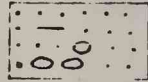


PRELIMINARY GEOLOGIC MAPS AND SECTIONS OF THE DUCKTOWN, ISABELLA,
AND PERSIMMON CREEK QUADRANGLES
TENNESSEE AND NORTH CAROLINA
By Robert M. Hernon

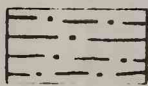
Though the present maps are mainly lithologic, tentative formation boundaries and designations are shown. The general sequence of formations is probably as shown, but the age relationships of adjacent formations range from known to uncertain. Correlation of formational units east of Ducktown with those west of Ducktown is not attempted or implied. Time equivalents almost certainly exist, but facies changes prevent positive lithologic correlation.

EXPLANATION

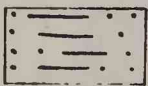
Lithology



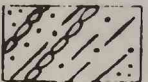
Metasandstone and conglomeratic metasandstone, with thin silty and argillaceous beds and local beds and lenses of conglomerate. Silty and argillaceous fraction estimated at less than 25 percent



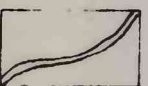
Metasiltstone and metashale with metasandstone and conglomeratic metasandstone; silty and argillaceous fraction estimated at more than 50 percent



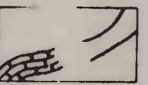
Metasiltstone and metashale with metasandstone and conglomeratic metasandstone; silty and argillaceous fraction indeterminate, or fraction estimated at 25-50 percent



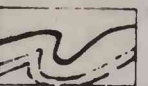
Conglomerate in discrete beds of generally well-rounded granules and small pebbles; quartz and quartzite pebbles greatly predominate in most conglomerate beds east of area underlain by unit B



Amphibolite: in unit A; also exposed in area underlain by Brasstown and Mineral Bluff(?) Formations a short distance east of mapped area



Marble; contains lenses of talc



Phyllite or schist, in thin beds; shown mainly in the denuded Ducktown mining district as an index to structure

Stratigraphic units

1. Area east of Ducktown

- * Rocks of the Murphy marble belt
 - Mineral Bluff(?) Formation ¹
 - Nottely Quartzite ²
 - Andrews Schist ²
 - Murphy Marble ²
 - Brasstown Formation as redefined by Hurst ¹
 - (Brasstown and Valleytown Formations of Keith ^{2, 3})
 - Tusquitee Quartzite ²
 - Nantahala Slate as restricted by Hurst ¹
 - (Dark upper member of Keith ^{2, 3})

- Great Smoky Group ¹
 - * Dean Formation ¹
 - (Includes lower member of Nantahala Slate of Keith ^{2, 3})
 - ** Hothouse Formation ¹
 - ** Hughes Gap Formation ¹
 - ** Unit B. Dark argillaceous and silty metasedimentary rocks with arenaceous and conglomeratic interbeds and members. (Included by Hurst ¹ as highest part of his Copperhill Formation)
 - ** Unit A. Mainly arenaceous and conglomeratic metasedimentary rocks. (Constitutes the major part of Hurst's Copperhill Formation ¹)

2. Area west of Ducktown

- Rocks exposed along gorge and upper valley of Ocoee River
 - # Unit 3. Greenish- to dark-gray slate
 - # Unit 2. Metaconglomerate
 - # Unit 1. Metasedimentary rocks: alternating arenaceous and slaty beds and members
 - # Slaty unit. May be equivalent to part of unit B
 - # Unit A. Mainly arenaceous and conglomeratic metasedimentary rocks. (Constitutes the major part of Hurst's Copperhill Formation ¹)

Symbols

Contact, showing dip; long dashed where approximately located; short dashed where indefinite, queried where doubtful

Fault, showing dip; long dashed where approximately located; short dashed where inferred; queried where doubtful

Anticline, showing crestline. Syncline, showing troughline

Minor anticline, showing plunge. Minor syncline, showing plunge

Crumpling, showing plunge; may involve slaty cleavage or schistosity

Inclined Vertical Horizontal Overturned

Strike and dip of beds

Tops of inclined beds not indicated or implied. Overturned bed symbol used only where determined at point of observation and not otherwise indicated

Direction of top of beds indicated by crossbedding

Direction of grading from coarse to fine. Solid arrowheads indicate most reliable readings; open arrowheads, those of lesser reliability (All may be combined with bedding symbols)

Inclined Vertical Strike and dip of slaty cleavage or schistosity

Strike and generalized direction of dip of deformed slaty cleavage or schistosity

Strike and dip of bedding cleavage or schistosity that prevails over considerable area; may be mimetic

Strike and dip of slaty cleavage or schistosity and bedding where locally parallel; probably not mimetic

Inclined Vertical Strike and dip of fracture cleavage, commonly crinkle cleavage, slip cleavage; arrow shows plunge of crinkles

Bearing and plunge of lineation, commonly crinkles; may be combined with other symbols

Strike and dip of flattening of pebbles

Bearing and plunge of long axes of drawn-out pebbles

Conspicuous shearing

Inclined Vertical Strike and dip of joints

Staurolite, where observed

Chloritoid, where observed

Mineralized zone: typically massive pyrrhotite and pyrite with copper and zinc minerals

¹ Hurst, V. J., 1955, Stratigraphy, structure, and mineral resources of the Mineral Bluff quadrangle, Georgia: Georgia Div. Conserv. Bull. 63, 137 p.

² Keith, Arthur, 1907, Description of the Nantahala quadrangle, North Carolina-Tennessee: U.S. Geol. Survey Geol. Atlas, Folio 143, 11 p.

³ Keith, Arthur, 1952, Geologic map of the Murphy quadrangle, Tennessee-North Carolina: U.S. Geol. Survey open-file report.

* Terminology used in Persimmon Creek quadrangle only.

** Terminology used in Isabella and Persimmon Creek quadrangles only.

Terminology used in Ducktown quadrangle only.

Terminology used in Ducktown and Isabella quadrangles only.