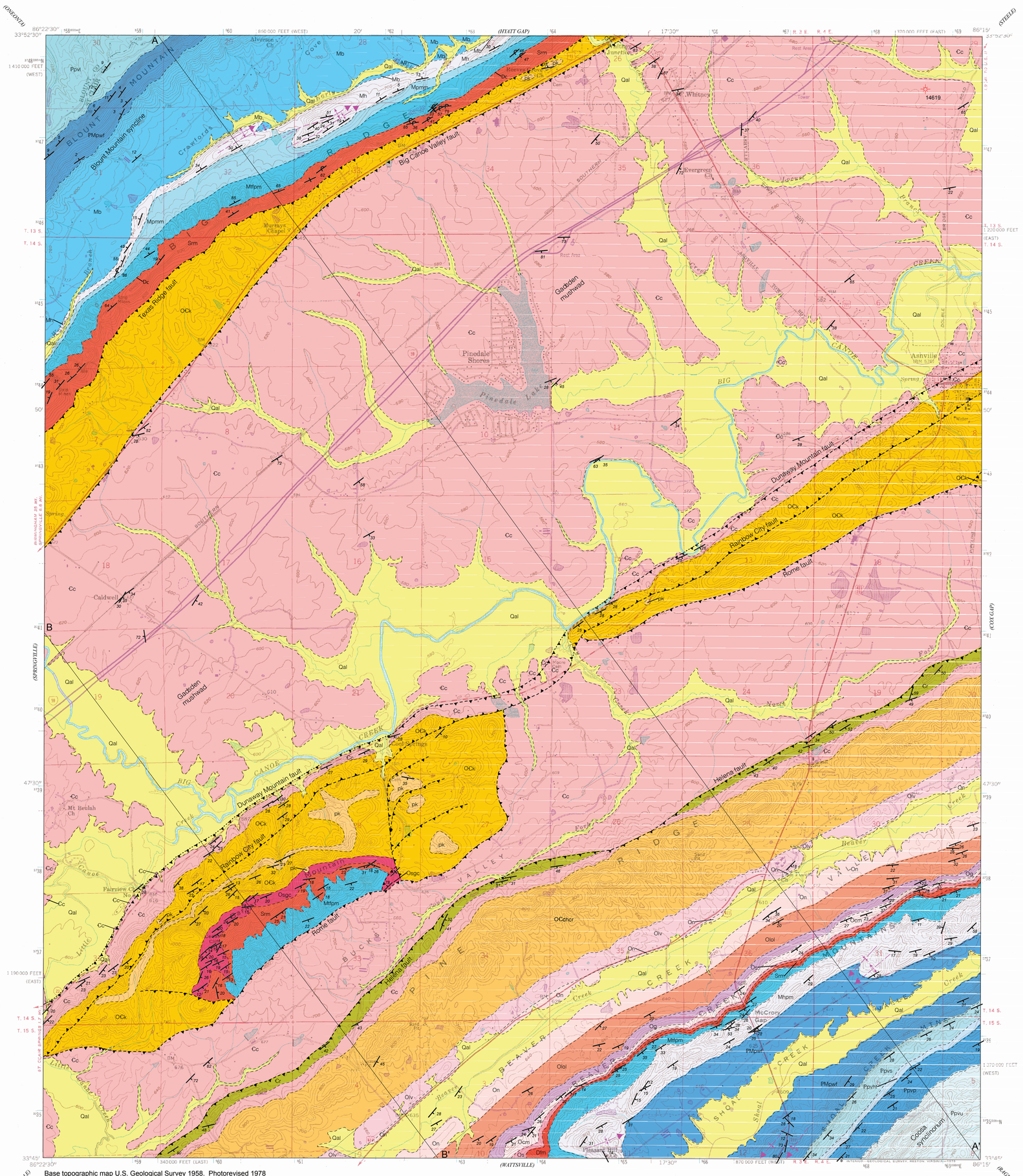
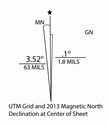


