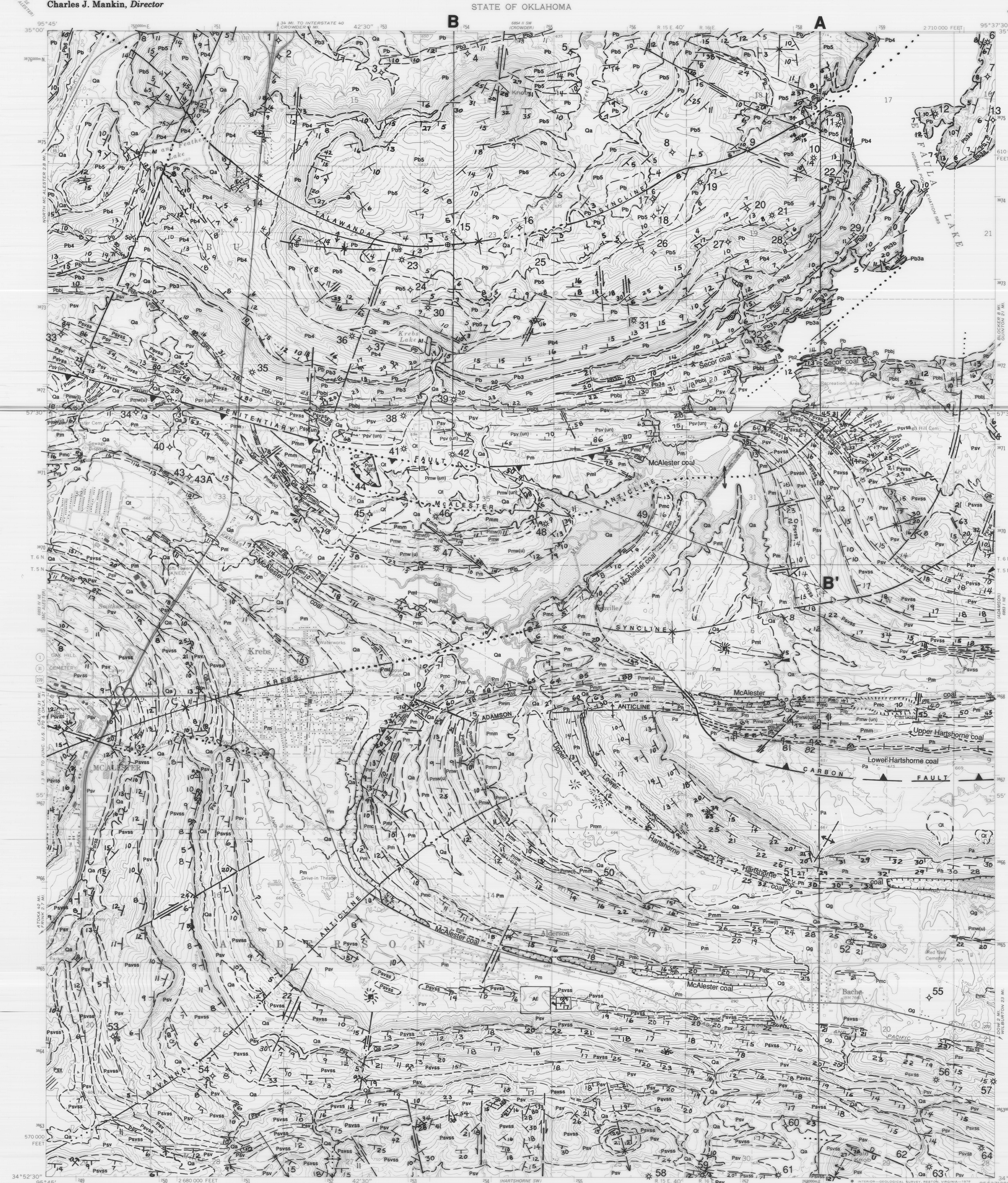
OKLAHOMA GEOLOGICAL SURVEY
Charles J. Mankin, Director

Oklahoma Geologic Quadrangle **OGQ-19**
Geologic Map of the Krebs 7.5′ Quadrangle
(previously Open-File Report OF3-96)



Mapped, edited, and published by the Geological Survey in cooperation with the Oklahoma Highway Department, Oklahoma Water Resources Board, and Oklahoma State Soil Conservation Board

