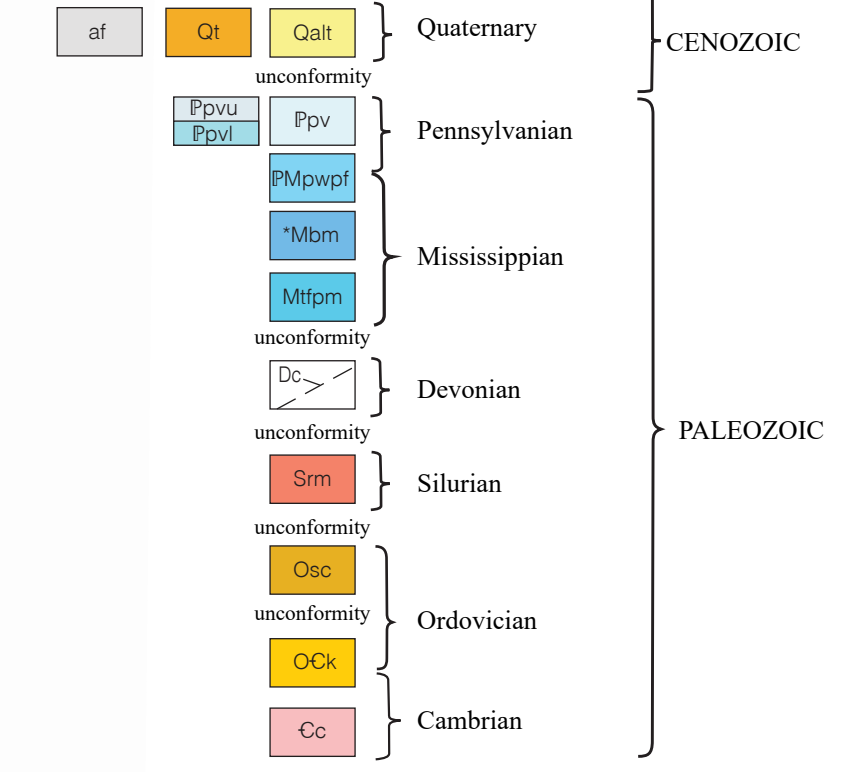


CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- af** Artificial fill—Reclaimed mine tailings, construction materials, and levees.
- Qalt** Alluvial and low terrace deposits (Quaternary)—Fine- to medium-grained sand with interbedded lenses of gravel and clay. An interval containing cobbles and boulders of diverse composition is present locally near the base.
- Qt** High terrace deposits (Quaternary)—Medium to coarse gravel in a sand or sandy clay matrix.
- Pp** Pottsville Formation undifferentiated (Lower Pennsylvanian)—Upper part: Reddish-gray to orange-brown, thin- to medium-bedded, ripple-laminated and cross-bedded, fine- to medium-grained, sublitic to lithic sandstone containing interbeds and intervals of medium- to dark-gray, partly carbonaceous shale and coal; wavy- and lenticular-bedded sandstone and shale is common in some intervals. Lower part: Light-gray to pinkish-tan, fine- to coarse-grained, thin- to massive-bedded, cross-bedded, well cemented to locally friable, quartzose sandstone, pebbly sandstone, and quartz-pebble conglomerate; quartz-pebble conglomerate in channel-lag deposits commonly contains fossil logs and coal spars.
- PM** Parkwood Formation, Pennington Formation, and Floyd Shale undifferentiated (Upper Mississippian and Lower Pennsylvanian)—Parkwood Formation: Medium- to dark-gray shale and mudstone containing interbedded yellow-orange to moderate-brown, very fine to medium-grained, flaggy- to massive-bedded, rippled and cross-bedded, lithic to quartzose sandstone; wavy-bedded sandstone and mudstone is common. Pennington Formation and Floyd Shale: Maroon and olive mudstone and gray shale.
- M** Bangor and Monteagle Limestones undifferentiated (Upper Mississippian)—Bangor Limestone: (Not exposed on map) Light- to dark-gray, cross-bedded, bioclastic and lesser oolitic limestone in medium to massive beds; thin intervals of gray shale are present in the lower part of the formation, whereas maroon and olive-green blocky mudstone is common in the upper part. Nodules, stringers, and interbeds of chert locally present in upper part. Monteagle Limestone: (Not exposed on map) Light-gray, cross-bedded, oolitic limestone in massive beds. Similarly bedded bioclastic limestone is common; bioclastic limestone locally contains nodules and stringers of dark-gray chert.
- Mt** Tusculum Limestone, Fort Payne Chert, and Maury Formation undifferentiated (Lower and Middle Mississippian)—Tusculum Limestone: Light-gray, micritic, bioclastic, and locally oolitic limestone that commonly contains white and light-gray, elongate chert nodules. Fort Payne Chert: In unweathered outcrops mostly dark-gray, siliceous, partly shaly, micritic limestone containing dark-colored chert in irregular nodules, stringers and thin beds. In weathered outcrops typically thin, irregularly bedded, partly fossiliferous grayish-orange chert containing thin clay partings. Maury Formation: Grayish-yellow-green, moderate-red, and medium-gray, glauconitic, pyritic, and phosphatic claystone.
