Base layers derived from U.S. Geological Survey (USGS)
7.5-minute Series (Topographic)
Woodsboro Quadrangle 1953 (Photorevised 1986)
Hydrology layer(s) shown are from USGS digital line graphs (DLGs) for this quadrangle
Topography and cultural/transportation layers from USGS stable-base film separates
(Topography by photogrammetric methods from aerial photographs taken 1943.
Culture revised by USGS 1953.
Map edited in 1986 by USGS based on aerial photographs taken 1982 and other sources;
this information not field checked and may not meet USGS content standards.)

1986 magnetic north declination (center of quadrangle): 9.5 degrees west
(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)

MD State Plane 2000-meter grid tics and coordinates shown in black
Geographic coordinates (latitude-longitude) shown near corners and 2.5' intervals (in black)

Description of Map Units

Quaternary

Qal — Alluvium
Well to poorly sorted, stratified mixtures of unconsolidated clay, silt, sand, gravel, and cobbles; underlies flood plains of nearly all rivers and tributaries. The channel of the tributary is commonly on bedrock with alluvium exposed along the banks. Thickness of alluvium is highly variable as a function of bedrock, topography, and land-use practices. Thickness estimated at as much as 15 feet (4 to 5 m) along the Monocacy River.

Qc — Colluvium
Unsorted, light gray to reddish gray, angular boulders to cobbles of quartzite and vein quartz with a silty, clayey reddish matrix. Thickness ranges from a thin veneer to more than 100 feet (30 m).

Qr — 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 (3.0 m) thick.

Qt — 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 Monacacy River. Several separate levels of terrace deposits can be observed, but are not separately mapped here. Thickness ranges from a thin veneer to more than 10 feet (3 m).

Jurassic

Jd — Diabase dike(s)
Medium to dark gray, medium crystalline and equigranular, massive diabase, with characteristic orange-brown weathered surface. Dikes range from a wedge-edge to more than 150 feet (46 m) wide. While displayed as a solid unit on the map, the area mapped as diabase dike(s) actually represents an interfingering with the surrounding bedrock unit(s).

Triassic

Ŧg — Gettysburg Formation
Reddish brown to reddish gray, locally greenish gray, medium-grained siltstone, variegated claystone and fine-grained sandstone. Sandstones are thin and discontinuous. Siltstone units are root mottled and contain light gray caliche carbonate nodules. The thickness of this member is estimated at 8,000 feet (2,440 m) (Brezinski, 2004).

Ŧn — New Oxford Formation
Interbedded, light reddish gray to reddish brown, root-mottled mudstone, reddish brown sandstone, and reddish siltstone. Most sandstone units are medium to coarse grained, arkosic, have basal lag conglomerates, and fine up-section. A few are relatively laterally continuous and mappable (Ŧrns). Mudstone intervals contain pervasive root casts, and local caliche intervals. A brownish red to reddish gray, limestone to quartz-pebble conglomerate (Ŧrnc), that is 30 to 60 feet (9 to 18 m) thick, marks the base of the formation. The formation may be as thick as 10,000 feet (3,048 m) (Brezinski, 2004).

Ordovician

Grove Formation
Thick-bedded to massive, medium to light gray limestone with interbedded tan to medium gray dolomite. Three members are recognized and mapped in the Frederick Valley as identified by Brezinski (2004).

Ogw — Woodsboro Member
Interbedded, thin-bedded, dark gray, fine-grained limestone, medium-bedded, bioturbated, dark gray, fine-grained limestone, and thin wavy bedded, limestone with tan, dolomitic partings. Top of Woodsboro Member not exposed because it is covered by the Triassic New Oxford Formation. Thickness is 500 feet (152 m).

Ogf — Fountain Rock Member
Very thick-bedded, medium light gray, locally sandy, with thick intervals of massive, algal thrombolites, and medium-bedded, cross-bedded, sandy limestone. Two cross-bedded sandstone units recognized in the middle of the formation (Ogfs) were identified and traced. Thickness is in question, but may be as much as 3,300 feet (1,006 m) along the western flank of the synclinorium in the Woodsboro Quadrangle, and as little as 1,000 feet (305 m) on the eastern flank.

Ogc — Ceresville Member
Medium light gray to medium gray, thick-bedded and cross-bedded, arenaceous limestone and sandy dolomitic limestone with thin interbeds (1 ft or 0.3 m) of medium light gray, sandy, thrombolitic dolomite. Thickness is approximately 150 to 200 feet (46 to 61 m).

Cambrian

Frederick Formation
Very thin to medium-bedded limestone, dolomite and thin intervals of shale, sandstone and breccia. Four members are recognized and mapped within the Frederick Formation and were named by Reinhardt (1974) and Brezinski (2004).

Cfl — 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 and wavy bedding and stromatolitic algal beds. Near the top, the member becomes interbedded with cross-bedded, sandy, medium light gray limestone. Thickness is 700 feet (213 m).

(Frederick Formation continued)

Cfa — 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 0.1 to 1.5 inches (0.2 to 4.0 cm) in thickness. Several thin (6 to 16 ft, or 2 to 5 m), 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 1000 feet (303 m).