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1966. Field checked 1967

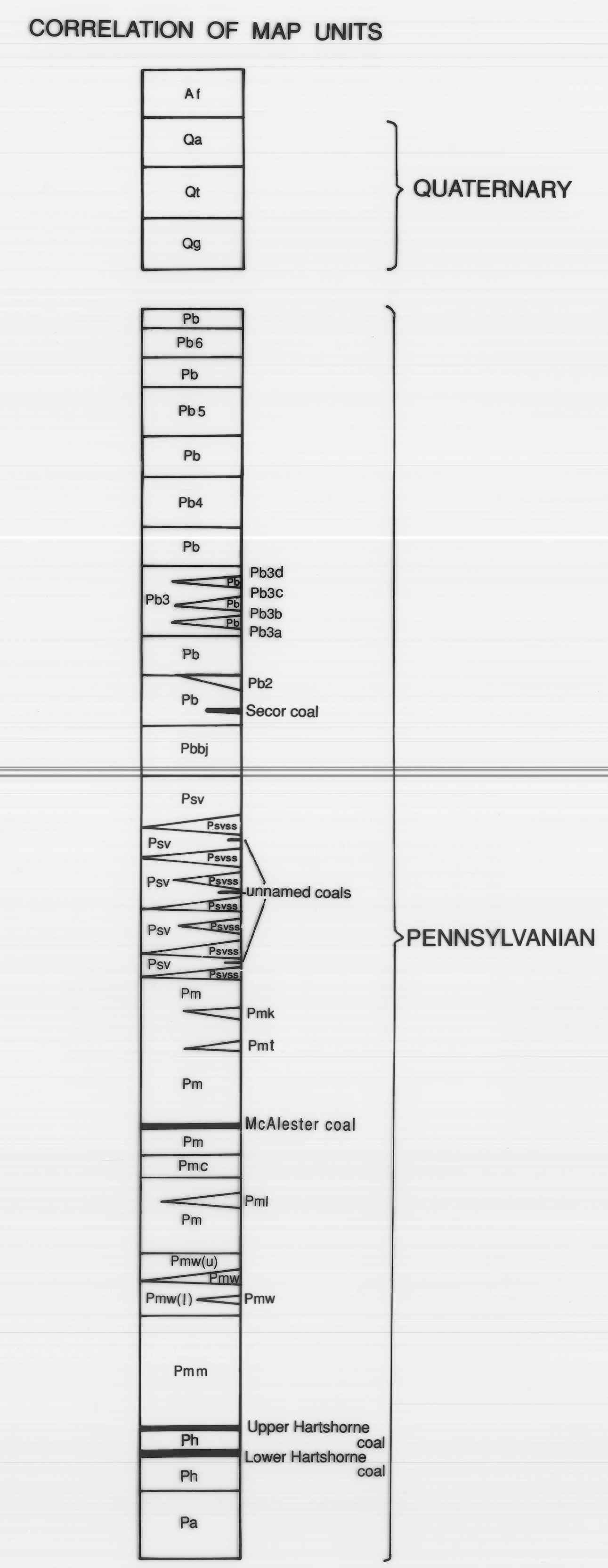
Polyconic projection. 1927 North American datum
10,000-foot grid based on Oklahoma coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 15

Geology mapped in 1995-96

GEOLOGIC MAP OF THE KREBS QUADRANGLE, PITTSBURG COUNTY, OKLAHOMA

By
LeRoy A. Hemish
1996

CORRELATION OF MAP UNITS



SYMBOLS

CONTACT—Dashed where approximately located

COAL BOUNDARY—Approximate outcrop boundary of coal bed (named on map); queried where probable; triangle indicates exposure of coal

THRUST FAULT—Sawteeth on upper plate; dashed where approximately located; dotted where concealed

FAULT—Arrows show relative horizontal movement; dashed where approximately located; dotted where concealed; queried where probable; on cross sections, T = toward, A = away

FAULT—Dashed where inferred; dotted where concealed; U = upthrown side, D = downthrown side

ANTICLINE—Showing crestline; arrow shows direction of plunge; dashed where approximately located; dotted where concealed

SYNCLINE—Showing troughline; arrow shows direction of plunge; dashed where approximately located; dotted where concealed

MINOR ANTICLINE—Showing plunge

MINOR SYNCLINE—Showing plunge

ABANDONED SMALL COAL MINE

ABANDONED STONE QUARRY OR OPEN SHALE PIT

ABANDONED SHAFT

INACCESSIBLE TUNNEL, ADIT, OR SLOPE

SPOIL PILES FROM ABANDONED COAL MINE

SURFACE COAL MINE—Abandoned or area reclaimed

STRIKE AND DIP OF BEDS

- 8 Strike and dip of beds, upright
- 6 Undulatory beds, average dip
- Vertical beds
- ⊕ Horizontal beds
- 70 Overturned beds

OIL AND GAS WELLS

- ⌖ Dry hole, abandoned
- ☼ Gas well
- 10 Number on map corresponds to list of wells

Prepared in Cooperation with the U.S. Geological Survey, National Geologic Mapping Program. Partial Funding from USGS STATEMAP Program, Assistance Award No. 1434–95–A–01376.

