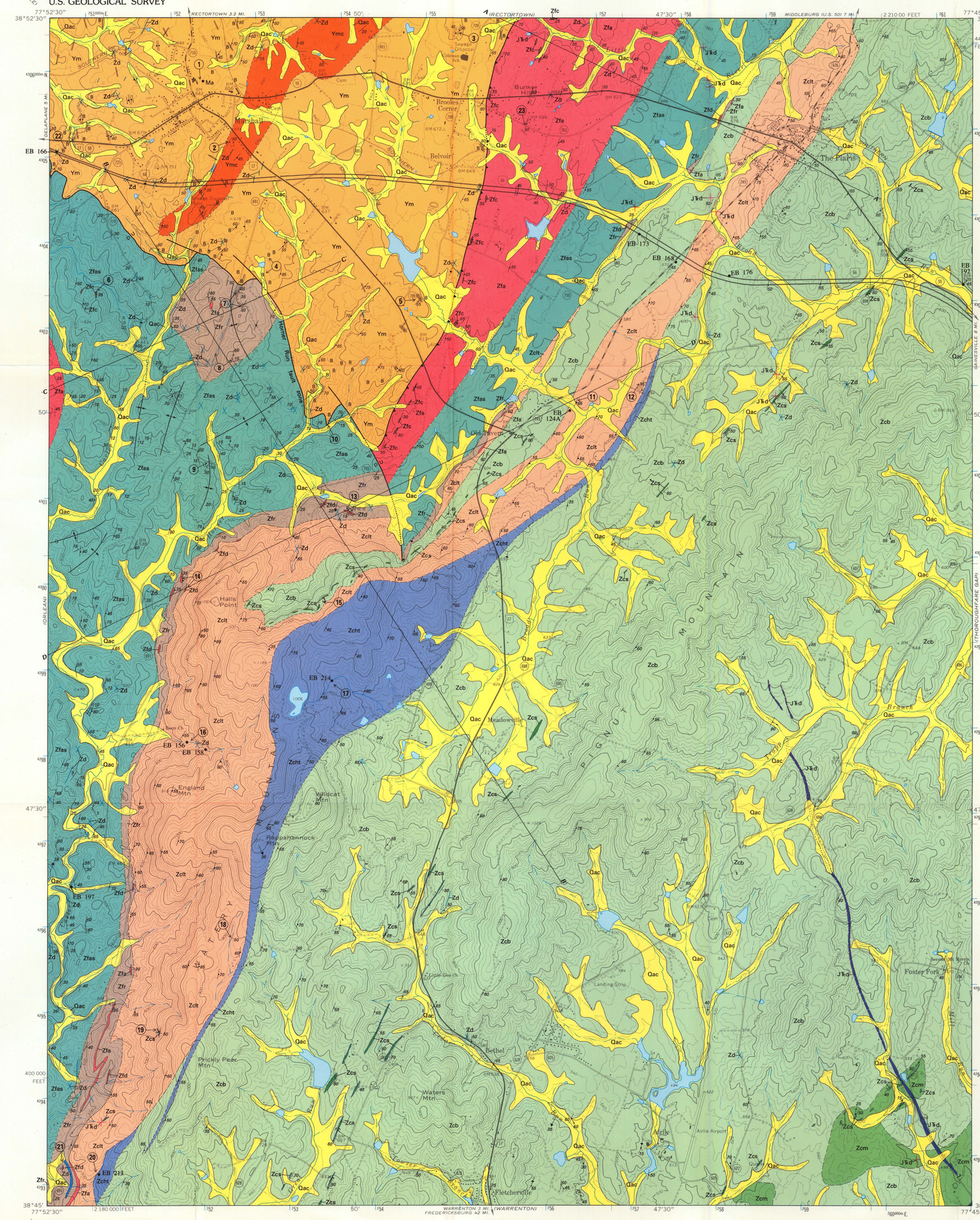
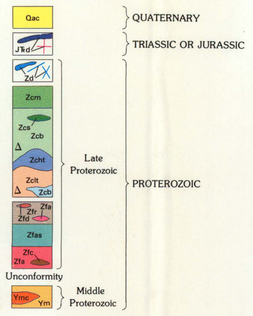
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

BULLETIN 1560
PLATE 1



CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qac Alluvium and bottom-land colluvium (Quaternary)—Mixtures of clay, sand, gravel, and mica flakes. Bottom-land colluvium is mostly material that has been eroded from upslope soils since start of cultivation in region. Areas outlined on geologic map are modified from areas of recent alluvial and colluvial soils that are shown on soil map of Fauquier County, Virginia (Petro and others, 1956).

J℈d Diabase (Triassic or Jurassic)—Massive, dark-gray, fine-grained diabase composed mainly of plagioclase, augite, and olivine. Occurs in dikes that are marked by residual cobbles and boulders of diabase in the soil. Cross indicates float where trend of dike is unknown.

