

GEOLOGIC MAP OF CHALYBEATE MOUNTAIN WEST QUADRANGLE, PIKE AND CLARK COUNTIES, ARKANSAS

DIGITAL GEOLOGIC QUADRANGLE MAP
CHALYBEATE MOUNTAIN WEST QUADRANGLE, ARKANSAS
DGM-AR-00147

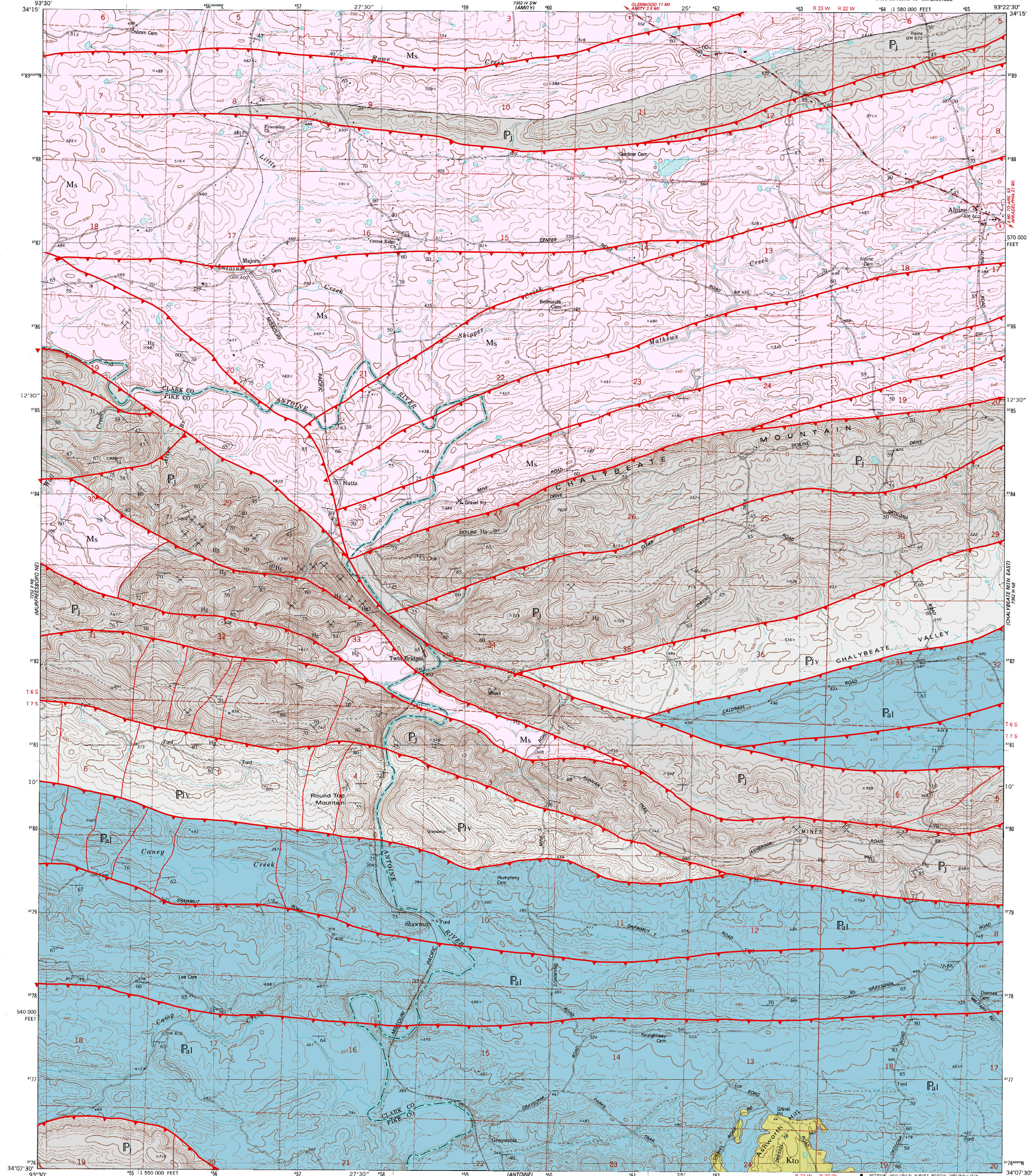
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Edited by William D. Hanson
2007

Arkansas Geological Commission, Bekki White, State Geologist
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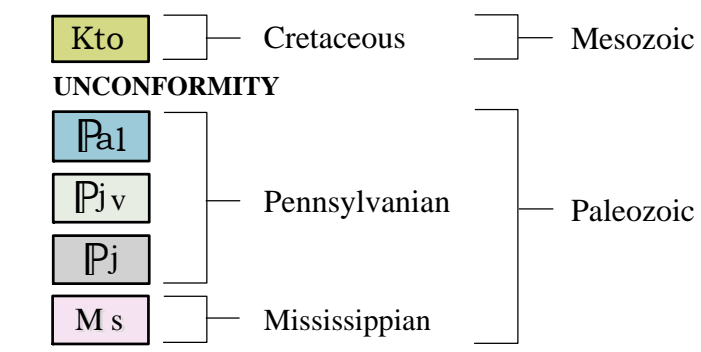
STATE OF ARKANSAS
GEOLOGICAL COMMISSION
LITTLE ROCK