DESCRIPTION OF UNITS

Af ARTIFICIAL FILL—Mapped in large dams and landfills.

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 15–50 ft above the beds of present-day streams.

Qg GERTY SAND (QUATERNARY)—Unsolidated gravel, sand, silt, and clay in abandoned river channel found at elevations well above modern flood plains. Main constituents of the sand and gravel are quartz, quartzite, chert, flint, jasper, and silicified wood. Thickness varies from an estimated maximum of 50 ft to a thin veneer.

Pb BOGGY FORMATION (PENNSYLVANIAN)—Predominantly sandy, silty grayish black (N2) to olive gray (5Y4/1) to dark yellowish brown (10YR4/2) shales and siltstones (Pb) with several mappable, scarp-forming, fine- to very fine grained sandstones (Pbbj, Pb2, Pb3, Pb4, Pb5, and Pb6). At the base is the Bluejacket Sandstone Member (Pbbj), mostly moderate yellowish brown (10YR5/4), about 20–200 ft thick. In the eastern part of the map area the Bluejacket contains a lower, very fine grained, silty, shaly, thin-bedded, parallel-bedded, ripple-marked, bioturbated sandstone unit 25–50 ft thick; a middle silty shale unit (generally covered), about 50–100 ft thick; and an upper fine-grained, medium- to thick-bedded sandstone unit about 25–75 ft thick, containing large-scale trough cross-bedding, abundant soft-sediment-deformation features, and stacked-channel sequences. Pbbj thins westward and can be observed as only a single unit represented by about 20–40 ft of thin- to medium-bedded, slabby sandstone in the western one-third of the map area. Pb2–Pb4 are predominantly dark yellowish brown (10YR4/2) to grayish orange (10YR7/4) to light brown, (5YR5/2), very fine grained, noncalcareous sandstones with abundant sedimentary structures such as ripples, cross-stratification, sole marks, and soft sediment deformation features. The Secor coal occurs in the shale interval between Pbbj and Pb2. It is locally of minable thickness in the east-central part of the quadrangle where it is >2 ft thick. Pb2 is discontinuous, or thin bedded and generally unmappable. Pb3 becomes shaly and splits into four mappable sandstone units (Pb3a, Pb3b, Pb3c, and Pb3d) in the slopes west of Eufaula Lake. In the northern and western parts of the Boggy outcrop belt, Pb3 is represented by a single sandstone unit that is not continuously mappable. Top of formation eroded. Remaining thickness: 700–1,000? ft.

Psv SAVANNA FORMATION (PENNSYLVANIAN)—Predominantly pale yellowish brown (10YR6/2) to olive-gray (5Y3/2) to medium dark gray (N4) shales (Psv) with several mappable moderate brown (5YR4/4) to grayish orange (10YR7/4) to moderate reddish brown (10R4/6), fine- to very fine grained, noncalcareous sandstone units (Psvss). The sandstones are massive to thin-bedded and shaly. They commonly are cross bedded and ripple marked and in places contain abundant soft-sediment deformation features. Sole marks (trace fossils; brush and prod marks; flute, groove, and load casts) at the base of some sandstone beds are locally common. Most shales in the Savanna include thin, unmappable sandstone units. In the area directly north of the Penitentiary Fault, and in a small, backthrusted block just south of the same fault, where beds dip steeply, sandstone and shale units are undifferentiated [Psv (un)]. The Savanna locally includes unnamed coal beds. Thickness: 1,250–1,400 ft.