Zd Metadiabase (Late Proterozoic)—Fine- to medium-grained, dark-green metadiabase composed mainly of actinolite, chlorite, epidote, and albite. Has relatively high TiO_2 and low MgO content. Occurs as dikes and sills that generally range in thickness from about 1 to 15 m. Trend of dike shown where known; X indicates trend is unknown. Dikes are common in the Marshall Metagranite and Fauquier Formation, and some may have been feeders to high-titanium basalt flows of the Catoctin Formation.

Zcm Catoctin Formation (Late Proterozoic)
Mixed metabasalt and metasedimentary rocks—Area of very poor exposures where soils are derived from metasedimentary rocks or from both metabasalt and metasedimentary rocks; not a stratigraphic unit (Petro and others, 1956).

Zcs Quartzite, quartz-muscovite schist, and phyllite—Quartzite is composed mainly of rounded quartz grains and minor amounts of feldspar. Quartz-muscovite schist and phyllite commonly occur with quartzite. These metasedimentary rocks occur in thin, discontinuous beds, generally less than 15 m thick, at several horizons within the Catoctin Formation. Quartzite weathers to low ledges and loose slabs; phyllite rarely crops out naturally.

Zcb Δ High-titanium metabasalt—Fine-grained, dark-gray-green, massive to schistose greenstone composed of a fine mixture of actinolite, chlorite, epidote, and albite is most common type. Has relatively high TiO_2 and low MgO content. Also amygdaloidal metabasalt (containing quartz or epidote amygdules), thin breccia, and schistose tuff layers. Irregular masses of epidosite, as much as 2 m thick, are abundant. Weathers to yellow-brown to red-brown loamy surface soil that is underlain by more reddish and clayey subsoil. Not very well exposed except in stream valleys and artificial excavations. Δ indicates probable pillow structure (at one locality).

Zcht High-titanium metabasalt breccia—Volcanic breccia composed mostly of large, dark-green amygdular ellipsoids (5 to 40 cm long) in a matrix of smaller, dark-green, dense, angular fragments (0.5 to 5 cm across) and epidotic aggregates. Has relatively high TiO_2 and low MgO content. Forms abundant outcrops with rough surfaces.

Zclt Δ Low-titanium metabasalt breccia—Mainly volcanic breccia composed of blocky to angular fragments of fine-grained, medium-gray-green rock in a schistose matrix. Fragments generally range from 1 to 20 cm across and have a maximum size of about 50 cm. Dense, massive rock of similar color occurs with breccia in the Watery Mountains. Both types have similar mineral composition that consists of a fine-grained, felty mixture of amphibole, epidote, chlorite, and albite. Both types have relatively low TiO_2 and high MgO content. Breccia typically forms ledges and cliffs that have rough, knobby surfaces. Δ indicates probable pillow structure (at one locality).

Zfd Fauquier Formation (Late Proterozoic)
Dolomitic unit—Broad compositional range consisting of fine-grained, white, light-gray to dark-blue dolomitic marble and siliceous marble, dolomitic meta-arkose, and dolomitic quartz-muscovite schist. Dolomite is dominant carbonate; other minerals are mostly quartz, feldspar, muscovite, and tremolite. Poorly exposed, but may form a continuous or nearly continuous horizon at top or near the top of the Fauquier.

Zfr Metarhythmite—Very fine grained, thinly laminated rock, medium to dark gray where fresh, tan where weathered. Composed of pairs of silty layers and micaceous layers; thickness of each pair usually ranges from less than a millimeter to several millimeters. Major minerals are silt-sized quartz grains and sericite; chlorite, biotite, and magnetite occur locally. Not very well exposed, but horizon may be nearly continuous.

Zfas Meta-arkose and metasiltstone—Alternating beds of very fine grained, dark-gray meta-arkose (5 to 45 cm thick) and metasiltstone (1 to 12 cm thick). Meta-arkose is composed dominantly of angular quartz grains and lesser amounts of plagioclase and potassium feldspar; minor biotite. Metasiltstone consists mainly of sericite, and some very fine grained quartz grains; minor biotite. Crossbedding and graded bedding are present. Very well exposed in the western part of the quadrangle along the valleys of Carter and Horner Runs and their tributaries.

Zfa Meta-arkose—Medium- to coarse-grained, dark-gray meta-arkose composed mostly of quartz, plagioclase, and perthitic potassium feldspar grains that are usually 1 to 4 mm across. Has considerable sericite; minor amounts of biotite and epidote. Thin beds of pebble conglomerate occur with coarse-grained meta-arkose. Crossbedding is common. Meta-arkose makes up the lowest part of the Fauquier and is well exposed north of Old Tavern. Meta-arkose also forms thin, discontinuous beds that occur with metarhythmite at the top of the Fauquier.

Zfc Metaconglomerate—Mostly dark-gray pebble meta-conglomerate composed dominantly of pebbles of quartz and granite and large grains of feldspar in arkosic matrix. Generally occurs near base of Fauquier. Cobble and boulder metaconglomerate also occur in the meta-arkose and metasiltstone member about 2.5 km southwest of Marshall (reference locality 6). Beds of metaconglomerate range from about 1 to 10 m thick.

