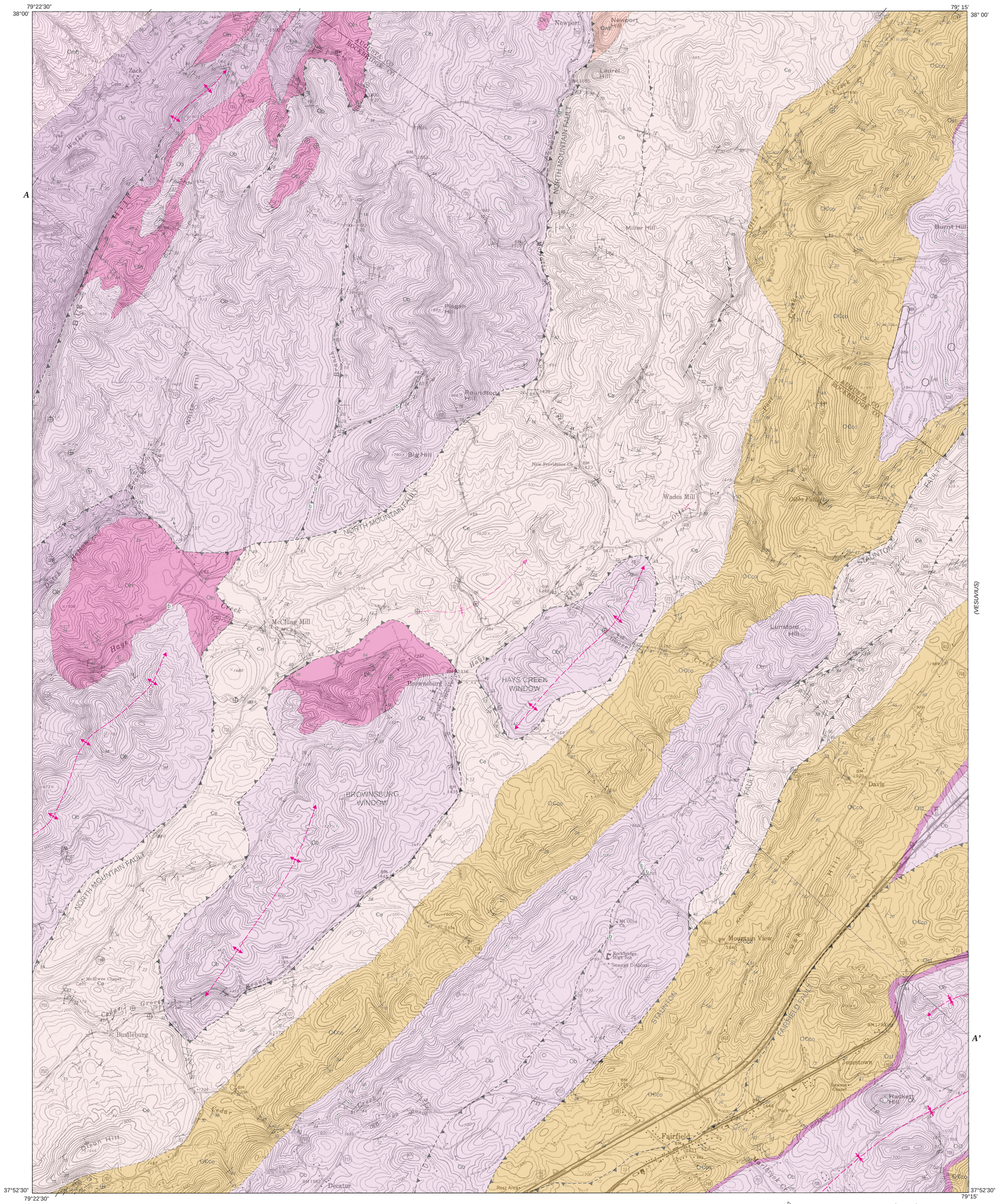
# BEDROCK GEOLOGIC MAP OF THE BROWNSBURG QUADRANGLE, VIRGINIA

Gerald P. Wilkes

2010




(VESUVIUS)

Basemap, modified U.S. Geological Survey DRG
1967 Brownsburg Quadrangle, Virginia

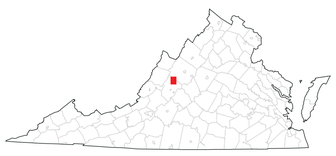
Polyconic projection: UTM zone 17, NAD 1927

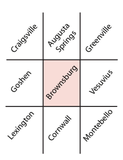
Digital Cartography by: Marcie Occhi, Jason Elliott,
Julia Reis and Amy Gilmer

MN GN
9°8' 162 MILS
0°39' 12 MILS
2010 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24,000
1 0.5 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0.5 0 1 KILOMETER
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Geology mapped from 2004 to 2005






## DESCRIPTION OF MAP UNITS

PALEOZOIC

**Omb** — **Martinsburg Formation** – Upper: sandstone, siltstone, and shale, light- to medium-gray, distinctive *Orthorhynchula* zone near top of unit; sandstone, fine-grained, thin-bedded. Lower: limestone, argillaceous, light- to dark-gray, thick- to thin-bedded. Thickness: approximately 1500 feet (460 meters).

