

EXPLANATION

QUATERNARY

ALLUVIAL DEPOSITS
Unconsolidated sand, gravel, silt, and clay of varied composition and sorting which underlie the present day floodplains of streams. Color ranges from a light-tan to brown depending upon the amount of clays and organic material contained. Thickness was not determined, but is estimated at 3 to 15 feet.

SWAMP DEPOSITS
Unconsolidated clay, very fine silt, and peat deposits which were deposited and formed in broad poorly drained areas created by the solution and erosion of Greenbrier terraces. Color is typically very dark-brown to black as a result of the decay of organic material and generally euxinic conditions. Thickness is probably less than 15 feet.

PENNSYLVANIAN

ALLEGHENY GROUP (undifferentiated)
Interbedded siltstone, shale, sandstone, coal and claystone. Sandstone units are generally tan to light-gray in color, whereas the shales and siltstones are most commonly dark-gray. Mined coals include: Lower Kittanning [kl], Middle Kittanning [mk], Upper Kittanning [uk], and Upper Freeport [uf]. The Lower Kittanning Sandstone near the base of the group and the Worthington Sandstone near the middle of the group are traceable. The Mount Savage fire-clay at the base of the unit has been extensively mined along Big Savage Mountain. The Bolivar fire-clay which underlies the Upper Freeport coal bed is an important claystone interval. Base of the group is placed at the bottom of the Lower Mount Savage coal horizon (Brookville of Pennsylvania nomenclature), which is commonly absent, in which case the base is marked at the top of underlying Homewood Sandstone. Thickness ranges from 240 to 280 feet.

POTTSVILLE GROUP (undifferentiated)
Thick crossbedded, tan, and light-gray-green to white sandstone with thin interbedded siltstone and shale intervals and very thin, laterally discontinuous, non-economic coals. Major sandstone units include the Sharon at the base, the Upper and Lower Connoqueungus, which commonly merge to form a single unit near the middle of the group, and the white, thick-bedded conglomeratic, Homewood Sandstone at the top. The existence of the Homewood Sandstone to weathering allows it to be the major ridge-forming sandstone unit over much of the Allegheny Mountain Section of the Appalachian Plateaus Province of western Maryland. The base of the group is placed at the bottom of the Sharon Sandstone which typically overlies the uppermost red shales of the Mauch Chunk. Thickness ranges from 225 to 280 feet.

MAUCH CHUNK FORMATION
Interbedded sandstone, silty shale, and mudstones. Sandstones are typically medium- to fine-grained, red-brown, chocolate-brown, or green-gray in color, crossbedded and exhibit erosional bases with shale-pebble basal lag conglomerates. Shales and mudstones are predominantly red to red-brown, but locally green-gray intervals especially directly beneath thick sandstone units. Root-mottling is common within the red mudstone intervals. Base of the Mauch Chunk Formation is placed at the top of the Wynnes Gap Limestone (formerly the upper tongue of the Greenbrier according to Amsden, 1954). Thickness is approximately 600 to 800 feet.

GREENBRIER FORMATION
Interbedded red-brown and white sandstones, red and green siltstones and shales, and gray-green to dark-gray limestones. White sandstones are typically well sorted and contain carbonate clasts and marine fossils, and range from 3 to 10 feet in thickness. Red shales and siltstones are commonly mudcracked and root-mottled. Numerous marine intervals are present throughout the section and contain bivalves, brachiopods, and gastropods. The highly crossbedded, arenaceous Loyahanna Limestone is present at the base of the formation and ranges from 35 to 45 feet in thickness. The pure Deer Valley Limestone immediately overlies the Loyahanna Limestone. The highly fossiliferous Wynnes Gap Limestone is present at the top of the formation. The formation commonly forms the valleys which lie between the Purslane and Pottsville sandstone ridges. The base of the formation is at the base of the Purslane sandstone. Thickness ranges from 250 to 350 feet.

PURSLANE FORMATION
Red-brown to tan or light-gray, crossbedded, flaggy, medium- to fine-grained, locally conglomeratic, micaceous sandstone. Very few shale interbeds are present. The upper 50 feet of strata are exceptionally flaggy and as a result is commonly quarried as dimension stone along the crest of Little Savage Mountain. The resistant character of this unit makes it second to the Pottsville sandstone as a ridge-former in the Allegheny Mountain Section of the Appalachian Plateaus of Maryland. Base of the formation is placed at the bottom of the lowest thick, lenticular, mudcracked sandstone unit. Thickness is approximately 200 feet.

ROCKWELL FORMATION
Interbedded olive-gray, medium- to light-gray quartzite to argillaceous sandstone and olive-gray to gray-red siltstone, silty shale, and shale. Sandstone units are commonly thin to medium-bedded and are pervasively horizontal, often exhibiting Skolithos burrows. A few thin, laterally discontinuous coals and coal shales are present near the middle of the formation, and red-brown sandstone and shale is more prevalent near the top. The Rockwell Formation is equivalent to the lower Pocahontas of previous reports. The base of the formation is at the top of the predominantly red-brown underlying Hampshire Formation. Thickness is approximately 200 to 250 feet.

