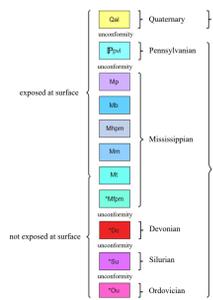


CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qal** Alluvium (Quaternary)—Unconsolidated fluvial deposits of clay, silt, sand, gravel, and cobbles containing clasts of local bedrock. Mapped only along the Tennessee River floodplain and tributaries. Not shown on the cross-sections.
- Ppvl** Pottsville Formation lower part (Lower Pennsylvanian)—Light- to yellowish-gray, medium- to coarse-grained, quartzose sandstone locally containing scattered to abundant well-rounded quartz pebbles (up to 0.5 inch in diameter). Beds are typically massive and cross-bedding is common.
- Mp** Pennington Formation (Upper Mississippian)—Lower part is dominated by light-yellowish-gray, conchoidally fractured dolomitic. Upper part contains by muscovite to olive-green claystone interbedded with sandstone lenses, thin dolomite beds, clay-rich light-gray shales, and with coal spurs near the upper contact.
- Mb** Bangor Limestones (Upper Mississippian)—Typically a massively-bedded, bioclastic oolitic limestone. Lower part is light-gray to locally dark-brownish-gray. Upper part also contains light-yellowish-gray dolomitic and light olive-gray to greenish-gray clay shale. Minor cherty intervals.
- Mhpm** Hartselle Sandstone and Pride Mountain Formation undifferentiated (Upper Mississippian)—Hartselle Sandstone: Locally present between the Bangor and the Monticello Limestones and includes greenish-gray, fine- to medium-grained, thin- to thick-bedded cross-bedded, quartz arenite. Weathers to orange-gray. Ripple laminations, clay pebble clasts, and fossil wood are common. Pride Mountain Formation: Sparse outcrops. Thinly-laminated dark greenish-gray shale.
- Mm** Monticello Limestone (Upper Mississippian)—Light- to medium-gray, thin- to thick-bedded, cross-bedded, oolitic, bioclastic. Some beds contain nodules and stringers of light-gray chert. Weathers to buff color. Intervals of interlaminated bioclastic limestone and dolomitic are common. Upper part contains thick interbeds of dark- to greenish gray, cherty shale.
- Mt** Tusculum Limestone (Middle Mississippian)—Light- to dark-gray, medium- to thick-bedded, bioclastic limestone containing abundant chert nodules. Beds containing prominent light- to dark-gray to bluish-gray chert nodules and stringers (up to 4.0 inches thick). Minor calcite-lined voids that are bitumen stained. Base not exposed at the surface.
- Mfpm** Fort Payne Chert and Maury Formation undifferentiated (Lower Mississippian)—Not exposed at the surface. Description from oil and gas well cuttings samples for the State of Alabama Oil and Gas Board Permit No. 1630. Fort Payne Chert: Light-gray to light-olive-gray, thin- to thick-bedded, fine- to coarse-grained, bioclastic limestone containing abundant chert nodules. Beds containing dolomitic and greenish-gray shale are present. Maury Formation: Thin (approximately 5 feet) greenish-gray, phosphatic, glauconitic, clay shale.
- Dc** Chattanooga Shale (Upper Devonian)—Dark greenish-gray to black, carbonaceous, micaceous, calcareous, slightly dolomitic, clay shale. Not exposed at the surface. Description from oil and gas well cuttings samples for the State of Alabama Oil and Gas Board Permit No. 1630.
- Su** Silurian undifferentiated (Silurian)—Dark greenish-gray to grayish-red fossiliferous shale; yellowish-orange to brownish-gray, coarsely-crystalline limestone with small quartz inclusions, and light olive-gray, medium-grained calcareous sandstone. Not exposed at the surface. Description from oil and gas well cuttings samples for the State of Alabama Oil and Gas Board Permit No. 1630.
- Ou** Ordovician undifferentiated (Ordovician)—Very light-gray to dark greenish-gray dolomitic limestone. Coarsely crystalline calcite inclusions. Not exposed at the surface. Description from oil and gas well cuttings samples for the State of Alabama Oil and Gas Board Permit No. 1630.