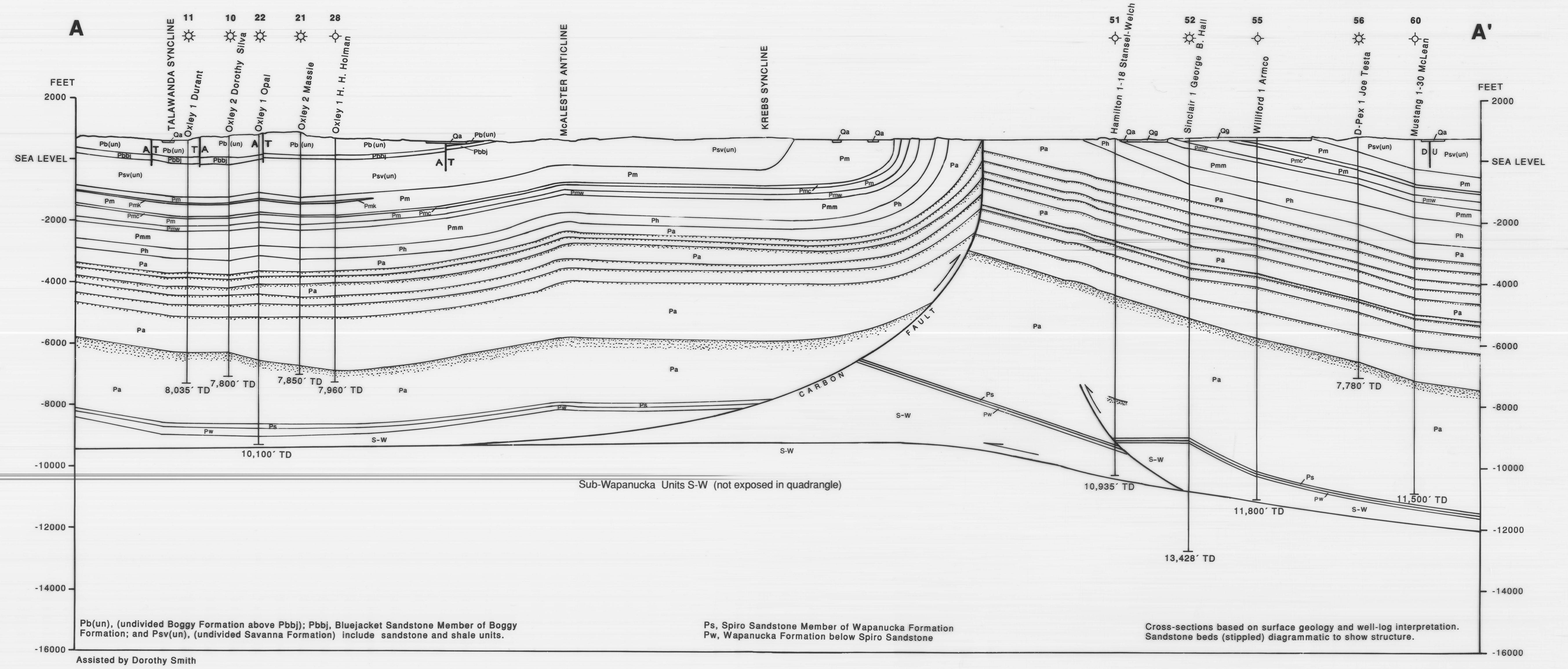
Pm McALESTER FORMATION (PENNSYLVANIAN)—Predominantly dark gray (N3) to black (N1), blocky shales containing abundant ironstone concretions. McCurtain Shale Member (Pmm) at the base is ~600 ft thick. The Warner Sandstone Member (Pmw) overlies the McCurtain Shale Member. It is a resistant, moderate reddish brown (10R4/6) to grayish orange (10YR7/4) to moderate yellowish brown (10YR5/4), fine-grained, cross-bedded sandstone of variable thickness. Where exposed in the area north and east of Krebs, it is mapped as Pmw (l), a thick sandstone unit containing intervening shales, a middle shale unit, Pmw, and an upper sandstone unit, Pmw (u). In the area just north of the Carbon Fault, where beds dip steeply, sandstone and shale units are undifferentiated [Pmw (un)]. Four named moderate brown (5YR3/4), very fine grained, thin-bedded sandstone units occur in the shale (Pm) above the Warner Sandstone Member: Lequire Sandstone Member (Pml); Cameron Sandstone Member (Pmc); Tamaha Sandstone Member (Pmt); and Keota Sandstone Member (Pmk). The McAlester coal, about 2.0–3.5 ft thick, occurs in the shale interval above the Cameron Sandstone Member. It has been extensively mined in the Alderson, Krebs, and McAlester areas. Thickness: 1,600–1,700 ft.

Ph HARTSHORNE FORMATION (PENNSYLVANIAN)—Grayish orange (10YR7/4) to moderate reddish orange (10R6/6) to very light gray (N8), very fine grained, ripple-marked, bioturbated, thin-bedded to massive sandstone interbedded with silty, medium-gray (N5) shale. Contains the Lower and Upper Hartshorne coal beds. The Lower Hartshorne coal ranges in thickness from 2.5 ft to 6.0 ft — average thickness is ~4.0 ft; the Upper Hartshorne coal ranges in thickness from 2.3 ft to 3.5 ft — average thickness is ~3 ft. Thickness: approximately 350–750 ft.

