

AREAL GEOLOGY

STATE OF PENNSYLVANIA  
REPRESENTED BY THE  
DEPARTMENT OF INTERNAL AFFAIRS  
TOPOGRAPHIC AND GEOLOGIC SURVEY

PENNSYLVANIA  
HOLLIDAYSBURG QUADRANGLE (Evans)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

**EXPLANATION**  
**SEDIMENTARY ROCKS**

**QUATERNARY**

Qal Alluvium  
(silt, sand, and gravel constituting the flood plains of green streams)

**Pennsylvanian**

Allegheny formation  
(shale and sandstone with beds of coal and clay; in Lower Kittanning coal bed shown by blue line)

Pottsville formation  
(sandstone, conglomerate, shale and coal; Homewood sandstone member at top; Mercer shale member in middle; Conococheague sandstone member, coarse, thick-bedded sandstone and conglomerate, at bottom)

**UNCONFORMITY**

Mauch Chunk formation  
(upper part mostly red shale and some green; lower part thick-bedded green sandstone)

Loyalhanna limestone  
(siliceous limestone weathering to highly pitted and strongly cross-bedded sandstone)

Pocono formation  
(lower part red, gray, and olive-green shale with gray sandstone layers; Devonian sandstone member, Cb, at top, underlain by Patton shale member, sparingly fossiliferous)

Hampshire formation  
(predominantly red lumpy shale or mud rock and red sandstone, some gray and green shale and sandstone)

Chemung formation  
(shaly green, gray, and chocolate-colored shale and thin beds of argillaceous fine-grained sandstone, fossiliferous throughout; includes *Spirifer complanatus*, *Mermeria*, *Dex*; upper part largely chocolate-colored)

Brallier shale  
(micaceous, siliceous slaty green shale with some thin beds of fine-grained sandstone, sparsely fossiliferous throughout, mainly *Pelecypoda* of *Gardner* type)

Harrell shale  
(left gray shale in upper part; dark blue black shale member, Dh, in lower part; highly fossiliferous, small *trilobites* and *cephalopods* of the *Napier* fauna)

Hamilton formation  
(principally olive-green shale with even-layered blocky-jointed sandstone and thin limestone at top; ridge-making sandstone at two horizons, sparsely fossiliferous; locally a foot or two of limestone at top with *Tully* fauna)

Marcellus shale  
(black fissile clay shale, grading upward into olive-green shale)

Onondaga formation  
(gray shale, probably calcareous, and thin argillaceous limestone)

Ridgeley sandstone  
(thick-bedded calcareous sandstone weathering to coarse friable sandstone; locally a fine conglomerate at top with quartz pebbles, highly fossiliferous)

Shriver limestone  
(thin-bedded siliceous limestone, weathering to fine-grained sandstone; black calcareous shale at bottom; sparingly fossiliferous)

Helderberg limestone  
(lower part is thick-bedded gray limestone with thin gray chert at top; chiefly *Kepler* limestone member, overlying *Coeymans* and *New Scotland* limestone members; thin and locally absent; contains *Halysites*, *trilobites*, *brachiopods*, and *Hoplites* throughout)

Tonoloway limestone  
(thin-bedded finely laminated dark limestone; sparsely fossiliferous, chiefly *Lepidodictya*)

Wills Creek shale  
(chiefly gray calcareous shale and some greenish limestone fossiliferous)

Bloomsburg redbeds  
(lumpy red shale and thick-bedded ridge-making red sandstone)

McKenzie formation  
(blue thin-bedded fossiliferous limestone and soft gray and blue shale; thin red shale east of Tussey Mountain and a little red shale west of Lock Mountain)

Clinton formation  
(mainly green and blue shale, weathering purple, and thin fine-grained green sandstone; *Kepler* sandstone member, Sc, near top, shale with thin limestone layers above; *Kepler* sandstone member represents *Rochester* shale, *Martinsburg* iron-ore bed just beneath *Kepler* sandstone member; *Frankstown* iron-ore bed in lower half; hard quartzitic sandstone, red sandstone, and *Leont* block iron ore, Sc, at base, generally fossiliferous)

Tuscarora quartzite  
(hard white quartzitic and sandstone, largely thick-bedded; quartzite extensively quarried for granitic; contains *colletes*, worm tubes and *Archaeophagus* at top)