CHALYBEATE MTN. WEST QUADRANGLE
ARKANSAS
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 ANTOINE 19 QUADRANGLE
1:500,000 FEET

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Correlation of Map Units



Description of Map Units

- Kto** **Tokio Formation (Upper Cretaceous)** - The Tokio Formation consists of cross-bedded sand, gravel, and clay. Basal cross-bedded gravels are approximately 30 feet thick. Minor sand and clay lenses occur within the gravel, while sand commonly fills the interstitial spaces around the gravel. The gravels range from pea-size to 6 inches in diameter and are composed of quartz, novaculite, sandstone, and quartzite. Iron-oxide-cemented conglomerates may be present locally. Sands weather yellow to orange-red in color. The source area for much of the formation's sediment was the Ouachita Mountain region. The formation outcrop belt extends from near Arkadelphia, southwest to the Arkansas-Oklahoma state line, and dips to the south at approximately 80 feet per mile. The approximate thickness in the quadrangle is 40 feet. The unit was deposited in a nearshore marine environment on an unconformable surface which separates it from the underlying Paleozoic rocks.
- Pa1** **Atoka lower (Pennsylvanian)** - The lower Atoka is a sequence of marine, mostly tan to gray silty sandstones and grayish-black shales. Some rare calcareous beds and siliceous shales are known. This unit has the largest areal extent of any of the Paleozoic formations in the state.
- Pjv** **Johns Valley (Pennsylvanian)** - The Johns Valley Formation consists of black shale with numerous intervals of brownish sandstone. Also, small amounts of gray black siliceous shale and chert have been noted. In the frontal Ouachita Mountains large quantities of erratic masses are common. The erratic masses consist of limestone, dolostone, chert, and other. This unit was deposited in a deep marine environment and is about 500-1,500 feet thick.
- Pj** **Jackfork Sandstone (Pennsylvanian)** - The Jackfork is thin to massive-bedded, fine- to coarse-grained, brown, tan, or bluish gray quartzitic sandstone with subordinate brown silty sandstones and gray-black shale. Minor conglomerates composed of quartz, chert, and metaquartzite occur notably in the southern exposures of the formation. The Jackfork rests conformably on the Stanley. The formation is generally between 3500 to 6000 feet in thickness.
- Ms** **Stanley Shale (Mississippian)** - The Stanley Shale is composed predominantly of grayish-black to brownish-gray shale, with lesser amounts of thin- to massive-bedded, fine-grained, gray to brownish-gray feldspathic sandstone. Weathering causes the shale to turn olive-gray and the sandstone to become more porous and brown. Interbedded layers of thin black siliceous shale and chert are present and are used to subdivide the formation in other areas. Cone-in-cone and calcareous silty concretions are present in shale. Most of the Stanley is Late Mississippian (Chertian) as indicated by conodonts and plant fossils. The formation is a deep-water marine turbidite sequence, derived primarily from a landmass (Llanoria) that existed along the southern margins of the Ouachita trough.

Symbols

- ~ Contact
- ▲ Thrust Fault
- Tear Fault
- Strike and Dip
- ⊗ Mine Quarries
- Hg Mercury
- Ss Shale

Reference

- Bush, W. V., and Clardy, B. F., 1971, Geologic Map of the Antoine Quadrangle, Clark and Pike Counties, Arkansas; Arkansas Geological Commission, Open File Report, scale 1:62,500.
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- Haley, B. R., and Stone, C. G., 1971, Geologic Map of the Antoine Quadrangle, Arkansas Geological Commission, Open File Report, scale 1:62,500.
- McFarland, J. D., Revised 2004, Stratigraphic Summary of Arkansas; Arkansas Geological Commission Information Circular 36, 39p.
- Miser, H.D., and Purdue, A.H., 1929 Geology of the DeQueen and Caddo Gap Quadrangles, Arkansas; U.S. Geological Survey, Bulletin 808, scale 1:125,000

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Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975
Projection and 10,000-foot grid ticks: Arkansas coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 15
1927 North American datum
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is uncorrected

UTM GRID AND 1975 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24,000
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 2 3 4 5 6 7 8 9 10 KILOMETER
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

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ROAD CLASSIFICATION
Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

CHALYBEATE MTN. WEST, ARK.
NW/4 ANTOINE 19 QUADRANGLE
N3407.5-W0322.5/7.5
1975
AMS 7502 III NW-SERIES V884