SYMBOLS FOR GEOLOGIC MAP

- Contact, location inferred, showing location of control point (contact exposed or closely located)
- Contact, concealed beneath mapped units or water
- Oil and gas test well (dry hole) with State of Alabama Oil and Gas Board Permit No.

SYMBOLS FOR CROSS-SECTION A-A' & B-B'

- Stratigraphic contact
- Oil and gas test well (dry hole) with State of Alabama Oil and Gas Board Permit No.
- Penetrated interval shown as vertical line below well symbol. Total measured depth (TD) shown below vertical line.
- Units older than Middle Mississippian (Tusculum Limestone were not observed at surface in the study area. Lower Mississippian Fort Payne Chert and Maury Formation undifferentiated, Upper Devonian Chattanooga Shale, Silurian undifferentiated, and Ordovician undifferentiated are illustrated on the cross sections to show stratigraphic relationships at depth.

For additional geologic information (including detailed rock descriptions and outcrop photos, etc.), please refer to the accompanying report: Byerly, B. E., 2024, Geology of the Farley 7.5-minute quadrangle, Madison, Marshall, and Morgan Counties, Alabama. Alabama Geological Survey Quadrangle Series 77, 48 p.

A copy of this map and report is available from the Geological Survey of Alabama Publication office (<https://www.gsa.state.al.us/ogip/publications/>).

This map was compiled at 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 files may be updated in future years.

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: 2022.