**EXPLANATION**  
**CONTINUED**

**QUATERNARY**

Qj Juniata formation  
(chiefly red and some green, fine-grained cross-bedded sandstone and red lumpy mud rock; nonfossiliferous)

Oo Oswego sandstone  
(gray fine-grained thick-bedded cross-laminated sandstone; contains a few small quartz pebbles in lower part; nonfossiliferous)

Orv Reedsville shale  
(chiefly olive-green shale, weathering to small shaly, upper part containing argillaceous and ferruginous limestone layers; thick-bedded dark sandstone with abundant brachiopods of the *Orthyron* zone at top, and a few feet of black shale containing graptolites at base)

Ol Trenton limestone  
(thin-bedded black argillaceous limestone weathering to small fat residual pieces; sparsely fossiliferous)

Ord Rodman limestone  
(thick and thin-bedded dark crystalline limestone, weathering granular; fossiliferous)

Lowville limestone  
(thick-bedded dark, fine, even-grained limestone, with conchoidal fracture; mostly high-grade limestone, the upper quarry rock)

Carlin limestone  
(thick-bedded, mainly fine-grained dark limestone, the lower quarry rock; sparsely fossiliferous; main quarry member, limestone member, generally highly fossiliferous; *Murchisonia magna* zone at top, separating the two quarry beds)

**UNCONFORMITY**

Belleville dolomite  
(dark fine-grained dolomite, thick-bedded in lower part, dark shaly layers in upper part; contains heavy chert locally; sparingly fossiliferous)

Axemann limestone  
(thin-bedded blue limestone with a few dolomite layers; abundantly fossiliferous)

Nittany dolomite  
(thick-bedded light-gray fine-grained dolomite with small shaly layers; chert at surface; chert commonly fossiliferous; a thin limestone, mostly *Strophomena*, present near and southeast of Ore Hill)

Larke dolomite  
(chiefly thick-bedded dark-blue coarse crystalline dolomite, generally without chert but locally gray shaly layers; weathering to heavy chert at surface; chert commonly fossiliferous; a thin limestone, mostly *Strophomena*, present near and southeast of Ore Hill)

Mines dolomite  
(coarse and fine grained blue dolomite, largely oolitic; on weathering gives rise to great quantity of irregularly shaped oolitic chert, much of which is silicified; oolite with black grains and contains two species of *Cryptosporon*)

Gatesburg formation  
(chiefly thick-bedded blue coarse crystalline dolomite with many layers of limestone up to 20 feet thick; *Stacy* dolomite member, Cg, free of sandstone, at base; Ore Hill limestone member, Cg, which contains rare *trilobites*, in middle)

Warrior limestone  
(thin-bedded blue fine-grained magnesian limestone with shaly partings; some layers contain abundant rounded quartz grains; sparsely fossiliferous, including *Cryptosporon* and *trilobites*)

Pleasant Hill limestone  
(lower part argillaceous thin-bedded limestone weathering to shale; upper part pure thick-bedded dark limestone; contains *trilobites*, *brachiopods*, and *Hoplites*)

Waynesboro formation  
(yellowish argillaceous sandstone, fine quartz conglomerate, red and green sandstone; calcareous sandstone contains *Hoplites* and *trilobites*)

**DEVONIAN**

Known fault  
Probable fault  
Concealed fault  
(covered by younger deposits)

T, Overthrust side of thrust fault  
Sc, Strike and dip of stratified rocks  
S, Strike of vertical beds  
H, Horizontal beds  
Q, Quarry

