North Carolina Department of Environmental Quality
Policy and Innovation Group
Mary Penny Kelley, Senior Advisor -- Policy and Innovation
Kenneth B. Taylor, State Geologist

North Carolina Geological Survey
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Geology of the Hyco Shear Zone in North Carolina and Virginia

NC STATE UNIVERSITY

Geologic compilation by: James P. Hibbard and Philip J. Bradley
Digital Cartography by Michael A. Medina, Philip J. Bradley and Brandon T. Peach

TIME (m.y.)
200
250
300
350
400
450
500
550
600
650

ATLANTIC RIFT BASIN

Trb — MAINLY RED-GREY CLASTIC SEDIMENTARY ROCKS

Jd — DIABASE DIKE

ALLEGHANIAN GRANITOIDS

Mkg — KILGORE GRANITE/ ORTHOGNEISS

Pflg — FARMERS LAKE GRANITE

Mygg — YANCEYVILLE GRANITE ORTHOGNEISS

MILTON TERRANE

MILTON-CHOPAWAMSIC ARC (C. 475-450 Ma)

SHELTON ORTHOGNEISS SUITE

Occg — CONNALLY CHURCH ORTHOGNEISS

Om — MILTON SCHIST + PARAGNEISS WITH LAYERS AND STOCKS OF FOLIATED GRANITOID

OMcc — CUNNINGHAM COMPLEX

CAROLINA TERRANE

COUNTRY LINE COMPLEX

ALBEMARLE ARC (c. 550 - 530)

CZug/ud — UNSEPARATED GRANITIC (ug) - QUARTZ DIORITIC (ud) PLUTONS

CZrp — ROXBORO PLUTON

AARON FORMATION

Zav — VIRGILINA VOLCANICS

Za — MAINLY CLASTIC SEDIMENTARY ROCKS

Zac — AARON CONGLOMERATE

DISCONFORMITY

HYCO ARC (c. 635 - 610)

ZMclg — UNSEPARATED BIOTITE GRANITE ORTHOGNEISS

ZMcllg — INTERLAYERED MAFIC + GRANITE GNEISS

ZMclm — MAINLY MAFIC GNEISS + AMPHIBOLITE WITH MISSISSIPPIAN PEGMATITES

Zog/hrg — OSMOND GRANITE/ HIGH ROCK GRANITE

Zum — CASWELL COUNTY MAFIC-ULTRAMAFIC SUITE

Zh — HYCO FORMATION

Age Date Locations
1 - U-Pb age date - 319.6 +/-0.7 Ma; Farmers Lake granite (Wortman et al., 1998)
2 - U-Pb age date - 335.4 +/-2.2 Ma; Yanceyville granite orthogneiss (Wortman et al., 1998)
3 - U-Pb age date - 327 +/-1.5 Ma; Kilgore granite/orthogneiss (Wortman et al., 1998)
4 - U-Pb age date - 612.4 +5.2/-1.7 Ma; Osmond granite (Wortman et al., 2000)
5 - U-Pb age date - 619.9 +4.5/-3.0 Ma; Hyco Formation (felsic gneiss) (Wortman et al., 2000)
6 - U-Pb age date - 546.5 +3.0/-2.4 Ma; Roxboro Pluton (Wortman et al., 2000)
7 - U-Pb age date - 616.52 +/-1.2 Ma; Hyco Formation (felsic tuff) (Bowman, 2010 and Bowman et al., 2013)
8 - U-Pb age date - 613.9 +/-9.3 Ma; South Boston gneiss – mafic phase (Wortman et al., 1998)
8 - U-Pb age date - 322.5 +/-2.7 Ma; South Boston gneiss – granitic phase (Wortman et al., 1998)
8 – 40Ar/39Ar date - 322.9 +2.8/-7.8 Ma; South Boston gneiss – hornblende (Wortman et al., 1998)

- geologic contact
- concealed geologic contact
- U D fault
- diabase dike - inferred
- approximate limit of shear zone (gradational)
- approximate southern limit of detailed mapping in Virgilina area by Bowman (2010)
- antiform
- overturned anticline
- overturned syncline
- main phase foliation (Sm)
- bedding
- overturned bedding

MILTON ANTIFORM

VIRGILINA SYNCLINORIUM

Milton, Cunningham, Semora, Yanceyville, Roxboro, Virgilina, South Boston, Omega

1 0.5 0 1 2 3 4 5 Miles
5,000 0 5,000 10,000 15,000 20,000 Feet
N
SCALE 1:80,000

INDEX TO GEOLOGIC MAPPING
BRADLEY, HIBBARD, WILKINS, BOWMAN, GLOVER AND SINHA, SHELL

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community. Sources: Esri, DeLorme, USGS, NPS

A — A′

Om, Mkg, ZMclm, Mygg, Zh, Jd, CZud

SCALE 1:24,000

B — B′

OMcc, Pflg, ZMclm, ZMcllg, Trb

APPROXIMATE SCALE 1:24,000

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