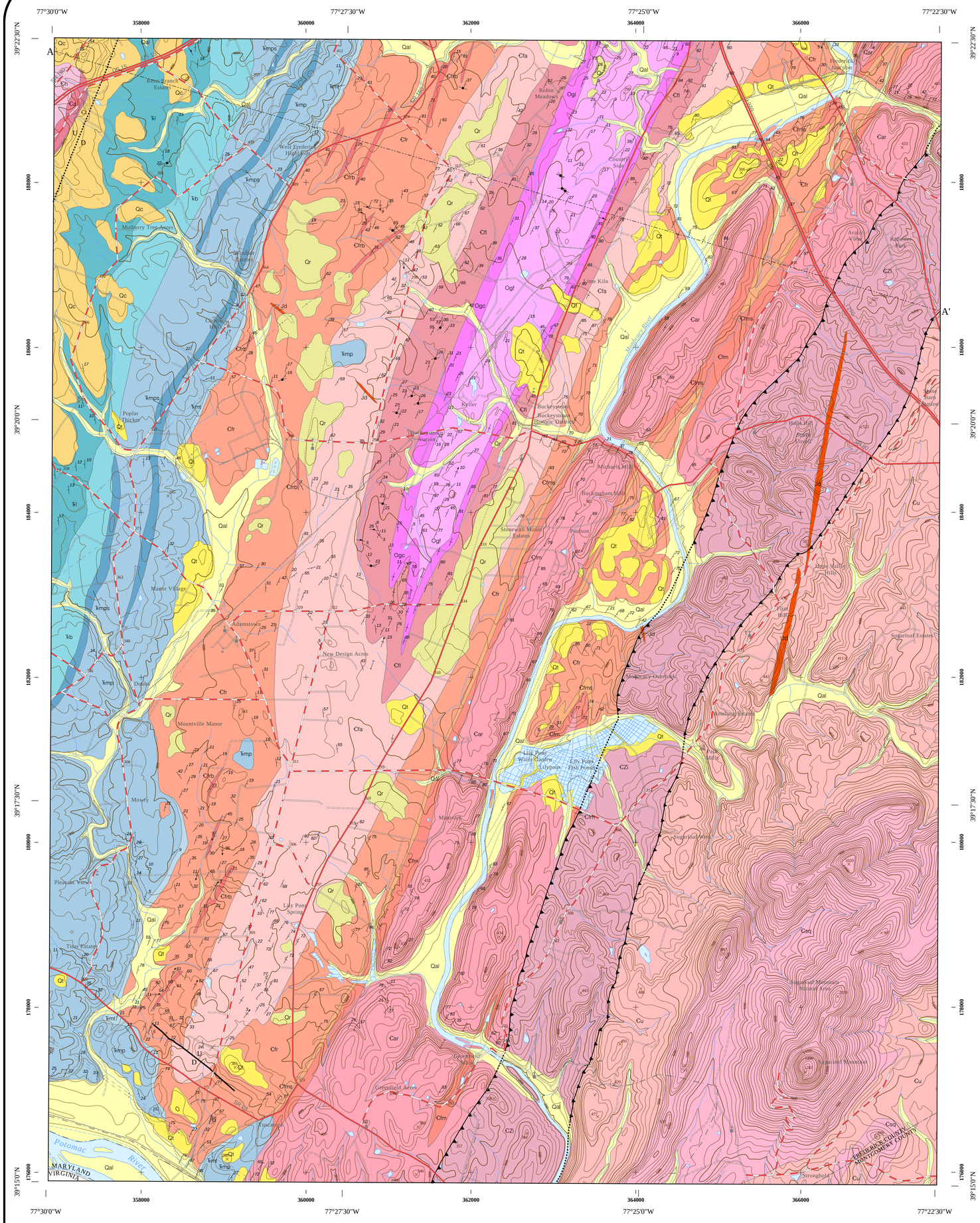

Base layers derived from U.S. Geological Survey (USGS)
7.5-minute Series (Topographic)
Buckeystown Quadrangle 1952 (photorevised 1971)
Digital line graphs for hydrography, topography, transportation and boundaries (1:24,000)