Pa ATOKA FORMATION (PENNSYLVANIAN)—Predominantly silty, medium dark gray (N4) to olive black (5Y2/1) noncalcerous shale (Pa) with thin, brownish gray (5YR3/4) siltstone beds. Only the upper part is exposed in an area on both sides of the Carbon Fault. Thickness unknown. Subsurface thickness: 8,500 ft.

LIST OF WELLS SPUDDED BEFORE MARCH 1, 1996

MAP NO.	OPERATOR	LEASE	SPUD DATE	TOTAL DEPTH (ft)
1	R. L. Perkins	1 Hutchinson	03/25/60	3,206
2	Xplor Corp.	1 Cole	02/01/74	2,510
3	Gadsco, Inc.	1 Gossett	11/06/76	3,250
4	Oxley Petroleum Co.	1 Pauline Frasher	06/25/74	3,300
5	Oxley Petroleum Co.	1 B. F. Rodebush	07/10/74	3,513
6	Oxley Petroleum Co.	1-A Jeanne	05/16/89	7,600
6	Oxley Petroleum Co. (workover)	1-A Jeanne	05/16/89	7,600
7	Oxley Petroleum Co.	1 Jeanne	04/25/89	7,600
8	Oxley Petroleum Co.	1 Rodebush	02/22/90	7,666
9	Oxley Petroleum Co.	1 Dorothy Silva	03/31/90	7,700
9	Oxley Petroleum Co. (workover)	1 Dorothy Silva	03/31/90	7,700
10	Oxley Petroleum Co.	2 Dorothy Silva	11/05/92	7,800
11	John C. Oxley DBA Oxley Petroleum Co.	1 Durant	02/28/89	8,035
11	John C. Oxley DBA Oxley Petroleum Co. (workover)	1 Durant	02/28/89	8,035
12	Oxley Petroleum Co.	2 Durant	02/26/93	7,700
13	Oxley Petroleum Co.	1 Davis Kemp	10/09/73	9,650
14	Tesoro Petroleum Corp.	1 Silva	10/06/72	9,000
14	Olympia Oil & Gas (reentry)	1 Silva	10/03/73	9,000
15	Oxley Petroleum Co.	1 Rouse	12/06/83	10,402
15	Oxley Petroleum Co. (reentry)	1 Rouse	12/06/83	10,402
16	Oxley Petroleum Co.	3 Rouse	04/16/90	7,530
17	Oxley Petroleum Co.	2 Minnie	02/06/90	7,700
18	Oxley Petroleum Co.	1 Minnie	12/06/89	7,700
19	Oxley Petroleum Co.	1 Massie	08/24/89	8,000
19	Oxley Petroleum Co. (workover)	1 Massie	08/24/89	8,000
20	Oxley Petroleum Co.	1 Keith	04/23/72	10,303
21	Oxley Petroleum Co.	2 Massie	01/29/93	7,850
22	Oxley Petroleum Co.	1 Opal	11/26/88	10,100
23	Public Service Co. of Oklahoma	1 Berryman	10/10/43	2,290
24	Oxley Petroleum Co.	1 Hindman	10/04/90	7,200
25	Oxley Petroleum Co.	2 Rouse	01/01/90	8,850
26	Oxley Petroleum Co.	1 M. Galloway	05/03/73	8,500
27	Oxley Petroleum Co.	2 Keith	08/18/88	8,000
28	Oxley Petroleum Co.	1 H. H. Holman	03/03/73	7,960
29	Oxley Petroleum Co.	1 Keith Fado	01/08/84	7,630
30	Oxley Petroleum Co.	2 Staton	01/04/91	7,200
