

DESCRIPTION OF MAP UNITS

- Quaternary**
 - Qa** **Alluvium** Sand, silt, and gravel. Pale-gray to dark-gray, tan, weathering orange to red-brown. Alluvium encompasses poorly sorted, sandy to gravely unconsolidated sediments, generally with angular to subrounded cobbles and boulders of locally derived rock. Although dominantly quartzite, alluvial sand commonly contains abundant rock fragments. Alluvium underlies the channels and adjacent valley floors of all of the major streams and many of the minor streams in the map area, but especially along the Potomac River.
- Mississippian**
 - Pc** **Conemaugh Group** Interbedded, greenish-gray and medium-gray shale, gray micaceous sandstone and siltstone; coal beds, and locally reddish claystones with two thin fossiliferous shales in the lower half of the group. Although the Conemaugh Group in western Maryland is made up of two formations, it is not differentiated herein. Only the lower half of the formation, which roughly coincides with the Glenhew Formation, is present in the Davis Quadrangle. A couple of locally mined coal beds, like the **Wellersburg** (we) and **Ames** (a) are present near the middle of the group, but only two coal beds are consistently minable in the Davis Quadrangle. The lower coal is equivalent to the **Lower Bakerstown** (lb) of Pennsylvania. The upper coal, the **Barton** (b), is termed the **Ellick** coal in adjacent West Virginia. Important sandstone intervals include the **Mahoning** above the Upper Freeport coal at the base of the group, the **Salisbury** Sandstone above the Bakerstown coal bed, the **Morganston** Sandstone above the Barton coal. The Conemaugh Group is 800 to 900 feet thick.
 - Pa** **Allegheny Formation** Interbedded, medium- to dark-gray shale and siltstone; tan to light-gray sandstone; and coal with a claystone interval near the base. Of the important coal beds within the Allegheny Formation only the **Lower Kittanning** (ll) and **Upper Freeport** (uf) are mapped here. The base of the formation is marked by the Lower Mount Savage claystone, which is present near the base of the formation. An important marker sandstone unit is the **Westerner** Sandstone near the middle of the formation. The top of the formation is placed at the top of the Upper Freeport coal bed, and the base of the formation is placed at the top of the underlying **Homewood** Sandstone of the Puttsville Group. The Allegheny Formation is estimated to be 200 to 225 feet thick.
 - Pp** **Potsville Group** Predominantly light-gray sandstone at the top, grading downward into tan cross-bedded sandstone and conglomerate with subordinate amounts dark-gray shale, siltstone and coal. The basal formation, the **Sharon** Sandstone unconformably overlies red shale and claystone and green-gray sandstones of the **Mauch Chunk** Formation, and consists of a very light gray conglomeratic sandstone. The **Sharon** Sandstone overlies the **Conoquessing** Sandstone which is typically thin-bedded, micaceous, and tan in color. Overlying the **Conoquessing** is an interval of dark-gray shale and coal tentatively correlated with the **Upper Mercer** of Ohio and **Western Pennsylvania**. The uppermost formation of the Potsville Group is the **Homewood** Sandstone. The **Homewood** consists of medium- to thick-bedded, very light gray, coarse-grained sandstone to granular or pebbly conglomerate. No minable coals are present in the mapped area in the Potsville Group. Total thickness for the group is 180 to 200 feet.
 - Mnc** **Mauch Chunk Formation** Shale, siltstone, and sandstone. Shale and siltstone red or pale-green; sandstone pale-gray to olive-drab. The Mauch Chunk is predominantly red shale and siltstone with interbedded flaggy micaceous sandstone. In the map area, the unit is fissile to hackly shale, and micaceous siltstone or mudstone. A well-exposed section of the lower 200 feet of the Mauch Chunk along the old Western Maryland Railway tracks west of Conroyville in the Cumberland quadrangle is 85 percent shale and siltstone, only 25 percent of which is non-red. The predominance of soft fine-grained rocks in this unit renders it one of the least visible units in the map area. Sandstones are fairly well spaced through the formation, most are cross-bedded or less commonly parallel-bedded, and fine- to medium-grained. Separating individual sandstone beds are intervals of red-brown, mudstone, with pervasive root casts. The top of the Mauch Chunk is generally placed at the base of the massive **Sharon** Sandstone Member of the overlying **Potsville** Formation. The Mauch Chunk strata are predominantly if not wholly non-marine in the map area. Fossils other than plant fragments are absent. The thickness of the Mauch Chunk is approximately 500 feet.