Cultural features shown from USGS Geographic Names Information System database

(To determine current magnetic declination see: http://www.ngdc.noaa.gov/cgi-bin/seg/gmag/fldsnth1.pl)

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 2000-meter grid tics and coordinates shown in black
Geographic coordinates (latitude-longitude) shown at 2.5' intervals in black

Description of Map Units

Quaternary

Alluvium
Reddish brown, poorly sorted mixture of rounded pebbles, cobbles, boulders, sand, silt and clay, interbedded with layers of moderately well sorted, rounded cobbles or sandstone pebbles. Present along flood plains of streams. Thickness estimated at 1 foot to more than 15 feet especially along the Monocacy River.

Colluvium
Unsorted, light gray to reddish gray, angular boulders to cobbles of quartzite and vein quartz with a silty, clayey reddish matrix. Present near the foot of Catoctin Mountain and formed by the slow down-slope movement of weathered material from the Weverton Formation. Thickness ranges from a thin veneer to more than 100 feet.

Weathering residuum
Mixture of moderate reddish brown soil and pebbles to blocks of grayish pink to white, angular, locally euhedral quartz. Thickness ranges from a thin veneer to 10 feet.

Terrace deposits
Reddish brown to brown, sandy and clayey mixture of rounded pebbles to cobbles of sandstone, vein quartz and quartzite. Present along elevated low relief areas above the current Monocacy and Potomac Rivers' flood plains. At least two and perhaps three separate elevated levels can be discerned, but are not separated here. Thickness ranges from a thin veneer to more than 10 feet.

Jurassic

Diabase dike(s)
Medium to dark gray, fine- to medium-grained, locally porphyritic diabase. Weathers to rounded boulders with reddish brown rinds.

Triassic

Leesburg Formation
Light gray to light reddish gray, very thickly bedded to massive, cobble to boulder conglomerate. Clasts are dominantly subangular to subrounded limestone and dolostone of Cambrian and Ordovician age, but locally Triassic age siltstone and sandstone are prevalent. Thickness ranges from 100 to 3,000 feet (Lee, 1979).

Balls Bluff Siltstone
Brownish red to reddish brown, argillaceous, massive siltstone with thin fine-grained sandstone interbeds. Thickness estimated at 200 to 4,500 feet (Lee, 1979).

Manassas Formation

Poolesville Member
Reddish brown to reddish gray, locally greenish gray, medium-grained sandstone and reddish, variegated claystone. Claystone intervals are thoroughly root mottled and contain light gray caliche carbonate nodules. Thickness estimated at 500 to 3,000 feet (Lee, 1979). Sandstone bed Trmps: exhibits sharp convex-down bases, shale pebble lag conglomerates, and fining up-section character.

Tuscarora Creek Member
Light gray to light reddish gray, sub-angular to subrounded limestone conglomerate. Clasts are predominately limestone and dolostone, but locally reddish siltstone and sandstone are common. Matrix is a reddish brown calcareous mudstone to reddish clayey carbonate. Thickness ranges from a feather edge to 100 feet.

Ordovician

Grove Formation

Fountain Rock Member
Thickly interbedded, medium light gray, locally sandy, thrombolitic and stromatolitic algal limestone and medium gray, laminated dolomitic limestone and olive gray dolomite. Thickness probably greater than 450 feet.

Ceresville Member
Medium light gray, to medium gray, thick-bedded and crossbedded, arenaceous limestone and sandy dolomitic limestone with thin interbeds of medium light gray, sandy dolomite. Thickness is approximately 150 to 200 feet.

Cambrian

Frederick Formation

Lime Kiln Member
Interbedded, thinly laminated to thinly bedded, dark gray, fine-grained limestone, calcareous shale, and medium bedded fine-grained limestone near the base, becoming more thickly interbedded toward the top with medium dark gray, fine-grained limestone with wavy bedding, and locally stromatolitic algal beds. Near the top, the member becomes interbedded with crossbedded, sandy, medium light gray limestone. Thickness is 600 feet.