31	Santa Fe Minerals, A Div. of Santa Fe International Corp.	25-1 O'Brien	03/10/88	8,000
32	Oxley Petroleum Co.	1 Eva Factory	12/10/73	8,000
33	Santa Fe Minerals, A Div. of Santa Fe International Corp.	29-1 Mellor	01/31/90	3,100
34	Oxley Petroleum Co.	1 Olson	06/12/92	7,000
35	Oxley Petroleum Co.	1 Switzer	08/08/90	7,100
36	Oxley Petroleum Co.	2 Krebs	07/08/90	7,200
37	Oxley Petroleum Co.	1 Krebs	05/31/90	7,200
38	Oxley Petroleum Co.	3 Krebs	03/31/91	3,475
39	Oxley Petroleum Co.	1 Staton	06/16/90	3,615
40	Oxley Petroleum Co.	1 Frew	09/09/90	6,850
41	Oxley Petroleum Co.	1 McCall	12/08/90	3,127
42	Oxley Petroleum Co.	1 Baldy	08/24/90	3,075
43	Santa Fe Minerals, A Div. of Santa Fe International Corp.	33-1 Emery	07/18/88	7,526
43A	Santa Fe Minerals, A Div. of Santa Fe International Corp.	33-1A emery	08/21/88	7,200
44	Leo J. Portman	1 Southard	03/20/51	1,230
45	Intex Oil Co. & Midway Premier Oil Co.	1 Southard	10/19/49	1,559
46	Intex Oil Co.	1 Welsh Unit	07/17/49	2,010
46	Arkansas LA Gas Co. (ammended)	1 Welsh Krebs Gas Unit	07/19/49	2,010
47	Stargas Co.	1 Hartley	09/27/87	1,690
48	Intex Oil Co. & Midway Premier Oil Co.	Dupuich Unit	09/09/49	1,795
49	Austral Oil Co., Inc.	1-36 Phipps	10/15/66	10,400
50	Esco Exploration, Inc.	1-13 Douglas	03/02/91	10,575
50	Midwest Energy Corp. (deepened)	1-13 Douglas	06/15/91	13,542
51	Hamilton Brothers Oil. Co.	1-18 Stansel-Welch	01/21/80	10,935
52	Sinclair Oil & Gas Co.	1 George B. Hall	01/19/62	13,428
52	Nearburg Producing Co.	1 Hall	12/26/88	14,715
52	D-Pex Operating Co.	1 Hall	12/27/88	14,715
53	Esco Exploration, Inc.	20-1 Randazzo	02/04/91	2,835
54	Austral Oil Co., Inc.	1-21 Springer	07/23/67	9,518
55	Williford Energy Co.	1 Armco	06/15/82	11,800
56	D-Pex Operating Co.	1 Joe Testa	02/02/89	7,780
57	Vastar Resources, Inc.	1 Sara Testa	05/07/95	8,000
58	Fortuna Energy Corp.	1 Segelquist	12/15/82	11,900
59	Fortuna Energy Corp.	1-30 Smith	02/15/83	11,900
60	Mustang Production Co.	1-30 McLean	11/01/75	11,500
61	Texinia Oil & Gas, Inc.	2-30 Smith	09/26/87	8,472
62	Fortuna Energy Corp.	1-29 Nicolette	05/29/83	11,938
63	Texina Oil & Gas, Inc.	2-29 McLean-Choate	01/03/88	8,600
64	Texinia Oil & Gas, Inc.	2-28 Monroe	10/31/87	8,051