**Oe** — **Edinburg Formation** – Liberty Hall facies: limestone, black to dark-gray, fine-grained, thin-bedded, interbedded with black shale. Lantz Mill facies: limestone, black, medium- to coarse-grained, nodular weathering, medium- to thick-bedded. Collierstown limestone: local limestone, coarse-grained, fossiliferous (notably coral). Botetourt Member: local limestone, reddish-weathering, massive, fossiliferous. Black shale at the base. Thickness: 800 to 1250 feet (240 to 380 meters).

**Oln** — **Lincolnshire Formation and New Market Limestone** – Lincolnshire Formation: limestone, dark-gray, fine- to coarse-grained, thick- to thin-bedded, with bedded black chert. Murat facies: local limestone, light-gray, coarse-grained, biostromal, massive. Whistle Creek limestone: local limestone, black, argillaceous, and calcareous shale. New Market Limestone: limestone, microcrystalline, light-gray, massive. Thickness: 100 to 435 feet (30 to 135 meters).

**Ob** — **Beekmantown Formation** – Dolostone, light- to medium-gray, fine-grained, thick-bedded, distinctive "butcher-block" weathering, with black bedded and nodular chert, thick beds of white massive chert near top of unit, with some interbeds of limestone, light- to medium-gray, thick- to thin-bedded. Thickness: 1500 to 2000 feet (460 to 610 meters).

**Ost** — **Stonehenge Formation** – Limestone, dark bluish-gray to black, fine-grained, thick- to medium-bedded with bedded black chert. Only mappable on the Staunton thrust sheet. Elsewhere the Stonehenge is too thin and is included in the Beekmantown Formation. Thickness: 10 to 500 feet (3 to 150 meters).

**O€co** — **Conococheague Formation** – Limestone, light- to medium-gray, fine-grained, containing varying amounts of rounded quartz sand grains, thin-bedded to very thick-bedded. Lesser amounts of light-gray, fine- to medium-grained dolostone, and calcareously cemented, medium- to coarse-grained sandstone. Minor amounts of bedded black chert. Silty laminae stand out in relief on weathered surfaces. Thickness: 2000 to 2500 feet (610 to 760 meters).

**€e** — **Elbrook Formation** – Dolostone and limestone, light- to medium-gray, fine- to medium- grained, thin- to thick-bedded, where thin-bedded with minor amounts of pink and green shale. Soils weathering from the Elbrook produce a channery surface. Thickness: 1325 to 2300 feet (400 to 700 meters).

**€wb** — **Waynesboro Formation** – Maroon, tan, and white, very thin- to thick-bedded phyllite and argillite, interbedded with limestone, dolostone, and sandstone. Thickness: undetermined.

## SOURCES

Bick, K.F., 1960, Geology of the Lexington quadrangle, Virginia: Virginia Division of Mineral Resources Report of Investigations 1, 40 p., 1:62500-scale map.

Butts, C., 1941, Geology of the Appalachian Valley in Virginia, Virginia Geological Survey Bulletin 52, 566 p., 1:250,000-scale map.

Virginia Division of Mineral Resources, 1993, Geologic map of Virginia: Virginia Division of Mineral Resources, 1:500,000-scale map with expanded explanation, 80 p.

## ACKNOWLEDGEMENTS

This map was prepared in cooperation with the United States Geological Survey under the National Cooperative Geologic Mapping Program, awards 04HQAG0062 and 06HQAG0039.

## SUGGESTED REFERENCE

Wilkes, G.P., 2010, Bedrock geologic map of the Brownsburg quadrangle, Virginia: Virginia Division of Geology and Mineral Resources Open File Report 10-01, 1:24,000-scale map.

## MAP SYMBOLS

For contact, fault, and fold symbols: lines are long-dashed where the location is approximate and short-dashed where the location is inferred.

Contacts

Fault Contacts

Thrust fault - teeth on upthrown block

Folds - showing direction of plunge where appropriate

Syncline

Anticline

Geologic Observations

69 Strike and dip of inclined beds

Strike of vertical beds

34 Strike and dip of overturned beds

Horizontal beds

31 Bearing and plunge of lineation

80 Strike and dip of crenulated bedding

Strike of vertical crenulated bedding

Minor anticline

Sheared rock

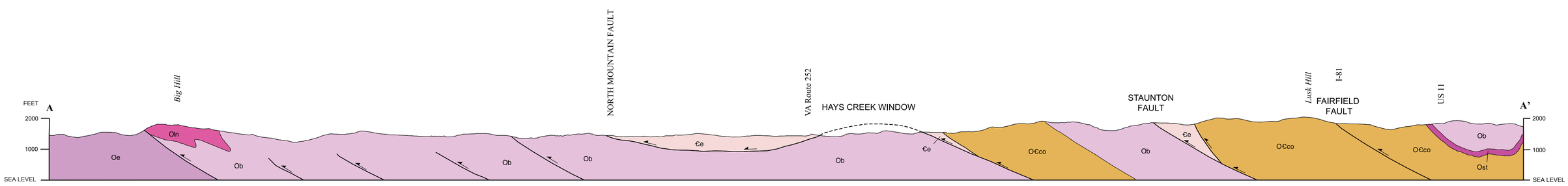
b Breccia

Chert float

Mineral Resources - identification numbers are preceded by "157A-" in Mineral Resources of Virginia database

Abandoned quarry (ls - limestone, al - bauxite)

x Prospect (fe - iron)




**Interpretive cross-section**
1. No vertical exaggeration
2. Subsurface structures interpreted from surface measurements