OFR 83-503

RECTORTOWN QUADRANGLE, VA

Description of Map Units

JRd

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 (PROTEROZOIC Z) - Fine to medium-grained, dark green metadiabase composed mainly of actinolite, chlorite, epidote, and albite. Occurs as dikes and sills that generally range in thickness from about 1 to 15 m. Dots indicate trend of dike where known; X indicates trend is unknown. Dikes are common in the Marshall Metagranite and Fauquier Formation, and some may have been feeders to basaltic flows of the Catoctin Formation.

Zc

CATOCTIN FORMATION (PROTEROZOIC Z) - Fine-grained, dark gray-green, massive to schistose metabasalt, composed of a fine mixture of actinolite, chlorite, epidote, and albite, is most common type. Alse amygdaloidal metabasalt (containing quartz or epidote amygdules), volcanic breccia, and tuffaceous 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.

Zf

FAUQUIER FORMATION (PROTEROZOIC Z) - Mainly 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. Thin beds of metaconglomerate containing pebbles, cobbles, and boulders of granite and quartz near base of formation. Also beds of fine-grained meta-arkose and metasiltstone.

UNCONFORMITY

Ym

MARSHALL METAGRANITE (PROTEROZOIC Y) - Fine-grained metagranite - Dominant variety of the Marshall Metagranite is dark gray, fine-grained, and composed mainly of quartz, plagioclase, and potassium feldspar. 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 very fine-grained quartz, flattened or broken feldspar crystals, quartz-sericite shear zones (phyllonite) in granite, to brecciated granite.

Y_{mc} — 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.

Y_g — GNEISSIC GRANULITE (PROTEROZOIC Y?) - Layered gneiss composed mainly of quartz, plagioclase, garnet, and pyroxene; biotite, graphite, and iron sulfides are minor minerals. Plagioclase is altered to sericite and epidote, and pyroxene to chlorite and amphibole. Known only in small area in northwestern corner of quadrangle.

Map Symbols

Contact - Solid where mapped geologically, dashed where gradational, short dashed where indicated by soil map (Petro and others, 1956).

F — Probable fault

40 — Strike and dip of bedding

vertical — 50 — Strike and dip of layering in granitic rocks

vertical — 60 — Strike and dip of foliation

35 m — Bearing and plunge of lineation, m signifies mineral elongation or streaking

65 — Strike and dip of phyllonitic zone in granitic rocks

Trend of closely-spaced biotite-filled veinlets in granitic rocks

B — Tectonic breccia in granitic rocks

EB16 — Location and sample number of chemically-analysed rock

Limit of mapping

Chemical analyses of metadiabase from the Rectortown quadrangle, Virginia

Field No.	EB12B	EB16	EB35
Laboratory No.	W-195548	W-201511	W-195549
SiO_2	44.9	50.4	49.2
Al_2O_3	13.9	14.4	13.7
Fe_2O_3	3.0	4.2	2.9
FeO	10.6	8.6	9.2
MgO	6.0	4.2	5.6
CaO	10.7	8.86	10.4
Na_2O	2.7	2.1	2.5
K_2O	.52	1.26	.59
H_2O+	2.7	2.43	2.0
H_2O-	.21	.16	.19
TiO_2	3.27	2.58	2.02
P_2O_5	.50	.30	.23
MnO	.21	.20	.19
CO_2	.02	.02	.06
Sum	99.23	99.71	98.78

All analyses were done in the laboratories of the U.S. Geological Survey. FeO, H_2O+, H_2O-, and CO_2 were determined by methods as described under "single solution" (Shapiro, 1975). All other determinations were by X-ray spectroscopy, except that Fe_2O_3 was calculated by subtracting iron present in FeO from total iron determined as Fe_2O_3. Z.A. Hamlin, P.P. Hearn, and S. Wargo, analysts.

REFERENCE LIST

Petro, J.H., Coleman, C.S., Henry, E.F., Porter, H.C., Watkins, T.R., Meyers, W.J., and Vessel, A.J., 1956, Soil survey of Fauquier County, Virginia: U.S. Soil Conservation Service, Soil Survey Series 1944, no. 7, 231 p.

Shapiro, Leonard, 1975, Rapid analysis of silicate, carbonate, and phosphate rocks - Revised edition: U.S. Geological Survey Bulletin 1401, 76 p.