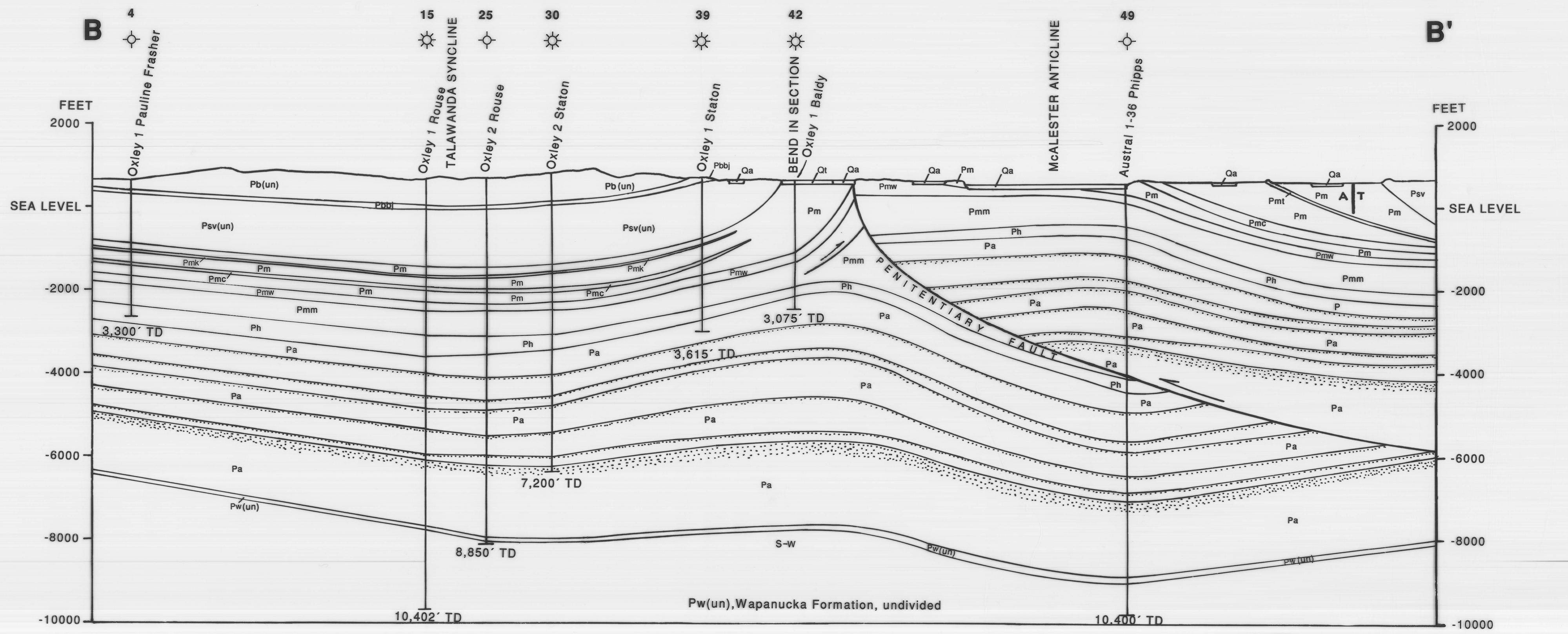


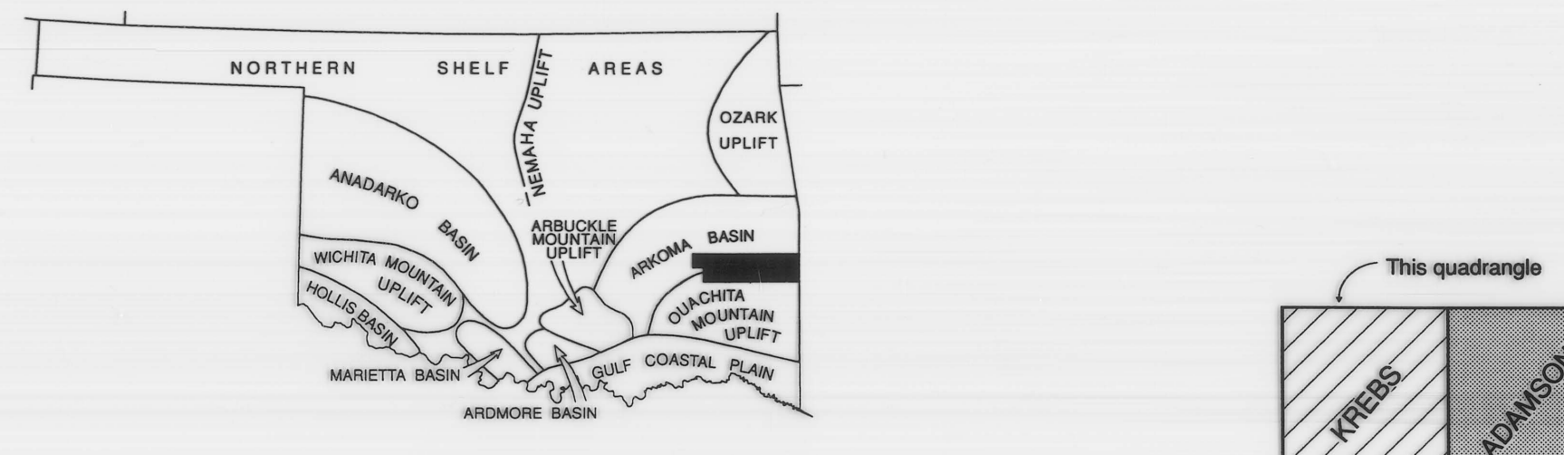
Pb(un), (undivided Boggy Formation above Pbbj); Pbbj, Bluejacket Sandstone Member of Boggy Formation; and Psv(un), (undivided Savanna Formation) include sandstone and shale units.