Base topographic map U.S. Geological Survey 1958. Photorevised 1978

Supported by the U.S. Geological Survey,
National Cooperative Geologic Mapping Program,
under assistance Award Nos. 00HQAG0152 and G13AC00375

Polyconic projection. 1927 North American datum
10,000-foot grid based on Alabama (East)
rectangular coordinate system

Map rotated -0.5 degrees clockwise for display



UTM Grid and 2013 Magnetic North Declination at Center of Sheet

SCALE 1:24,000

1 MILE

1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Digital database by G. Daniel Irvin

DESCRIPTION OF MAP UNITS

Qalt — **Alluvial and low terrace deposits (Quaternary)**—Unconsolidated deposits of sand, silt, clay, and gravel.

Ppvu — **Pottsville Formation upper part (Lower Pennsylvanian)**—Dark-gray silty shale and medium-gray, fine- to coarse-grained, partly crossbedded lithic sandstone; contains rare interbeds of grayish-red mudstone.

Ppvp — **Pottsville Formation, Pine Sandstone Member (Lower Pennsylvanian)**—Very light gray to light-gray, fine- to coarse-grained, quartzose to sublithic sandstone; quartz-pebble conglomerate and conglomeratic sandstone locally present.

Ppvht — **Pottsville Formation, Hardwick Tunnel member (Lower Pennsylvanian)**—Alternating intervals of gray, fine-grained, thin-bedded sandstone and dark-gray to black partly carbonaceous mudstone and shale; locally contains rare interbeds of gray, coarsely bioclastic limestone.

Ppvs — **Pottsville Formation, Shades Sandstone Member (Lower Pennsylvanian)**—Very light gray to light-gray, fine- to coarse-grained, quartzose sandstone; quartz-pebble conglomerate and conglomeratic sandstone common.

Ppvl — **Pottsville Formation lower part (Lower Pennsylvanian)**—Light- to medium-gray, fine- to medium-grained and locally coarse-grained quartzose sandstone containing intervals of quartz-, shale-, and siderite-pebble conglomerate; intervals between sandstone units include shale and lenticular and wavy bedded sandstone and mudstone; carbonaceous shale and thin coal seams are locally present.

PMpwf — **Parkwood Formation and Floyd Shale undifferentiated (Upper Mississippian and Lower Pennsylvanian)—Parkwood Formation:** ***Blount Mountain syncline***: Medium- to dark-gray shale and mudstone containing interbedded units of light- to medium-gray sandstone; wavy- and lenticular-bedded sandstone and mudstone are common; interbeds of limestone and maroon and green shale are present in the middle part. ***Helena thrust sheet***: Medium- to dark-gray shale and mudstone containing interbedded units of very light to very dark gray sandstone; rippled sandstone with shale partings and wavy-bedded sandstone and mudstone are common. **Floyd Shale:** ***Blount Mountain syncline***: Medium- to dark-gray shale containing interbeds of medium-gray, argillaceous, fossiliferous limestone; maroon, grayish-green, and black shale also present. ***Helena thrust sheet***: Dark-gray to black partly sideritic shale; thin-bedded, dark-gray, partly laminated chert and interbedded dark-gray shale in lower part **(Bangor Limestone tongue in Floyd Shale).**

Mb — **Bangor Limestone (Upper Mississippian)**—Light- to medium-gray, crossbedded, bioclastic and lesser oolitic limestone in medium to massive beds; medium-gray, thin- to massive-bedded, fossiliferous, argillaceous limestone in the upper part; nodules, stringers, and interbeds of chert most common in lower and upper parts of the formation.

Mhpm — **Hartselle Sandstone and Pride Mountain Formation undifferentiated (Upper Mississippian)—Hartselle Sandstone:** Very light gray, very fine to medium-grained, quartzose sandstone containing interbeds and intervals of dark-gray shale. **Pride Mountain Formation:** Very dark gray, fissile, sideritic shale containing several units of very light gray to medium-orange-gray, fine-grained quartzose sandstone.

Mh — **Hartselle Sandstone (Upper Mississippian)**—Very light to light-gray, very fine to locally medium-grained, quartzose sandstone; locally contains interbeds and intervals of shale weathered light-olive-gray to grayish-tan.