 - Mj** **Greenbrier Formation** Limestone, sand to crystalline, calcareous sandstone; siltstone and shale. Limestones pale-gray, pale-red, and greenish-gray; terrigenous lithologies pale-red to bright-red. The Greenbrier in the map area is comprised of four members: from oldest to youngest, the basal **Loyalhanna** Limestone, the **Deer Valley** Limestone, the **Savage Dam** Member, and the uppermost **Wynps Gap** Limestone. The **Loyalhanna** is a conspicuously cross-stratified, pale-red sandy limestone. The pervasive red and gray laminations are enhanced on weathered surfaces, and render the **Loyalhanna** instantly recognizable in the map area. Some cross-bedded units are as thick as 15 feet. The **Loyalhanna** is unfossiliferous. Over the northern part of the map area, the sandy limestone of the **Loyalhanna** is sharply overlain by the **Deer Valley** Limestone. The **Deer Valley** is a single thick bed of gray to reddish, fine-grained, massive, crystalline limestone with a silky luster and a hackly irregular fracture. Fossils are rare and inconspicuous. It does, however, display conspicuous widely spaced "wispy" red shale laminae. The unit is between 15 feet and 25 feet thick in the Davis and Table Rock area. Succeeding the **Deer Valley** is about 175 to 200 feet of interbedded, pale-red, laminated calcareous sandstone and brighter red, hackly, micaceous siltstone and shale, the **Savage Dam** Member. The uppermost member of the Greenbrier, the **Wynps Gap** Limestone, is a pale greenish-gray, very fine grained, argillaceous limestone, grading up to hackly calcareous mudrock with reddish overtones. Its thickness totals about 35 to 50 feet. The Greenbrier Formation forms the valley in which the **Youghiogheny** River flows. The Greenbrier crops out very poorly, if at all, in the **Lonaconing** quadrangle because the beds are readily soluble and generally covered by rubble from upslope. Its presence is largely inferred in this area. The top of the Greenbrier is generally marked by the first sustained redbeds lacking limestone (Mauch Chunk Formation). Fauna in the Greenbrier consists mostly of brachiopods and abundant crinoid debris, but a few trilobites, bryozoa, gastropods, and orthoceras cephalopods also are present.
- Devonian**
 - Df** **Foreknobs Formation** Siltstone, sandstone, conglomerate, and minor shale. Olive-gray, reddish-gray, or yellowish-gray. The Foreknobs is a consistently coarser unit than the underlying **Scherer**, consisting of siltstones punctuated by massive sandstone packages, interbedded with subordinate but significant amounts of conglomerate and pebbly sandstone. Moreover, scattered through the section are many brownish-gray to grayish-red "beds". These superficially resemble the red strata of the overlying **Hampshire** Formation but differ in having more brownish than red tones. Four named members of the Foreknobs have been recognized in the map area. The basal **Mallow** Member is 700 to 900 feet of chiefly olive-gray massive sandstone and siltstone, in places with conglomeratic strata at the base. The **Mallow** is wholly marine in origin and is a shallowing upward sequence. Overlying the **Mallow** is the **Briery Gap** Sandstone, comprised of thick beds of cross-bedded yellowish-gray sandstone and pebbly sandstone, accumulated as barrier bar deposits. The succeeding **Blizzard** Member is 300 to 500 feet of interbedded olive-gray sandstone and siltstone, with minor amounts of shale and conglomerate, and of shallow marine origin. The **Pond** Sandstone, which overlies the **Blizzard**, essentially repeats the **Briery Gap** lithology. This sandstone forms a series of low hills at the axis of the **Deer Park** Anticline. It is essentially a shallowing up sequence, which is basal in the lower