HAMPSHIRE FORMATION
Predominately red-brown (with minor amounts of green-gray) shales, mudstones, and interbedded sandstones and siltstones. Shales commonly show a hackly parting and are mudcracked. Sandstones are crossbedded, micaceous, lenticular in geometry and contain basal shale-pebble conglomerates. Abundant vertebrate fragments were recovered from one of these basal lags. Base of the formation is at the top of uppermost fossiliferous tan sandstone-conglomerate interval of the underlying Foreknobs Formation. Thickness ranges from 1500 to 2000 feet.

GREENLAND GAP GROUP
Foreknobs Formation
Interbedded sandstones, siltstones, shales and conglomerates. The shales and siltstones of the upper 200 to 300 feet are predominately red, with increasing gray-green to tan coloration down-section. Numerous thin sandstone-conglomerate units are present throughout the formation and commonly contain brachiopods and bivalves. Prominent, mappable sandstone and conglomerate units are present at the top and near the base of the formation and probably correspond to the Pound and Briery Gap [pg] Members of Denison (1970). The base of the formation was not observed. Thickness is approximately 1200 to 1700 feet.

MISSISSIPPIAN AND DEVONIAN

CONEMAUGH GROUP (undifferentiated)
Interbedded thick, tan, crossbedded sandstones and red, gray-green and gray shales and micaceous siltstones. Locally tan to light-gray nodular-bedded, limestones, and thin coals are present. Two marine horizons, the Brauk Creek and Ames, are present in the lower 400 feet. Coals are generally thin and only locally minable. Thickness ranges from 750 to 900 feet.

CONEMAUGH GROUP (differentiated)

Casselman Formation
Interbedded sandstone, siltstone, and shale with minor amounts of limestone and coal. Some shales red-brown, but predominantly dark-gray in color. Important coals include: Franklin [f], Clarysville [cl], Federal Hill [fh], Barton [b], and Wellersburg [we]. Of these coals, only the Barton is mined with any regularity. Marker sandstone units include the Grafton near the base of the unit, the Morgantown overlying the Barton coal bed, the Conneltsville overlying the Franklin coal bed, and the Lower Pittsburgh near the top of the formation. Base of the formation is placed at the top of the Ames marine interval. Thickness ranges from 450 to 500 feet.

Glenshaw Formation
Interbedded siltstone, sandstone, and shale with minor amounts of red-beds, claystones, and limestones. Important coal beds include: the Brauk Creek [bc], Lower Bakerstown [lb], Upper Bakerstown [ub], and Ames [a] (part of previous reports). The Brauk Creek, Woods Run (i.e., Friendsville) and Ames marine intervals contain marine fossils and are excellent marker horizons. The Woods Run interval above the Lower Bakerstown coal bed contains only a sparse fauna of lingulid brachiopods in the Frostburg Quadrangle, and therefore is marginal marine. Marker sandstone units include the Mahoning above the Upper Freeport coal bed and at the base of the formation, and the Salburg overlying the Upper Bakerstown coal bed. Base of the formation is placed at the top of the Upper Freeport coal bed. Thickness ranges from 350 to 475 feet.

KEY

- contact
- coal bed outcrop
- strike and dip of bedding
- horizontal bedding
- coal mine prospect or shaft
- disturbed leads
- axial trace of anticline
- axial trace of syncline
- dash trace

DEVIATION

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
MARYLAND GEOLOGICAL SURVEY
Kenneth N. Weaver, Director