Unconformity

Ym Marshall Metagranite (Middle Proterozoic)
Fine-grained metagranite—Dominant variety is dark gray, fine grained, and composed mainly of quartz, plagioclase, and potassium feldspar. Inconspicuous compositional layering that was formed either by flowage during intrusion or by Middle Proterozoic metamorphism is present at a few places. Granite was metamorphosed during Paleozoic orogeny by processes of saussuritization and cataclasis. Sericite and epidote replace plagioclase extensively and form veinlets that cut quartz and potassium feldspar; biotite and sphene accompany sericite and epidote. Cataclastic features are widespread and range from finely granulated quartz, flattened or broken feldspar crystals, quartz-sericite shear zones (phyllonite) in granite, to brecciated granite. Well exposed at many places.

Ymc Medium- to coarse-grained metagranite—Composed mainly of blue-gray quartz, potassium feldspar megacrysts, plagioclase, and biotite. Mapped as a variety of the Marshall but may not be genetically related. Few exposures.

MAP SYMBOLS

(Some structure symbols have been combined. Point of observation is at intersection.)

- Contact—Dashed where approximately located; short dashed where inferred; dotted where concealed
- U/D Probable fault—Dotted where concealed; U, upthrown side; D, downthrown side; sawteeth on upper plate of thrust
- Folds—Approximate trace of axial surface; dotted where concealed
- Anticline
- Syncline
- 25 Minor fold axis showing angle of plunge
- 40 Strike and dip of bedding
- Strike and dip of inconspicuous compositional layering of Middle Proterozoic age in granitic rocks
- 50 Inclined
- Vertical
- Strike and dip of schistose foliation of Paleozoic age
- 60 Inclined
- Vertical
- 50 Bearing and plunge of lineation (mineral streaking) of Paleozoic age
- 70 Strike and dip of phyllonitic zone (quartz-sericite schist) in granitic rocks
- Trend of closely spaced biotite-filled veinlets in granitic rocks. Dip and movement sense shown where known
- Movement sense not determined
- Movement sense shown
- 60 Inclined
- Vertical
- B Tectonic breccia in granitic rock
- Abandoned quarry
- EB 214 Location and number of chemically analyzed sample
- (18) Reference locality of feature described in text

Base from U.S. Geological Survey, 1970

Geology mapped by G. H. Espenshade, 1973–80

SCALE 1:24 000

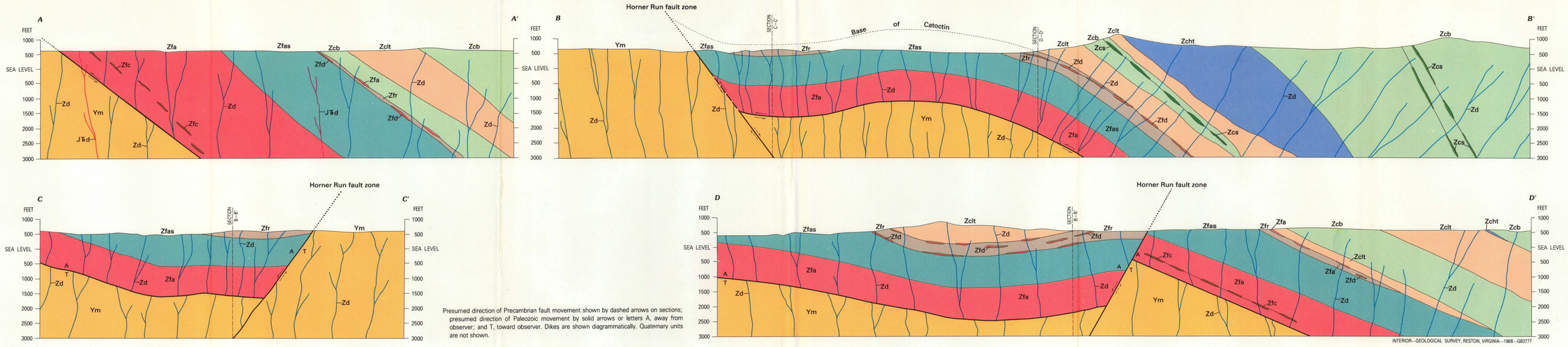
1 ½ 0 1 MILE

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

VIRGINIA
QUADRANGLE LOCATION

APPROXIMATE MEAN DECLINATION, 1986



Presumed direction of Precambrian fault movement shown by dashed arrows on sections; presumed direction of Paleozoic movement by solid arrows or letters A, away from observer; and T, toward observer. Dikes are shown diagrammatically. Quaternary units are not shown.

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1986—G83777

GEOLOGIC MAP OF THE MARSHALL QUADRANGLE, FAUQUIER COUNTY, VIRGINIA