Mpmm — **Pride Mountain Formation and Monteagle Limestone undifferentiated (Upper Mississippian)—Pride Mountain Formation**: Medium- to dark-gray fissile shale containing siderite nodules; contains grayish-orange to medium-gray, thin- to lenticular- and wavy-bedded, fine- to medium-grained sandstone in upper part. **Monteagle Limestone**: Interbedded medium-bluish-gray to dark-gray oolitic limestone and light-gray bioclastic limestone in medium to massive beds; bioclastic limestone locally contains nodules and stringers of dark-gray chert.

Mtfpm — **Tuscumbia Limestone, Fort Payne Chert, and Maury Formation undifferentiated (Lower and Middle Mississippian)—Tuscumbia Limestone:** Light- to medium-gray micritic, bioclastic, and locally oolitic limestone commonly containing chert nodules. **Fort Payne Chert**: Thin-bedded, partly fossiliferous, light- to dark-gray and dark-gray-brown chert that commonly weathers grayish orange. **Maury Formation**: light-gray-green, bright-olive-green, and grayish-red and shale locally containing phosphatic concretions.

Dc — **Chattanooga Shale (Upper Devonian)**—Dark-gray to black, fissile, carbonaceous shale and mudstone; thin beds of medium- to dark-gray, fine- to medium-grained, partly pebbly sandstone are present at the base.

Dfm — **Frog Mountain Sandstone (Devonian)**—Light- to dark-gray and grayish red, fine- to mostly medium-grained, partly hematitic sandstone and dark colored cherty shale.

Srm — **Red Mountain Formation (Lower and Upper Silurian)—*Blount Mountain syncline***: Thinly interbedded gray and brown, fine-grained, partly ferruginous sandstone and tan to brown micaceous and sandy shale; contains calcareous and fossiliferous ironstone ore beds in the middle part. ***Dunaway Mountain thrust sheet:*** Light-colored, medium-grained quartzarenite sandstone in the lower part and medium- to coarse-grained, pebbly sandstone and sandy conglomerate in the upper part. ***Helena thrust sheet***: Thinly interbedded light-gray, very fine grained sandstone and greenish-gray shale.

Osc — **Sequatchie Formation and Chickamauga Limestone (Middle and Upper Ordovician) (only in subsurface)— Sequatchie Formation**: Variegated greenish-gray and maroon calcareous shale and thin bedded, light-gray, argillaceous and fossiliferous limestone. **Chickamauga Limestone**: Medium- to dark-gray, argillaceous, fossiliferous, and locally crystalline limestone; chert-pebble conglomerate locally at base **(Attalla Chert Conglomerate Member)**.

Oscg — **Sequatchie Formation, Greensport Formation, and Chickamauga Limestone undifferentiated (Middle and Upper Ordovician)—Sequatchie and Greensport Formations**: Light-green to red-brown, calcareous mudstone; light-brown-green, fine-grained dolomite; and dark-gray-green, very fine grained limestone. Interbedded and locally mottled grayish-red and olive-green argillaceous dolomite in the lower part. **Chickamauga Limestone**: Very thin to thin-bedded, medium-gray-brown, fine-grained limestone.

Os — **Sequatchie Formation (Upper Ordovician)**—Maroon and olive shale, siltstone, and sandstone in the lower part and gray to gray-green calcareous siltstone and dolomite in the upper part.

Ocm — **Colvin Mountain Sandstone (Middle Ordovician)—**Very light gray, fine- to coarse-grained, quartzose sandstone.

Og — **Greensport Formation (Middle Ordovician)—**Predominantly silty and shaly, mottled maroon and bluish-gray micritic limestone in the lower part; variegated red, ocher, and maroon siltstone interbedded with fine-grained, olive-gray sandstone in the upper part.