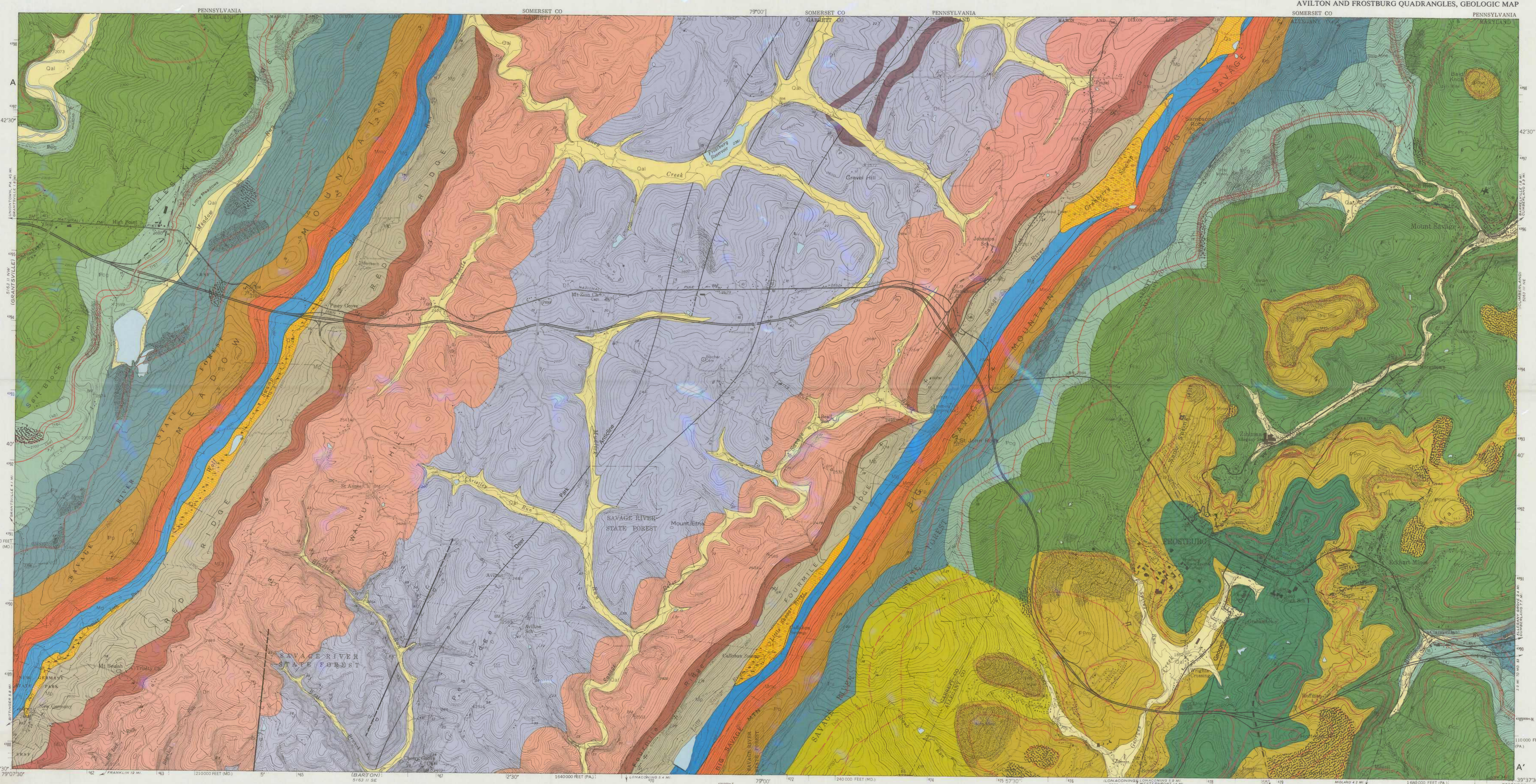
Base map from U.S. Geological Survey Avilton, 1947 (revised 1961) and Frostburg, 1949 (revised 1981) Quadrangles.
Field mapping done 1985.
Casselman Basin coal bed outcrop trace taken from Lyons et al., 1985, field checked and modified.

Scale 1:24,000
CONTOUR INTERVAL: 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

CROSS SECTION A-A'
Horizontal scale same as map scale, no vertical exaggeration

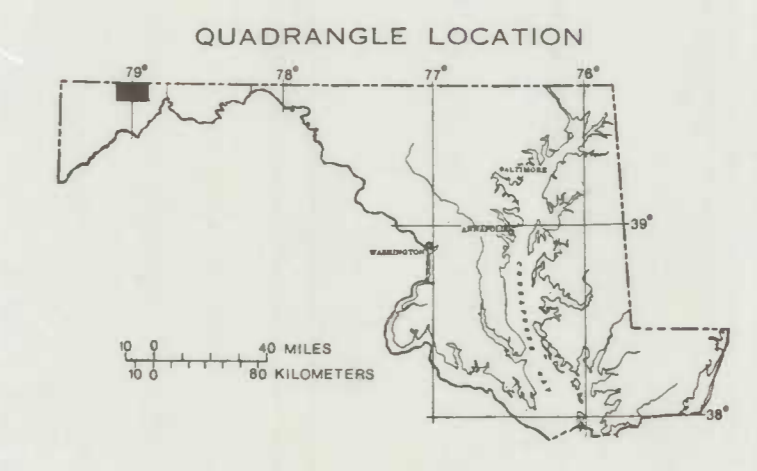
Scale in feet (0-3000) and meters (0-1000). Includes English-Metric Conversion Scale.

Map shows geological units with labels: U.S. 219, Chestnut Ridge, Meadow Mountain, Red Ridge, U.S. 40, U.S. 48, Mauch Chunk, Savage River, Little Savage Mountain, Big Savage Mountain, U.S. 46, Potomac River, and Frostburg.



GEOLOGIC MAP OF THE AVILTON AND FROSTBURG QUADRANGLES, MARYLAND

By David K. Brezinski
1988



REFERENCES CITED

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