-sediment deformation, sole marks, ripple marks, trace fossils, and fossil plants, particularly *Stigmaria*. The sandstones are variable in thickness, generally 5–25 ft, but locally may be much thicker. On the north flank of the Sans Bois Mountains the first two conspicuous ridges are formed by the upper and lower Savanna Sandstone zones (Psv ss [un]). The numbered sandstone units are not differentiated because they are unmappable separately. The lower sandstone zone probably comprises Psv1–Psv3, and the upper sandstone zone probably comprises Psv4–Psv7. The intervening shale zone contains a few thin sandstones, and both sandstone zones include some silty shale. A thin coal of no economic importance is present in the upper sandstone zone. The lower zone is 200–300 ft thick, the middle shale zone is 400–500 ft thick, and the upper sandstone zone is 150–300 ft thick. On the south flank of the Sans Bois Mountains the Savanna Formation is ~1,300 ft thick.

Pm McALESTER FORMATION (PENNSYLVANIAN)—Predominantly dark-gray to black, blocky shales containing abundant ironstone concretions. Only the upper part is present in the map area. In the vicinity of Lodi, the Cameron Sandstone Member (Pmc) crops out. It is brown, very fine grained, thin-bedded, and about 10–40 ft thick. On the north side of the mountains, the youngest sandstone unit in the McAlester Formation, the Keota Sandstone Member, forms the low ridge in the town of Lequire. It is brown, very fine grained, thin-bedded, and shaly, and about 10–15 ft thick. Two coal beds, the McAlester and Upper McAlester beds, occur in the shale interval above the Cameron Sandstone on the south side of the mountains. They are ~2.0 ft and 1.7 ft thick, respectively, and have been mined extensively in the area.

SYMBOLS

- CONTACT--Dashed where approximately located
- COAL BOUNDARY--Approximate outcrop boundary of coal bed (named on map); triangle indicates exposure of coal
- ANTICLINE-- Showing crestline; dashed where approximately located; dotted where concealed
- SYNCLINE--Showing troughline; dashed where approximately located; dotted where concealed
- MINOR SYNCLINE--Showing plunge
- ABANDONED SMALL COAL MINE
- ABANDONED OR OPEN SHALE PIT
- SURFACE COAL MINE--Abandoned or area reclaimed

STRIKE AND DIP OF BEDS

- Strike and dip of beds, upright
- Horizontal beds

C-SH 82 — BORING 3

NE¼SE¼NE¼SW¼ sec. 34, T. 7 N., R. 21 E., Latimer County, Oklahoma. Well cored by Oklahoma Department of Transportation; lithologic descriptions by LeRoy A. Hemish, Oklahoma Geological Survey. Drilled on primitive trail in Sans Bois Mountains at Station 355, 2500 ft FWL and 1760 ft FSL. (Surface elevation, estimated from topographic map, 1020 ft.)