- Dc** Chattanooga Shale (Upper Devonian)—Dark-gray to black, fissile, carbonaceous shale and mudstone.
- Sm** Red Mountain Formation (Silurian)—Lower part dominantly thin- to medium-bedded, greenish-gray, fine-grained sandstone interbedded with grayish-green shale. The upper part includes thin- to thick-bedded, light-gray, fine-grained, fossiliferous sandstone that weathers to a distinctive light-grayish-orange color and contains the brachiopod *Pentamerus oblongus*. Contains thin calcareous and fossiliferous ironstone ore beds in the middle part.
- Oc** Sequatchie Formation and Chickamauga Limestone undifferentiated (Middle and Upper Ordovician)—Sequatchie Formation: Lower part includes light- to medium-gray, thin- to medium-bedded dolomitic limestone interbedded with variegated maroon and tan, silty limestone. Greenish-gray shale, mudstone, and siltstone containing grayish-red, coarse- to very coarse grained, cross-bedded, hematitic sandstone in the upper part. Chickamauga Limestone: Thin- to massive-bedded, light- to medium-dark-gray, partly fossiliferous and partly stylonitic limestone; partly fenestral in the lower part. Irregular to nodular beds of greenish-gray fine-grained limestone and red shaly limestone present at the base. Attala Chert Conglomerate Member of Chickamauga Limestone: Grayish-yellow chert pebble conglomerate and alternating beds of pale-reddish-brown to grayish-red silty clay and grayish-orange silty sand containing chert clasts.
- OCK** Knox Group undifferentiated (upper Cambrian and Lower Ordovician)—Light- to dark-gray, very fine- to medium-crystalline, predominantly massive-bedded dolostone that locally contains irregular nodules and stringers of dark-gray, dense chert. Laminated to ribbon-bedded, partly intra-clastic, limestone and dolostone locally present. Weathers to dominantly light-colored residual chert in an orange-brown to dark-reddish-brown clay matrix. Residual chert commonly preserves the texture of the original carbonate rocks. Abundance of residual chert decreases to the northeast.
- Cc** Conasauga Formation (middle and upper Cambrian)—Peavine anticline: Mostly light- to medium-gray, stylonitic limestone. Rome thrust sheet: Olive-green and medium- to dark-gray fissile shale containing lenticular and nodular to thin beds of medium- to dark-gray limestone. Thin, platy interbeds of limestone are particularly diagnostic. Thicker limestone beds are partly stylonodular, stylonitic, bioturbated, or bioclastic.

SYMBOLS FOR GEOLOGIC MAP

- Contact, dashed where location inferred, showing location of control point (contact exposed or closely located)
- Contact, concealed beneath mapped units
- Thrust fault, location inferred, sawtooth on upper plate
- Thrust fault, concealed beneath mapped units
- Trace of syncline axis, location approximate, arrow showing direction of plunge
- Trace of anticline axis, location approximate, arrow showing direction of plunge
- Water boundary, including inundation areas of Weiss Lake
- Strike and dip of bedding
- Strike and dip of overturned bedding
- Strike of vertical bedding

SYMBOLS FOR CROSS SECTION A-A'