portion, grading to shoreline deposits at the top. The first bright-red, non-marine beds of the **Hampshire** mark the top of the unit. The **Foreknobs** draws its name from outcrop in a series of prominent knobs lying below the larger knobs of the **Purslane** Formation along the **Allegheny** Front of West Virginia. The abundant shales in this formation make up the broad valley at the center of the **Deer Park** Anticline. In most places, the **Foreknobs** contact passes through or just below this series of knobs. Outcrops of the **Foreknobs** are generally quite limited in this area. As much as 1,800 feet of strata can be assigned to the unit in the map area. The sparse, shallow marine fauna of the **Foreknobs** indicates a Late Devonian age.
 - Ds** **Scherer Formation** Shale, siltstone, and subordinate sandstone. Shale light-olive to greenish-gray; siltstone and sandstone medium-gray, brownish-gray to reddish-gray. The **Scherer** Formation is mostly shale, thickly laminated to fissile, similar to that of the **Bruller**, interbedded with planar siltstones. The basal 10 to 15 feet of the unit is dominated by fine-grained sandstone and contains some brownish-gray to reddish beds. This influx of coarser sediment defines the lower contact of the unit. As much as 2,000 feet of strata can be assigned to the **Scherer** Formation along the **Allegheny** Front in Maryland, but the thickness is variable. At **LaVale** in the **Cumberland** quadrangle, only about 1,000 feet of beds are present. The lower sandy beds of the **Scherer** hold up a series of low knobs along the lower slopes of **Dans** Mountain. Outcrops are limited to the beds and banks of some tributaries draining the slopes of the ridge.
- Mississippian**
 - Mp** **Purslane Sandstone** Sandstone, red-brown to purple. The Purslane Sandstone is represented in the map area by several tens of feet of fine- to medium-grained, hard quartzitic sandstone and quartz pebble conglomerate. The rock in the lower part of the formation is typically thin-bedded and flaggy in 1- to 2-inch beds, shows conspicuous low-angle cross-bedding, and upon weathering yields a characteristic flake of thin slabs. Although the Purslane may be as much as 250 feet thick, it probably averages about 100 feet in thickness. It carries no determinate fauna or flora, and is non-marine in origin. Along most of the outcrop belt, the most conspicuous evidence of its presence is a rubble or talus of reddish-purple sandstone slabs distributed over the crests and back sides of knobs along **Backbone** Mountain.
 - Mw** **Rockwell Formation** Sandstone, siltstone, shale, and minor conglomerate. Greenish-gray, pale-green or gray, reddish-brown to brownish-red. The **Rockwell** Formation comprises interbedded sandstone, siltstone, and shale. Most of the sandstones are soft, micaceous, commonly lignitic, lenticular and cross-bedded, and thin- to thick-bedded. The interbedded fine-grained rocks range from evenly laminated to massive and hackly. **Rockwell** shales are carbonaceous and pyritic in places. Some beds display burrows or burrow-mottling, as well as **Skullfish** tubes. Several named members have been recognized within the **Rockwell**, especially in nearby areas of West Virginia and Pennsylvania, but none of these has been widespread use in Maryland. The **Oswayo** Member is a latest Devonian marine tongue and makes up the basal 40 to 50 feet of mostly gray-green sandstone and reddish-brown to red, interbedded, mostly non-marine siltstone and mudstone shale. Overlying this non-marine interval is a dark-gray siltstone known as the **Riddingsburg** Shale. This marine shale is correlative to the **Sumbury** Shale of Ohio, a basal Mississippian unit. In the **Table Rock** quadrangle, the **Rockwell** Formation forms low hills at the base of **Dans** Mountain. In the study area the top of the **Rockwell** is placed at the base of the lowest, deep red-brown to purple, flaggy cross-bedded quartzitic sandstone. The unit ranges in thickness from 250 to about 400 feet, and represents Late Devonian to Early Mississippian deposition. Fossils are rare in the **Rockwell** in this area, with the exception of plant fragments and trace fossils. Typically, the unit is 1,800-2,000 feet thick across the study area.