Adamstown Member
Thinly interbedded, medium dark gray to dark gray, argillaceous, fine-grained limestone and dusky yellow to medium dark gray, silty dolomite. Limestone beds range from 0.2 to 4 cm in thickness. Several thin (6 to 15 feet), dark greenish gray to greenish black, light olive brown weathering, silty calcareous shale intervals are present throughout the member. The top of the member is mapped at the base of the lowest medium to thick bed of sandy or algal limestone. Thickness is approximated at 1,000 feet.

Rocky Springs Station Member
Interbedded, flaggy-bedded, dark gray limestone with dusky yellow to light olive gray, silty dolomitic partings and laminations, with intervals 1 to 30 feet thick of medium dark gray, polymictic breccia (Cfrb) that grades upsection into planar bedded, arenaceous, medium gray limestone. Clast sizes range from sand size to 1 foot on the western flank of the Frederick Valley synclinorium and diminish to less than 1 to 2 inches in diameter on the eastern flank. Top of the member is mapped at the top of the stratigraphically highest polymictic breccia interval. Thickness is approximated at 1,200 feet.

Monocacy Member
Interbedded, nodular to lumpy bedded, dark gray, argillaceous dolomitic limestone and black to dark grayish brown calcareous shale. Thickness ranges from 100 to 150 feet. Mappable interval of grayish black, platy shale 45 to 60 feet thick present near the top of the member (Cfms).

Tomstown Formation
Medium light gray to medium gray, sugary dolomite with thin layers of mica. Not exposed at the surface in the Buckeystown Quadrangle. Thickness measured at 150 feet by Hoy and Schumacher (1956).

Araby Formation
Thickly bedded, greenish black to grayish black, very fine grained to fine-grained, burrow-mottled silty sandstone, interbedded with medium gray to grayish black, phyllitic shales 3 to 9 feet thick. Top of the formation consists of grayish black phyllitic shale 45 to 60 feet thick.The Araby Formation is present on the eastern side of the Frederick Valley synclinorium. Thickness of the Araby Formation is estimated at 300 feet.

Antietam Formation
Interbedded, light olive gray to olive gray, medium- to coarse-grained, medium-bedded, locally ferruginous, micaceous, silty sandstone and very fine grained, silty sandstone to sandy siltstone. Thickness is estimated at 300 feet.

Harpers Formation
Brownish gray to dark greenish gray, silty phyllitic shale to highly sheared phyllitic siltstone with intervals of brownish gray, medium-grained, silty sandstone. Thickness is estimated at greater than 900 feet.

Cambrian?

Sugarloaf Mountain Quartzite
Pinkish-gray to white, fine- to medium-grained granular quartzite. Medium-bedded to massive, well-sorted, graded, crossbedded and ripple marked. Quartzite, interbedded with seldom-exposed moderate-brown quartzose metasiltstone and dusky blue laminated metasiltstone similar to that of the conformably overlying Urbana Formation, underlies topographic swales. Lower, middle, and upper members (informal) are not separately mapped based on topographic expression of ridge-forming units since the quartzites are virtually identical; total thickness is approximately 2,000 feet.

Urbana Formation
Predominately, moderate olive brown to light olive gray, calcareous metagraywacke and metasiltstone. Poorly sorted, graded, crossbedded, and ripple marked. Contains light olive gray and light brownish gray very calcareous metasandstone and quartzite. Fine- to coarse-grained, thin- to medium-bedded, crossbedded, pitted, friable, lensoidal and discontinuous. Interbedded with light brown laminated metasiltstone. Also contains light gray to greenish gray thin-bedded crystalline marble. Laminated beds of indeterminate thickness marked by seams of sericite and chlorite. Poorly exposed; produces distinctive reddish orange soil.

Late Proterozoic ? - Cambrian ?

Ijamsville Phyllite
Dusky blue, grayish blue, very dusky red-purple, greenish gray to pale olive phyllite, phyllonite and minor slate. Phyllite contains mostly muscovite and chlorite. Lustrous sheen from mica and dark color results from abundant hematite dust.

References

Brezinski, D.K., 2004, Stratigraphy of Frederick Valley and its relationship to karst development. Maryland Geological Survey Report of Investigations 75, 101 p.

Hoy, R.B., and Schumacher, R.L., 1956, Fault in Paleozoic rocks near Frederick, Maryland: Geological Society of America Bulletin, v. 67, no. 11, p. 1521-1528.