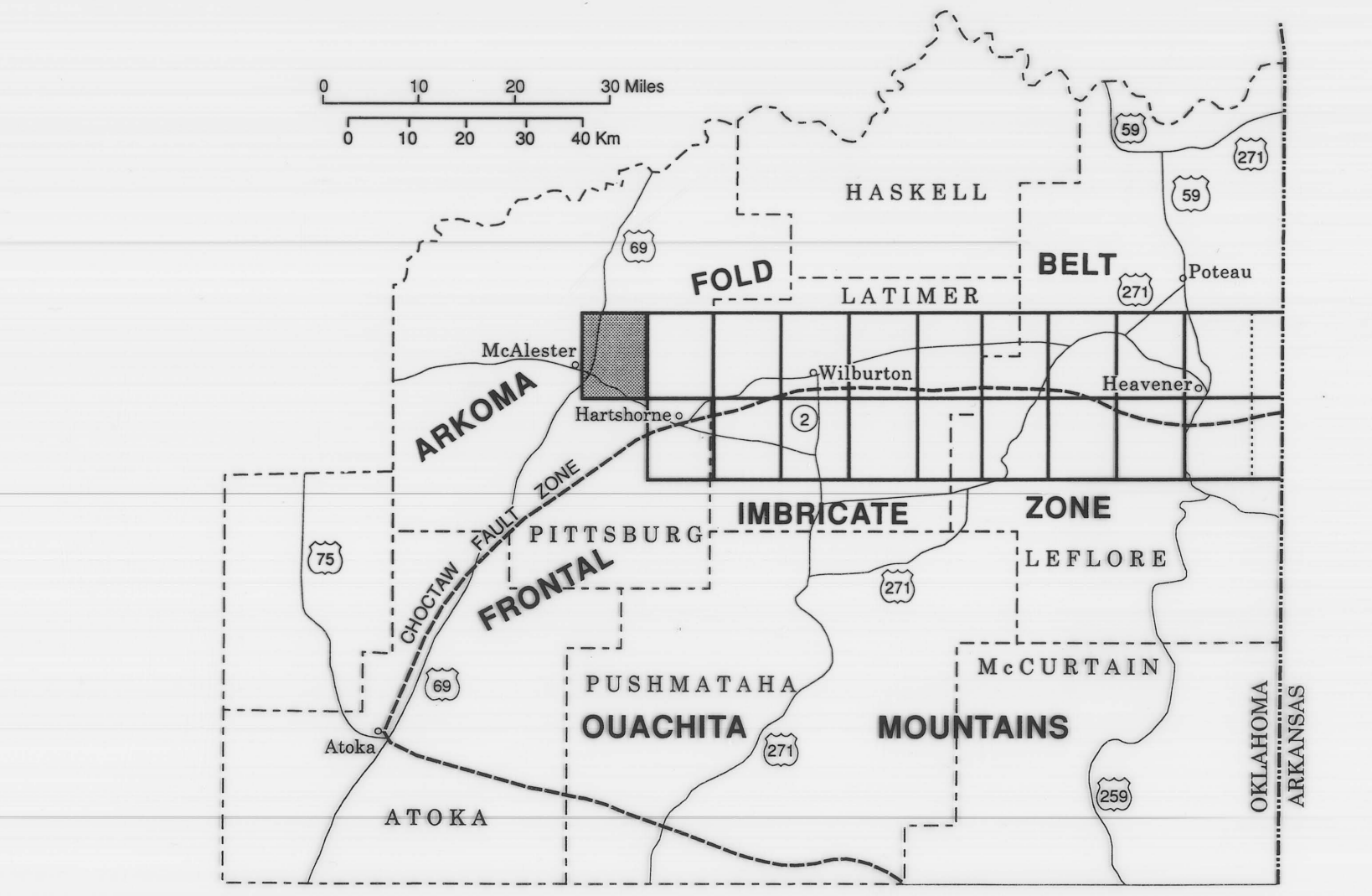
Ps, Spiro Sandstone Member of Wapanucka Formation
Pw, Wapanucka Formation below Spiro Sandstone

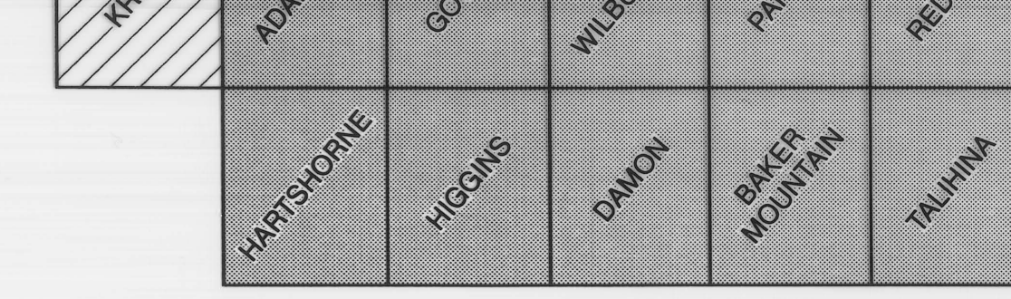
Cross-sections based on surface geology and well-log interpretation. Sandstone beds (stippled) diagrammatic to show structure.

Assisted by Dorothy Smith









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