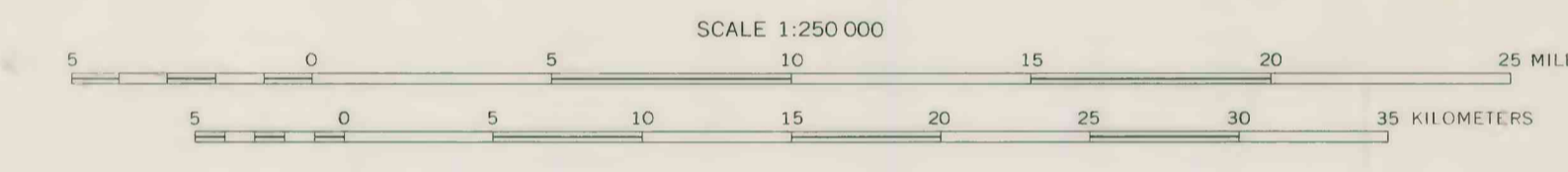


Base from U.S. Geological Survey, 1953  
Photorevision as of 1974

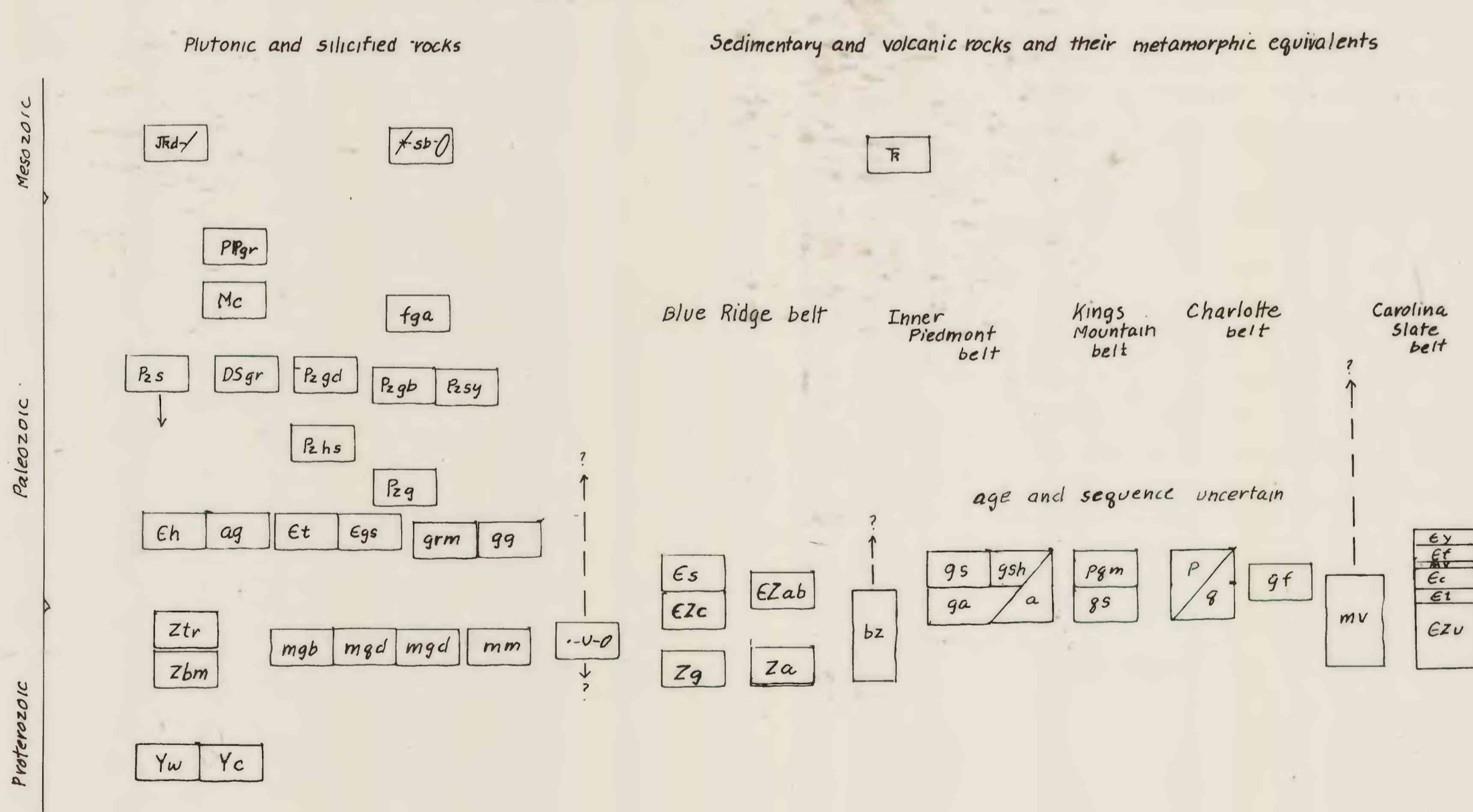
100,000-foot grids based on North Carolina  
coordinate system and South Carolina  
coordinate system, north zone.



U.S. GEOLOGICAL SURVEY  
OPEN-FILE REPORT 82-56

This report is preliminary and has  
not been reviewed for conformity with U.S.  
Geological Survey editorial standards and  
stratigraphic nomenclature.

CORRELATION OF ROCK UNITS



DESCRIPTION OF MAP UNITS

NOTE: This map is simplified in order to make an appropriate base for mineral-resource assessment as part of a project in the Continental United States Mineral Assessment Program. Most of the plutonic rock units and all localities of ultramafic rock are shown. Minor stratiform rock units and subdivisions of major stratiform rock units have not been shown.