Olol — **Little Oak and Lenoir Limestones undifferentiated (Middle Ordovician)—Little Oak Limestone:** Dark-gray stylonodular limestone commonly containing fossil fragments. **Lenoir Limestone**: Medium-dark-gray to dark-gray, argillaceous, micritic, stylonodular limestone; light- to dark-gray, fenestral, micritic limestone in lower part **(Mosheim Limestone Member).**

On — **Newala Limestone (Lower Ordovician)—**Light- to medium-bluish-gray, partly fenestral, fossiliferous micritic limestone locally containing minor interbeds of very light to medium-gray, fine- to medium-crystalline dolomite and dolomottled limestone.

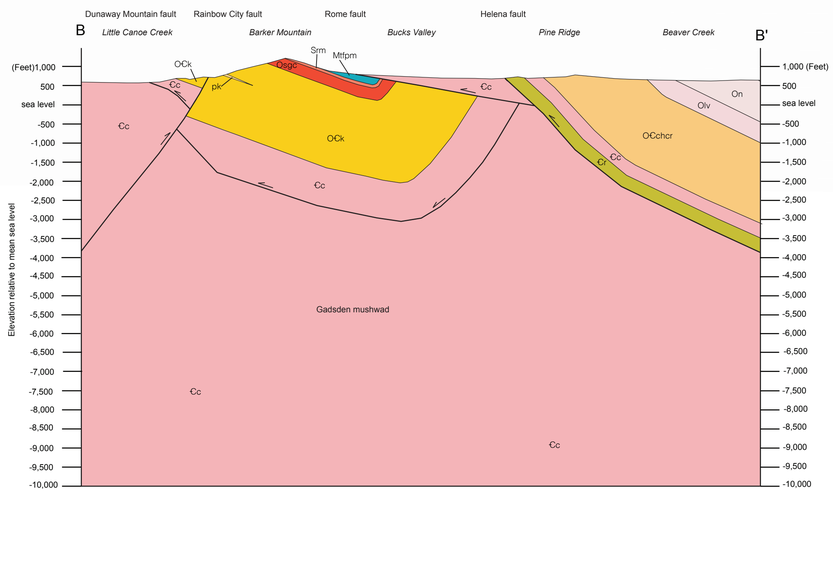
Olv — **Longview Limestone (Lower Ordovician)—**Interbedded light- to light-medium-gray micritic limestone; light-gray, medium-crystalline dolomite; and light to medium-gray, thin-bedded chert. Longview residuum consists of rounded, nodular, and bedded partly fossiliferous chert.

OCk / pk — **Knox Group undifferentiated (Upper Cambrian and Lower Ordovician)—**Light- to medium-gray, fine- to medium-crystalline, medium- to massive-bedded dolomite containing irregular nodules and stringers and locally thin to medium beds of light- to medium-gray, dense chert; 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. **Paleokarst:** White, subangular to rounded pebble to cobble-size chert in a quartz and chert sand matrix.

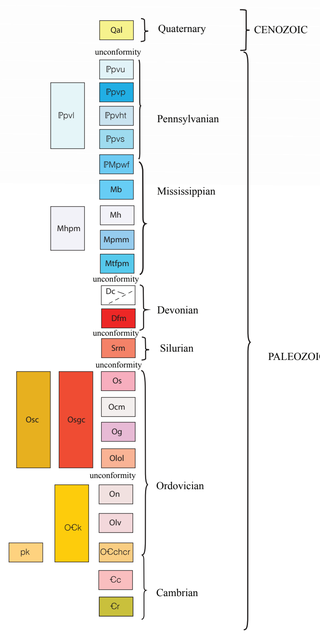
OCchcr — **Chepultepec and Copper Ridge Dolomites undifferentiated (Upper Cambrian and Lower Ordovician)—Chepultepec Dolomite**: Light- to medium-gray, fine- to coarse-crystalline cherty dolomite and intervals of light- to light-medium-gray micritic limestone weathered to dense and cavernous chert. **Copper Ridge Dolomite**: Light- to medium-gray, very fine to medium-crystalline, laminated dolomite weathered to predominantly dense chert.