Cfr — Rocky Springs Station Member
Nodular to lumpy-bedded, dark gray, argillaceous, dolomitic limestone at the base with an interval of grayish black, platy shale. Bedding becoming laminated to flaggy upsection. The dark gray limestone with dusky yellow to light olive gray limestone with silty, dolomitic partings and laminations is interbedded with intervals (1 to 33 ft, or 0.3 to 10 m) of thick-bedded, medium dark gray, polymictic breccia that grade upsection into planar-bedded, arenaceous, medium gray limestone. Clast sizes range from sand size to 1 foot (0.3 m) on the diameter on the western flank of the Frederick Valley synclinorium and diminish to less than 1 to 2 inches (3 to 5 cm) in diameter on the eastern flank. Top of the member is mapped at the top of the stratigraphically highest polymictic breccia or sandstone interval. Thickness is approximated at 1,200 feet (366 m) in the Woodsboro Quadrangle.

Cfm / Cfms — Monocacy Member
Black platy shale at the base and top, with polymictic breccia beds, and thinly laminated, shaly limestone in the middle. A thick interval of black shale that marks the top of the member (Cfms) was separately mapped. Thickness is approximately 200 feet (60 m).

Car — 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 10 feet (1 to 3 m) thick. Top of the formation consists of grayish black, phyllitic shale 50 to 65 feet (15 to 20 m) thick. The Araby Formation is present on the eastern side of the Frederick Valley Synclinorium, and is considered correlative to the Antietam Sandstone on the western side of the synclinorium. Thickness of the Araby Formation is estimated at 600 feet (183 m).

Late Proterozoic? - Cambrian?

CZsc — Sams Creek Formation
Dark greenish gray to medium bluish gray, aphanitic to porphyritic, massive to schistose metabasalt composed of chlorite, epidote, quartz, altered plagioclase, actinolite, hornblende, and albite; igneous texture is locally preserved and pods of epidosite are common; includes some metaconglomerate composed of greenstone pebbles and cobbles, and local pillow structures and hyaloclastite.

CZsom — Marble
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 (100 m).

CZsctp — Tuffaceous phyllite
Grayish red-purple and bluish gray, variegated, vesicular phyllite with light gray streaks and blebs of tuffaceous phyllite.

CZsoq — Quartzite
Light gray to grayish green, medium-grained, thin-bedded to massive quartzite and minor calcareous sandstone. Contains detrital plagioclase, orthoclase, and polymictic quartz. Bedding is defined by concentrations of heavy minerals. Light gray, medium- and coarse-grained quartzite, locally calcareous and cross-bedded also present.

CZi — Ijamsville Phyllite
Dusky blue, grayish blue, very dusky red-purple, greenish gray to pale olive phyllite. Phyllonite contains abundant pods and folded stringers of white vein quartz, and minor slate. Intensely folded and sheared with finely laminated beds seen only in slate. Phyllite consists mostly of muscovite and chlorite, but also contains paragonite and chloritoid. Has a lustrous sheen because of paragonite (determined by x-ray diffraction) and dark color because of abundant hematite dust.

CZic — Conglomeratic metagraywacke
Light gray and green, medium- to coarse-grained metagraywacke with white quartz pebbles, variegated phyllite, and green chloritic matrix.

CZip — Chlorite phyllite
Light olive-gray and greenish gray, chlorite phyllite and metasiltstone.

References

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

Reinhardt, J., 1974, Stratigraphy, Sedimentology and Cambro-Ordovician Paleogeography of the Frederick Valley, Maryland: Maryland Geological Survey, Report of Investigations 23, 73 p.

Supplemental Information

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Version: WOODSGEO2004.1
Released June 2004

GN
(State Plane Grid North)

Geologic Map of the Woodsboro Quadrangle, Frederick and Carroll Counties, Maryland

By
David K. Brezinski and Jonathan Edwards, Jr.
2004

Quadrangle Location

Scale 1:24,000

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)

Adjoining 7.5' Quadrangle Names
Woodsboro Quadrangle, shaded

1	2	3
4		5
6	7	8

1. Blue Ridge Summit
2. Emmitsburg
3. Taneytown
4. Catoctin Furnace
5. Union Bridge
6. Frederick
7. Walkersville
8. Libertytown

Explanation of Map Symbols

Geologic Symbols

Contacts
Geologic contact; approximately located dotted where concealed
Cross section line

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
Fault; inferred

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

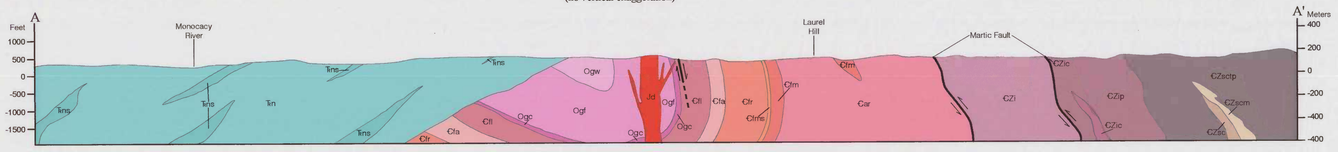
Planar Features
Inclined bedding strike and degree of dip shown
Vertical bedding strike shown
Overturned bedding strike and degree of dip shown
Inclined cleavage strike and degree of dip shown
Vertical cleavage strike shown
Inclined joint strike and degree of dip shown
Vertical joint strike shown

Base Map Symbols

Topographic and Hydrologic Symbols
Topographic Contour - Index (100-ft interval)
Topographic Contour - Intermediate (20-ft interval)
Stream
Water body (including lakes, ponds, streams)

For additional information on USGS cultural/transportation symbolization see http://pubs.usgs.gov/of/1999/of99-430/

Cross Section A to A'
(no vertical exaggeration)



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