

(20-ft interval)

1:24,000 scale. Data should not be used at a scale greater than that.

of Towson University, Center for Geographic Information Sciences.

Supplemental Information

Version: NEWWI2004.1

quadrangle. The Avondale fault appears to form the boundary for the area. The original depositional environment of the Marburg

revised packaging of the lithologic units in the map area, separating Formation has been interpreted as offshore marine (deepwater-rise) the Sams Creek Formation-Wakefield Marble on the west (footwall) (e.g., Kunk and others, 2004). Edwards (1984, 1986) proposed a

Regionally, the traces of the Avondale and Cranberry faults are ages ranging from possibly Late Proterozoic and/or Cambrian (e.g.,

elatively straight and do not appear to be strongly affected by Drake, 1994; Southworth 1998; Southworth and others 2002).

that faulting could be contemporaneous with Marston folding, given fault). Southworth and others (2002) suggest that the Marburg may

The reinterpretation of the structural-lithologic framework of the had a facies relationship, with the Marburg more proximal and

area produces two fault-bounded assemblages in the map area: the Prettyboy Schist more distal (Drake, 1994; Howard, 1994).

and correlation of rock units are hampered by poor exposure and in Maryland (Gates and others, 1991). The current map shows

structural complexity, as well as by the lack of fossils and absolute Prettyboy Schist where Fisher (1978) showed Wissahickon albite

dates. Most primary sedimentary and volcanic structures in the rock phyllite east of the Avondale fault. The Prettyboy consists mainly of

units have been obscured or obliterated by folding, foliation, and uniform, fine-grained plagioclase-chlorite-muscovite-quartz schist,

recrystallization. To a large extent, early-formed structures and with euhedral albite porphyroblasts common. However, the

foliation have been destroyed or modified by later episodes of Prettyboy, as shown on the current map, also contains boudins of

other formations in the current map. In general, the Wissahickon However, Drake (1994) revised the age to Late Proterozoic and Early

albite phyllite of Fisher (1978) is now mapped as the Prettyboy Schist Cambrian, a designation continued in later mapping (e.g., Southworth

east of the Avondale Fault. Recent field reconnaissance shows that and others, 2002) and retained on the current map.

Several of Fisher's (1978) rock units have been reassigned to Prettyboy Schist, assigned its age as Cambro-Ordovician(?).

Cambrian to Ordovician age for the Marburg, though others suggest

The stratigraphic relationship between the Marburg Formation

and adjacent units is not fully defined. In the New Windsor

quadrangle, the contact between the Marburg and the Sams Creek

Formations is shown as a high-angle reverse fault (the Avondale

stratigraphically underlie the Sams Creek Formation and may

structurally overlie the Prettyboy Schist in the vicinity. Due to

similarities in lithology, however, previous authors have suggested

that the Marburg Formation and Prettyboy Schist may have originally

previously known as the Wissahickon Group, a name now abandoned

phyllite, metabasalt, and quartzite. Crowley (1976), who named the

The Prettyboy Schist is the uppermost unit in what was

from the Marburg Formation on the east side (hanging wall).

Westminster quadrangle (just east of New Windsor).

folding. Therefore, the Cranberry fault system appears to postdate

Fisher's "early faults." Edwards (1993b) suggested that the Avondale

and Cranberry faults are likely to represent a final phase of Paleozoic

deformation, presumably the Alleghenian orogeny. He speculated

prominent crenulation cleavage that parallels these faults in the

STRATIGRAPHY AND CORRELATION

Prettyboy Schist-Marburg Formation to the east and the Sams Creek

Formation-Wakefield Marble to the west. Stratigraphic interpretation

phyllites formerly assigned to Wissahickon by Fisher (1978) are more

schistose than phyllitic. Fisher's Ijamsville phyllites west of the

Creek Formation and east of the Avondale fault as phyllites of the

Marburg Formation and Prettyboy Schist. Fisher's Silver Run

Limestone has been reassigned to the Sams Creek Formation in the

Avondale fault are now mapped as phyllite members of the Sams

(eg. lakes, ponds, rivers)

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 Survery 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

Acknowledgements: This geologic map was funded in part by the USGS National Cooperative Geologic Mapping

Program. The views and conclusions contained in this document are those of the author(s) and should not be interpreted

Original geologic field mapping conducted in 1967-1970 by G.W. Fisher, assisted by P. G. Robelen and Juergen

Rhinehardt. Limited field reconnaissance conducted in 1996-2000 by Scott Southworth. Limited field

reconnaissance conducted in 2003 and 2004 by J. P. Reger and D. K. Brezinski. Geologic map compiled in

digital form and edited by Heather Quinn, Maryland Geological Survey and Brent Anderson and Catherine Luckhardt

The facilities and services of the Maryland Department of Natural Resources are available to all without regard to race,

as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

color, religion, sex, sexual orientation, age, national origin or physical or mental disability.

found along modern streams.

thrust fault.

discussion and details.

1998, 1999; Southworth and others, 2002.)

STRUCTURE

Bedrock units of the Westminster terrane have a complex

structural and metamorphic history. Regionally the Westminster

terrane is characterized by polydeformed and polymetamorphosed

rocks in a system of imbricate thrust sheets (e.g., Southworth, 1996,

In the New Windsor quadrangle, the metavolcanic and

metasedimentary rocks of the Sams Creek Formation and the

associated Wakefield Marble appear to be structurally separate from

the areas underlain by the Marburg Formation and Prettyboy Schist.

The precise structural disposition of these units is unclear, but may be

a fault contact (Edwards, 1993a and 1993b; Southworth and others,

2002). This stands in clear contrast to mapping by Fisher (1978),

who recognized fewer faults in the area. High-angle faults of the

Cranberry fault system, interpreted to be compressional in nature, cut

through the metasedimentary assemblage (Marburg Formation and

Prettyboy Schist) and appear to separate this assemblage from the

metavolcanic-metasedimentary assemblage (Sams Creek Formation).

Southworth (1998; 1999) and Southworth and others (2002) indicate

that the contact between the Marburg and Sams Creek Formations is a

corner of the map, represent part of the Gettysburg Basin. It is widely

accepted that early Mesozoic continental rifting formed the

Gettysburg Basin. This basin was originally connected to a second

basin, the Culpeper Basin, and together they formed a large down-

faulted basin that filled with sediments eroding from Blue Ridge and

Fisher (1978) provided a detailed discussion of fold history in the

New Windsor quadrangle. The current map has not altered Fisher's

(1978) interpretation of fold history. Therefore, a summary of his

interpretations is provided below; refer to Fisher's 1978 map for full

Piedmont highlands (Southworth and others, 2002).

Triassic rocks of the New Oxford Formation, in the northwest

STATE OF MARYLAND Robert L. Ehrlich, Jr Governor Lieutenant Governor DEPARTMENT OF NATURAL RESOURCES C. Ronald Franks Secretary MARYLAND GEOLOGICAL SURVEY Emery T. Cleaves Director 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.mgs.md.gov/