Cc — **Conasauga Formation (Middle and Upper Cambrian)—*Gadsden mushwad***: Dark-gray to dark-greenish-gray shale commonly containing lenticular- to thin-bedded, medium- to dark-gray micritic limestone that is bioturbated, ribbon banded, and stylonodular in part. ***Dunaway Mountain thrust sheet***: Dominantly medium- to dark-gray, medium- to very thick-bedded, very fine-grained limestone containing medium to thick interbeds of gray-green shale; light-greenish-gray dolomite containing variably colored nodules and stringers of chert locally. ***Rome thrust sheet***: Olive-green and medium- to dark-gray fissile shale containing lenticular to thin beds of medium-gray limestone that is partly stylonodular, bioturbated and bioclastic. ***Helena thrust sheet***: Pale-olive shale, locally containing abundant trilobite impressions; light-gray, thick-bedded, coarse-crystalline, vuggy dolomite at the base.

Cr — **Rome Formation (Lower Cambrian)—**Olive-gray, olive-green, and grayish-red-purple shale, mudstone, and siltstone containing interbeds and intervals of light-gray, very fine to fine-grained locally dolomitic sandstone.



CORRELATION OF MAP UNITS

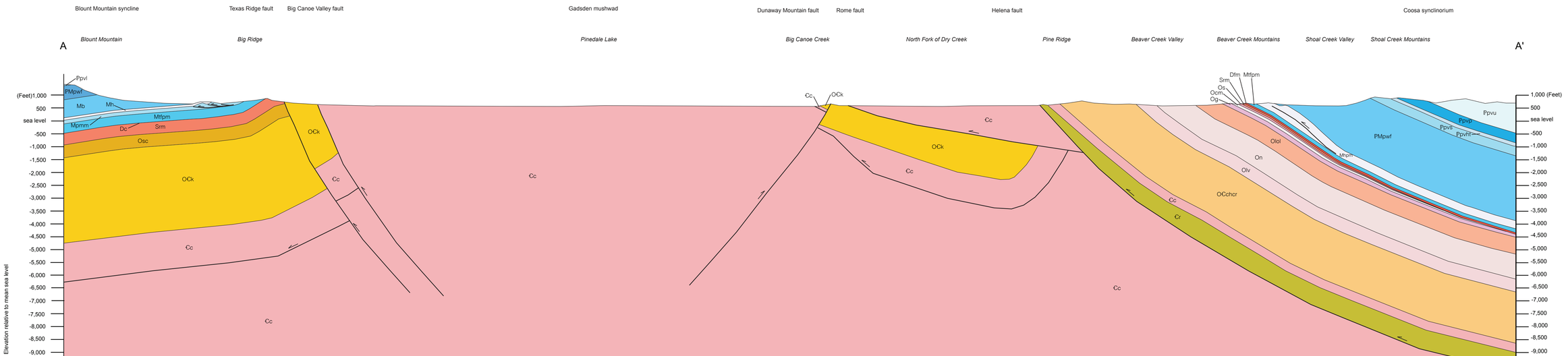


SYMBOLS FOR GEOLOGIC MAP

- Contact, dashed where located very approximately, showing location of control point (contact exposed or closely located)
- Contact, concealed beneath mapped units
- Thrust fault, located very approximately, sawteeth on upper plate
- Thrust fault, concealed beneath mapped units
- Trace of syncline axis, located approximately, arrow showing direction of plunge
- Trace of anticline axis, located approximately, arrow showing direction of plunge
- Water boundary
- Strike and dip of bedding
- Strike of vertical bedding
- Strike and dip of overturned bedding
- 14619 — Abandoned gas well (State Oil and Gas Permit Number)

SYMBOLS FOR CROSS SECTIONS A-A' and B-B'

- Stratigraphic contact
- Fault, showing relative movement
- * — Stratigraphic units in the subsurface, but not exposed at the map surface, are identified by name and illustrated on the cross sections to show structural relationships at depth.



GEOLOGIC MAP AND CROSS SECTIONS OF THE ASHVILLE 7.5-MINUTE QUADRANGLE, ST. CLAIR AND BLOUNT COUNTIES, ALABAMA

by
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2019

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