Lee, K.Y., 1979, Triassic-Jurassic Geology of the Northern Part of the Culpeper Basin, Virginia and Maryland. United States Geological Survey Open File Report 79-1557; 102 p.

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 for other than their intended purpose. The Maryland Geological Survey makes no 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 defect. Data are only valid at 1:24,000 scale. Data should not be used at a scale greater than that.

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Version: BUCKEGEO2001.2

Version 1 released: December 2001; version 2 released: June 2004

GN
(State Plane Grid North)

Geologic Map of the Buckeystown Quadrangle, Frederick and Montgomery Counties, Maryland

By
David K. Brezinski and Scott Southworth

2001

Revised 2004

Scale 1:24,000

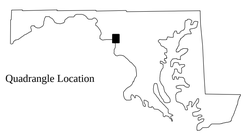
1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

Contour Interval 20 Feet
National Geodetic Vertical Datum of 1929
(To convert elevations to the North American Vertical Datum of 1988, subtract 1 foot)
(To convert from feet to meters, multiply by 0.3048)

Quadrangle Location



Adjoining 7.5' Quadrangle Names
Buckeystown Quadrangle, shaded

1	2	3	1. Middletown 2. Frederick 3. Walkersville 4. Point of Rocks 5. Urbana 6. Waterford 7. Poolesville 8. Germantown
4		5	
6	7	8	

Explanation of Map Symbols

Geologic Symbols

A — A' Cross section line

Contacts
Geologic contact; approximately located
dotted where concealed

Faults
U Upthrown side
D Downthrown side
Thrust fault
sawteeth on upthrown block
Overturned Thrust Fault
base of sawteeth on upper plate;
sawteeth in direction of dip
Fault; concealed

Folds
Minor syncline
bearing and degree of plunge shown
Minor anticline
bearing and degree of plunge shown

Planar Features
For a single measurement, the point of observation is at the midpoint of the symbol. For multiple measurements (combined symbols), the point of observation is at the tail-end junction point common to all symbols.
Inclined bedding
strike and degree of dip shown
Vertical bedding
strike shown
Overturned bedding
strike and degree of dip shown
Inclined cleavage
strike and degree of dip shown
Vertical cleavage
strike shown
Inclined joint
strike and degree of dip shown
Vertical joint
strike shown

Base Map Symbols

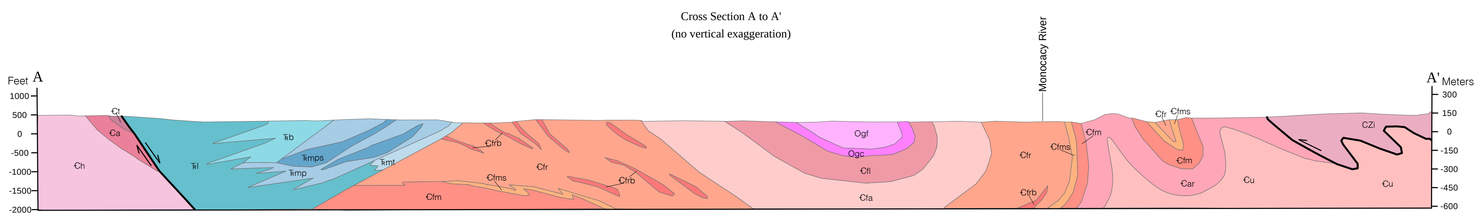
Transportation
Primary route, class 1 (divided, lanes separated)
Primary route, class 1 (undivided)
Secondary route, class 2
Light duty road or street, class 3
Unimproved road or street, class 4
Trail
Railroad, railroad siding or spur
Power transmission line
Substation

Topography
Topographic index contour
(100- ft interval)
Topographic intermediate contour
(20- ft interval)

Hydrography
Stream
Water body
(eg. lakes, ponds, rivers)

Culture
State boundary
County boundary
Park or reservation boundary
Cemetery
Church
School

Cross Section A to A'
(no vertical exaggeration)



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W. P. Jensen
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MARYLAND GEOLOGICAL SURVEY
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