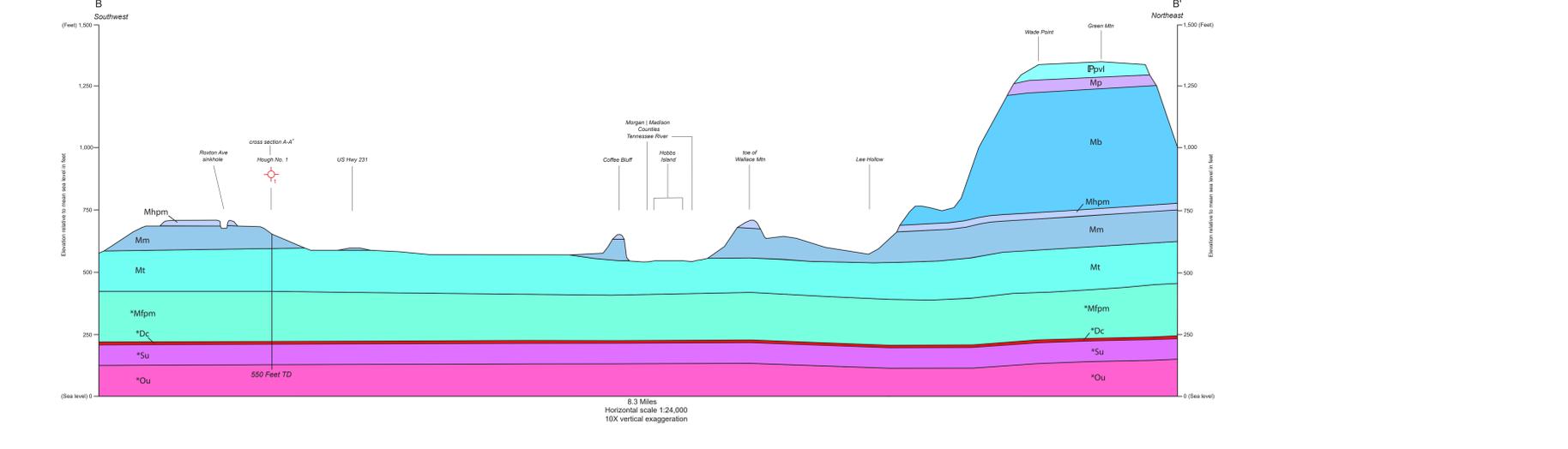
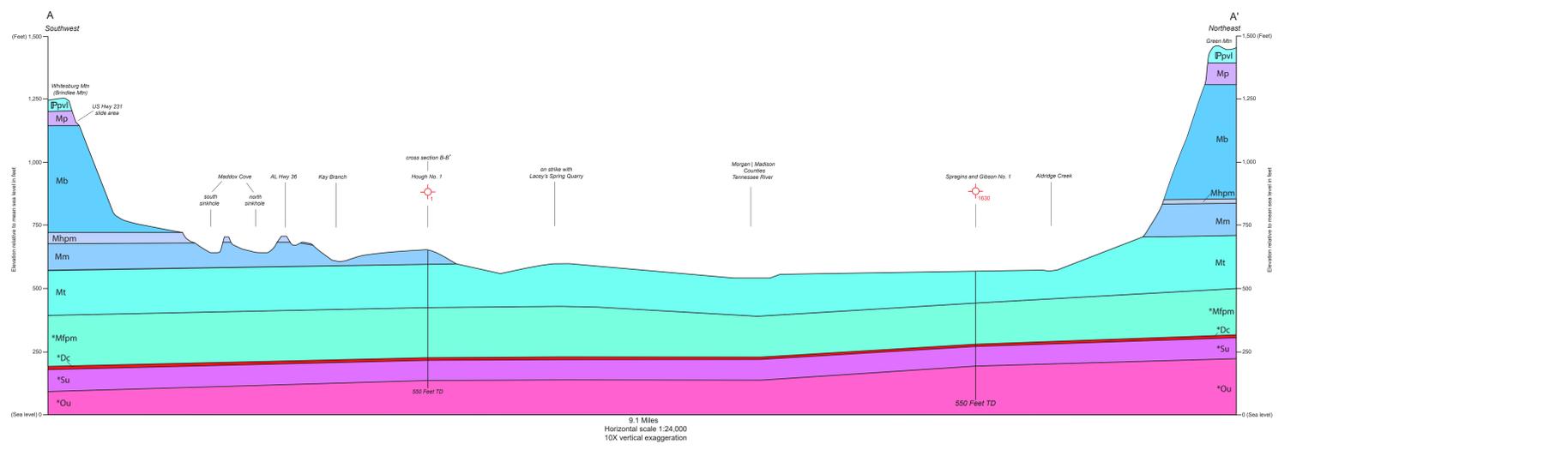
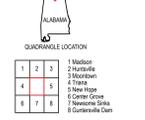
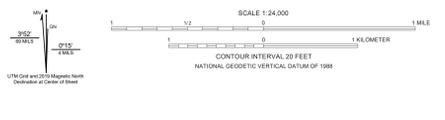
This topographic base map is available on the USGS webpage "topoView" (<https://ngmdb.usgs.gov/topoview/>).

Base topographic map USGS 2020. This topographic map is available on the USGS webpage "topoView" (<https://www.ngmdb.usgs.gov/topoview/>).

This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program under STATEMAP award number G21AC10846, 2021.

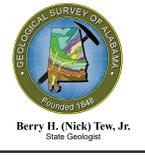
Spatial Reference: Universal Transverse Mercator Projection (UTM), Zone 18N, North American Datum of 1983 (NAD83), Geoidetic Reference System of 1980 (GRS 1980).

Map rotated -0.25 degrees for display.



GEOLOGIC MAP AND CROSS SECTIONS OF THE FARLEY 7.5-MINUTE QUADRANGLE, MADISON, MARSHALL, AND MORGAN COUNTIES, ALABAMA

by Benjamin E. Byerly and John P. Whitmore 2024



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