Supplemental Information

Use Constraints: These data represent the results of data collection/processing for a specific Department of Natural Resources, Maryland Geological Survey activity and indicate general existing conditions. As such, they are only valid for the intended use, content, time, and accuracy specifications. The user is responsible for the results of any application of the data other than that intended purpose. Neither the licensee, nor the owner of these data makes any warranty, expressed or implied, as to the use or appropriateness of the licensed data, and there are no warranties of merchantability or fitness for a particular purpose of use. The Maryland Geological Survey makes no representation to the accuracy or completeness of the data and may not be held liable for human error or omissions. Data are only valid at 1:24,000 scale. Data may not be used at a scale greater than that.

Acknowledgments: This map was funded in part by the USGS National Cooperative Geologic Mapping Program, Quaternary, Maryland Geological Survey, and indicate general existing conditions. The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. Field mapping of the coal seams was funded in part by the Power Plant Research Program of the Maryland Department of Natural Resources, Resource Assessment Service.

Geologic field mapping was completed in 1999. Geologic map components compiled in digital form by Heather Quinn, Maryland Geological Survey. Digital support provided in part by Towson University, Center for Geographic Information Sciences.

The facilities and services of the Maryland Department of Natural Resources are available to all without regard to race, color, religion, sex, sexual orientation, age, national origin or physical or mental disability.

Published July 2003
Version: TRD/DC03.1

Base map from U.S. Geological Survey
7.5-minute Series (Geographic)
Table Rock, 1948 (photorevised 1981)
2001 magnetic north declination (center of quadrangle): 9 degrees west
(To determine current magnetic declination see:
http://www.ngs.noaa.gov/cgi-bin/view_page.pl?tab=1)
Davis, 1967 (photorevised 1981)
1998 magnetic north declination (center of quadrangle): 8.5 degrees west

Note: Hydrography, topography and boundary layers shown are from USGS digital line graphs (DLG) for these quadrangles. Cultural transportation layer is from USGS satellite base operations.

Current map projection:
Maryland State Plane Coordinate System 1987
(Projection: Lambert Conformal Conic, 1980 geodetic reference system)
(Horizontal Datum: North American Datum 1983)

State Plane (NAD83) 2000-meter tick, grid ticks and coordinates shown in black
Geographic coordinates (latitude-longitude) (NAD83) shown at 2.5' intervals in black
Note: Black grid lines on the Table Rock quadrangle are nominal 100-meter
UTM NAD83 lines from the base mylar. This layer has been rasterized and
projected to State Plane NAD83 meters.

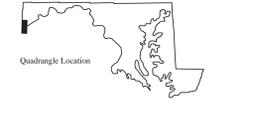
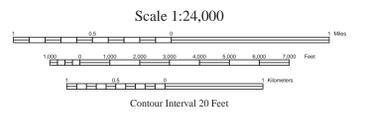
Joining 7.5' Quadrangle Names
(Portions of the Table Rock and
Davis Quadrangles shaded)

1	2	3
4	5	6
7	8	

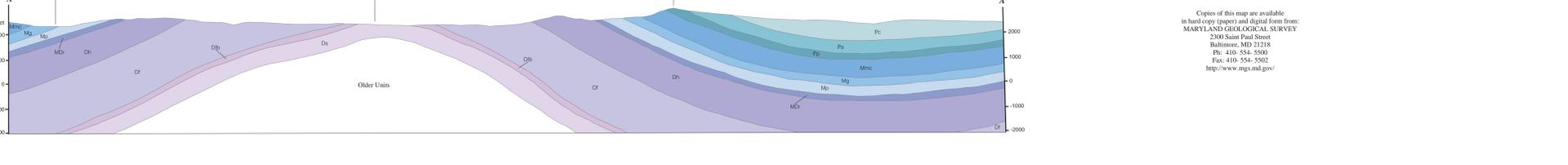
1. Terra Alta
2. Oakland
3. Deer Park
4. Annes
5. Gorman
6. Lead Mine
7. Davis
8. Mount Storm Lake

Geologic Map of the Maryland Portions of the
Table Rock and Davis Quadrangles,
Garrett County, Maryland

By
David K. Brezinski and John D. Glaser
2003



CROSS SECTION A - A'
No vertical exaggeration



Copies of this map are available
in hard copy (paper) and digital form from:
MARYLAND GEOLOGICAL SURVEY
2300 Saint Paul Street
Baltimore, MD 21218
Ph: 410-554-5500
Fax: 410-554-5502
<http://www.ngs.md.gov/>

STATE OF MARYLAND
Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lieutenant Governor

DEPARTMENT OF NATURAL RESOURCES
C. Ronald Franks
Secretary

W. P. Jensen
Deputy Secretary

MARYLAND GEOLOGICAL SURVEY
Emery T. Cleaves
Director