Axis of anticline  
Axis of syncline

**ORDOVICIAN**

**ROCKMOUNTAIN GROUP**

**LOWER ORDOVICIAN**

**MIDDLE DEVONIAN**

**UPPER DEVONIAN**

**ORISKANY GROUP**

**LOWER DEVONIAN**

**UPPER CAMBRIAN**

**MIDDLE CAMBRIAN**

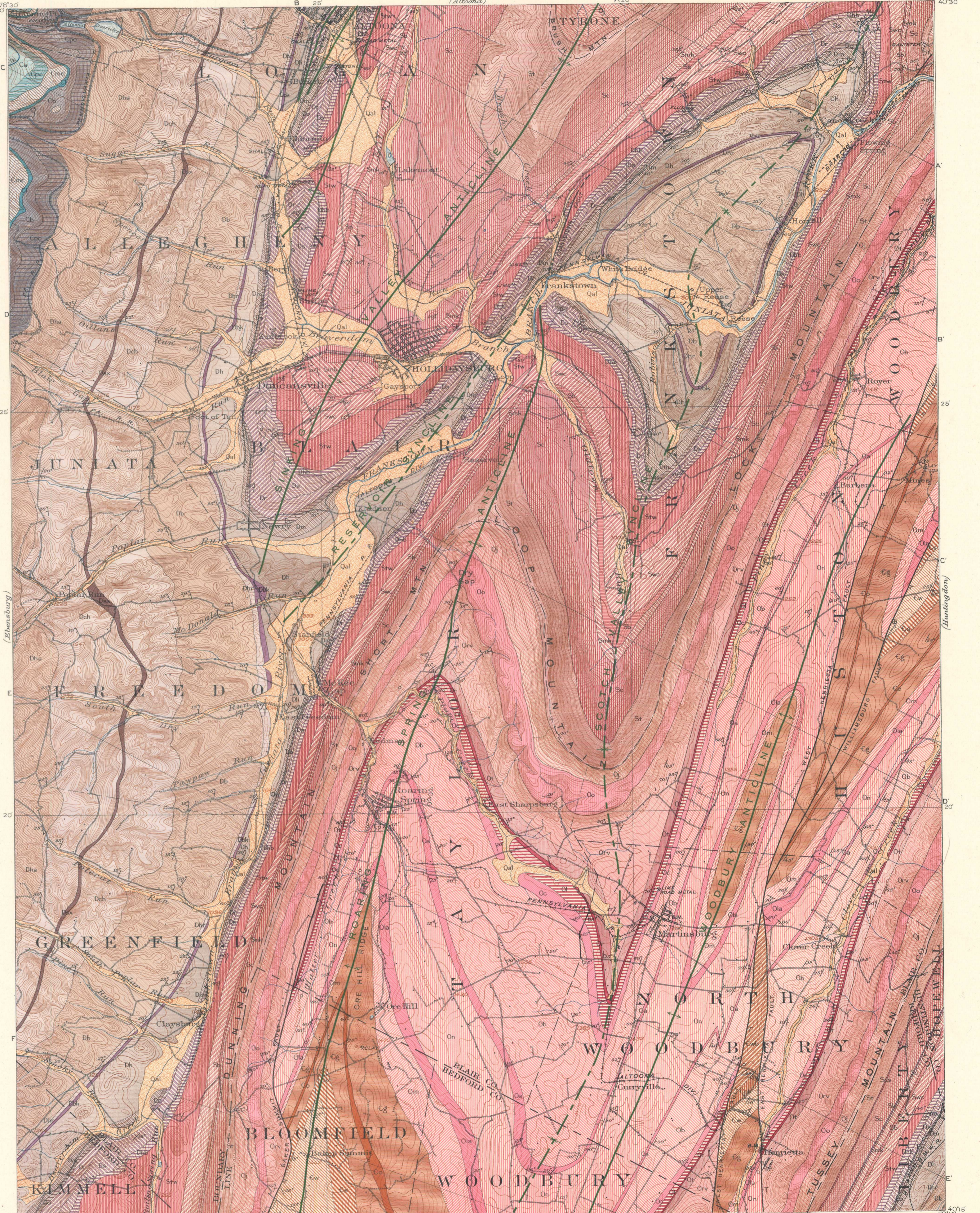
**LOWER CAMBRIAN**

**SILURIAN**

**MISSISSIPPIAN**

**PENNSYLVANIAN**

**QUATERNARY**



H.M. Wilson, Geographer in charge.  
Control by A.H. Thompson.  
Topography by A.M. Walker and E.S. Ela.  
Surveyed in 1901-1902.  
SURVEYED IN COOPERATION WITH THE STATE OF PENNSYLVANIA.

Scale 1:25,000  
Miles  
0 1 2 3 4  
Yards  
0 1000 2000 3000 4000 5000 6000 7000  
Feet  
0 1 2 3 4  
Kilometers

Contour interval 20 feet  
Datum is mean sea level  
Edition of December 1945

Geology by Charles Butts,  
Surveyed in 1908.