	Depth to unit top (ft)	*Thickness of unit (ft)*
Desmoinesian Series		
Krebs Group		
Boggy Formation:		
Clay & gravel, grayish-brown (5YR3/2)	0.0	1.2
Clay, moderate-reddish-brown (10R4/6) weathered	1.2	2.3
Shale, grayish-orange (10YR7/4), silty, oxidized	3.5	7.5
Lost core	11.0	5.0
Shale, olive-gray (5Y4/1) to dark-yellowish-brown (10YR4/2) with moderate-yellowish-brown (10YR5/4) streaks, partly weathered, slightly silty; includes rare 1-in.-thick dark-reddish-brown (10R3/4) ironstone concretions, jointed, minor sandstone layers	16.0	5.0
Lost core	21.0	5.5
Shale, light-olive-gray (5Y5/2) to olive-gray (5Y3/2), includes some dark-yellowish-orange (10YR6/6) oxidized layers, silty; includes rare dark-reddish-brown (10R3/4) ironstone concretions; minor fractures; contains a 2-in.-thick, very fine-grained sandstone layer from 27.6-27.8 ft	26.5	4.5
Lost core	31.0	6.0
Shale, light-olive-gray (5Y5/2) to olive-gray (5Y3/2), with minor dark-yellowish-orange (10YR6/6) oxidized streaks, silty; contains scattered dark-reddish-brown (10R3/4) ironstone concretions	37.0	4.0
Shale, grayish-orange (10YR7/4), very silty; contains dusky-brown (5YR2/2) elongate flecks; coarsens downward, grades into underlying unit	41.0	0.5
Bluejacket Sandstone Member		
Sandstone, very pale-orange (10YR8/2) with moderate-yellowish-brown (10YR5/4) streaks, very fine-grained, noncalcareous, iron oxide-stained; cross-stratified, some deformed laminae; includes rare shale layers about 0.5–1.0 in. thick; color changes downward to shades of gray	41.5	4.5
Sandstone, medium-light-gray (N6) with medium-dark-gray (N4) bands; some very light-gray (N8) intervals with medium-gray (N5) bands; very fine-grained, cross-stratified; some deformed laminae; includes some medium-dark-gray (N5) silty shale layers up to 0.2 ft thick; black carbonized plant fragments on stratification surfaces	46.0	6.0
Shale, medium-dark-gray, silty; contains black, carbonized plant fragments	52.0	0.8
Sandstone, medium-light-gray (N6), very fine-grained; interlaminated with shale; some wispy and deformed laminae	52.8	1.6
Sandstone, very pale-orange (10YR8/2) with moderate-yellowish-brown streaks, very fine-grained, cross-laminated	54.4	0.7
Sandstone, grayish-orange (10YR7/4) to moderate-yellowish-brown (10YR5/6), fine-grained, massive, oxidized, fractured; contains iron oxide and manganese dioxide flecks and stains; includes scattered small fossilized tree branch casts; shale-pebble conglomerate from 63.2-63.4 and at 69.8-69.9; clay-shale clasts scattered randomly throughout; gradual color change to moderate-orange-pink (10R7/4) below 90 ft	55.1	45.0
Sandstone, dark-yellowish-orange (10YR6/6) with medium-light-gray (N6) streaks, partly oxidized, friable	100.1	0.5
Siltstone, medium-light-gray (N6), shaly, very friable	100.6	0.4
Total Depth		101.0

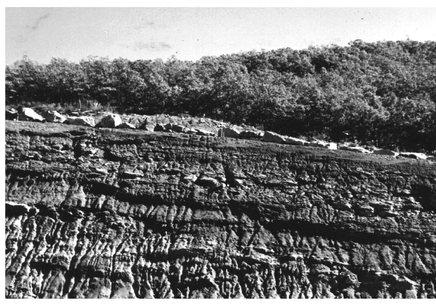
GEOLOGY OF THE SANS BOIS SYNCLINE ALONG THE PROPOSED ROUTE OF STATE HIGHWAY 82, HASKELL AND LATIMER COUNTIES, OKLAHOMA

By
LeRoy A. Hemish

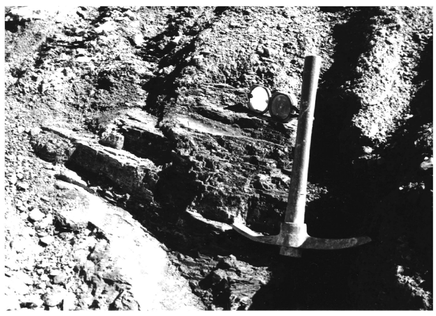
1996

State Highway 82 construction. New bridge over Andrew Creek, SW¼, SW¼, NW¼, sec. 8, T. 7 N., R. 21 E., Haskell County, Oklahoma, 10-12-94.

State Highway 82 construction. View to the N.E., SW¼, SW¼, sec. 8, T. 7N., R. 21 E., Haskell County, Oklahoma, 10-12-94.



Roadcut showing Savanna Formation shales and sandstones. Highway 82 construction. SW¼, SW¼,sec. 8, T. 7 N., R. 21 E., Haskell County, Oklahoma,10-12-94.



11-inch-thick coal in the upper part of the Savanna Formation, Highway 82 construction. SW¼, SW¼, sec. 8, T. 7 N., R. 21 E., Haskell County, Oklahoma, 10-12-94. Pick head is at base of coal bed, Brunton compass is at top. (Strike: N. 85° E., dip: SE 18°)

Oklahoma Department of Transportation drilling rig at the site of C-SH 82-boring 3, Sans Bois Mountains, Latimer County, Oklahoma.

Oklahoma Department of Transportation crew logging core at the site of C-SH 82-boring 3.