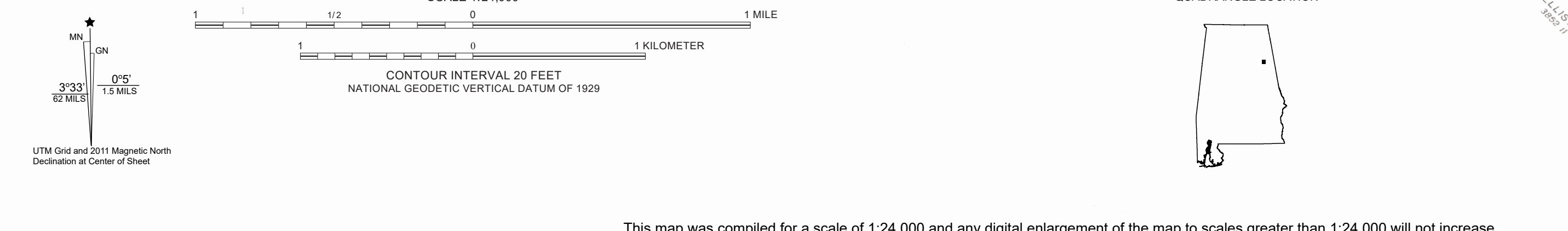
- Stratigraphic contact
- Fault, showing relative movement
- The Upper Mississippian Bangor and Monteagle Limestones undifferentiated (Mbm) is not exposed at the map surface and is illustrated on the cross section to show structural relationships at depth.

Base topographic map USGS 1967, photorevised 1986. This topographic map (and an updated version) is available on the USGS webpage "topoView" (<https://www.ngmdb.usgs.gov/topoview/>).

Produced in cooperation with the U.S. Geological Survey, National Cooperative Geologic Mapping Program, Cooperative Agreement G20AC00391, 2020.

Spatial Reference: Universal Transverse Mercator Projection (UTM), Zone 16N, North American Datum of 1927 (NAD27), Clarke spheroid of 1866.

Map rotated 0.65 degrees clockwise for display.

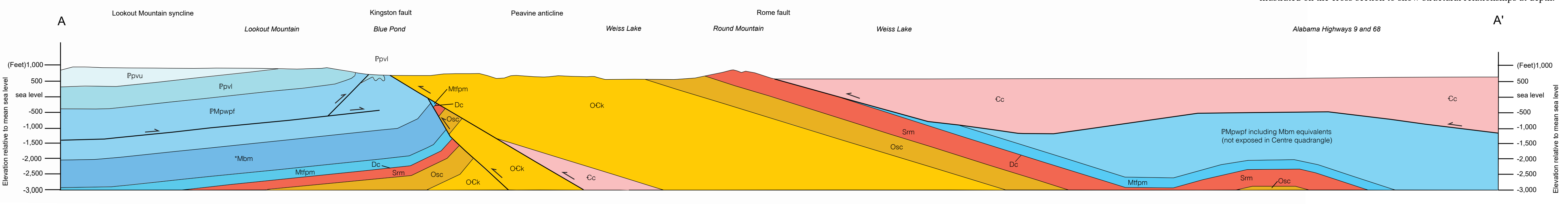


This map was compiled for a scale of 1:24,000 and any digital enlargement of the map to scales greater than 1:24,000 will not increase accuracy and can cause misrepresentation. Map and associated digital data files may be updated in future years.

For additional geologic information (including detailed rock descriptions and outcrop photos, etc.), please refer to the accompanying report: Irvin, G. D., Osborne, W. E., Ebersole, S. M., and Cook, B. S., 2025, *Geology of the Centre 7.5-minute quadrangle, Cherokee County, Alabama*: Alabama Geological Survey Quadrangle Series 83, 47 p.

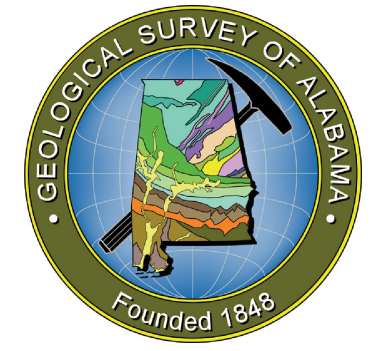
A copy of this map and report is available from the GSA Publications office (<https://www.gsa.state.al.us/ogb/publications/>).

Map files are version dated, and users are responsible for obtaining the latest version of the map and associated data. Geologic map information was collected and recorded in the field by the Geological Survey of Alabama mapping staff and this map reflects an interpretation of the geology based on that data collected at the time of field mapping. Year field mapping was completed: 2021.



**GEOLOGIC MAP AND CROSS SECTION OF THE CENTRE 7.5-MINUTE QUADRANGLE, CHEROKEE COUNTY, ALABAMA**

by  
W. Edward Osborne and G. Daniel Irvin  
2025



Berry H. (Nick) Tew, Jr.  
State Geologist