<b>Jtd</b>	Diabase	<b>Pchs</b>	Porphyritic gneissic biotite granite - "High Shoals" granitic gneiss of Horton and Butler (1977)	<b>mm</b>	Metamorphosed mafic complex - Metamorphosed gabbroic and ultramafic intrusives, hypabyssal and probably extrusive basalts	<b>6Zc</b>	CHILHOWEE GROUP (Lower Cambrian to Proterozoic 2) - Quartzite, arkosic quartzite, and phyllite	
<b>sb</b>	Silicified breccia zones	<b>6t</b>	TOLUCA GRANITE (Cambrian(?)) - Medium-grained gneissic to non-gneissic granite and granodiorite; garnet common, monazite typical accessory	<b>u</b>	Ultramafic rocks, variably altered to soapstone, serpentinite, and similar rocks	<b>6Zab</b>	ALLIGATOR BACK FORMATION (Proterozoic 2 and (or) lower Paleozoic) - Laminated quartzite-feldspathic gneiss, mica schist, and amphibolite	
<b>PFg</b>	Granite (Permian to Pennsylvanian) - Predominantly porphyritic with microcline phenocrysts, locally non-porphyritic	<b>6gs</b>	Porphyritic gneissic granite at Sandy Mush; possibly a phase of the Toluca Granite	<b>Zbm</b>	BROWN MOUNTAIN GRANITE (Proterozoic 2) - Medium- to coarse-grained leucocratic granite, locally blastomylonitic	<b>Zg</b>	GRANDFATHER MOUNTAIN FORMATION (Proterozoic 2) - Arkose, siltstone, phyllite, conglomerate and felsic volcanic rocks	
<b>Mc</b>	CHEERYVILLE GRANITE (Mississippian) - Biotite-muscovite granite; some associated pegmatites contain spodumene	<b>grm</b>	Migmatitic granite and quartz diorite gneiss containing inclusions and screens of biotite gneiss and amphibolite and masses of gneissic and non-gneissic granite to quartz diorite similar to the Toluca Granite	<b>Yw</b>	WILSON CREEK GNEISS AND BLOWING ROCK GNEISS (Proterozoic 2) - Equigranular granite to diorite gneiss; coarse-grained granite augen gneiss	<b>Za</b>	ASHE FORMATION (Proterozoic 2) - Muscovite-biotite gneiss, commonly sulfidic; mica schist, and amphibolite	
<b>fga</b>	Fine-grained alaskitic granite	<b>6h</b>	HENDERSON GNEISS (Cambrian(?)) - Granitic to granodioritic biotite augen gneiss. Typically contains lensoid microcline megacrysts and microcline-plagioclase aggregates parallel to the foliation	<b>Yc</b>	CRANBERRY GNEISS (Proterozoic 2) - Equigranular granite and layered granite, granodiorite, and biotite gneiss	<b>bz</b>	Rocks of the Brevard zone - Variably sheared biotite gneiss, mica schist, quartzite, metavolcanic rocks, phyllite, and marble	
<b>DSgr</b>	Leucocratic granite (Devonian to Silurian) - Salisbury-type of Butler and Ragland (1969) and probable equivalents	<b>6i</b>	Augen gneiss - Granitic to granodioritic biotite augen gneiss containing tabular to lensoid feldspar megacrysts; garnet common	Sedimentary and volcanic rocks and their metamorphic equivalents			<b>6Za</b>	ASHLE FORMATION (Proterozoic 2) - Muscovite-biotite gneiss, commonly sulfidic; mica schist, and amphibolite
<b>Pzn</b>	SPRUCE PINE PLUTONIC GROUP (Paleozoic) - Biotite-muscovite granite and granodiorite; associated pegmatites are a source for feldspar and muscovite	<b>6j</b>	Layered gneissic biotite granite to hornblende-biotite quartz diorite	<b>R</b>	Sandstone, siltstone, and conglomerate	<b>6Zb</b>	ALLIGATOR BACK FORMATION (Proterozoic 2 and (or) lower Paleozoic) - Laminated quartzite-feldspathic gneiss, mica schist, and amphibolite	
<b>Pgd</b>	Granodiorite, non- to weakly-foliated	<b>6k</b>	HENDERSON GNEISS (Cambrian(?)) - Granitic to granodioritic biotite augen gneiss. Typically contains lensoid microcline megacrysts and microcline-plagioclase aggregates parallel to the foliation	<b>6n</b>	SHADY DOLOMITE (Lower Cambrian)	<b>Zq</b>	GRANDFATHER MOUNTAIN FORMATION (Proterozoic 2) - Arkose, siltstone, phyllite, conglomerate and felsic volcanic rocks	
<b>Pgb</b>	Gabbro, norite, gabbro-norite, and hornblende gabbro	<b>6l</b>	Augen gneiss - Granitic to granodioritic biotite augen gneiss containing tabular to lensoid feldspar megacrysts; garnet common	<b>6o</b>	YADKIN GRAYWACKE (Cambrian)	<b>Zr</b>	Metamorphosed trondhjemite and biotite tonalite	
<b>Psy</b>	Syenite	<b>6m</b>	Layered gneissic biotite granite to hornblende-biotite quartz diorite	<b>6p</b>	FLOYD CHURCH MUDSTONE (Cambrian)	<b>mgb</b>	Metamorphosed gabbro, diorite, and diabase	
<b>Pzg</b>	Biotite granite - Medium- to coarse-grained biotite granite, probably equivalent to the Paeolet Mills Granite of Wagener (1977)	<b>6n</b>	HENDERSON GNEISS (Cambrian(?)) - Granitic to granodioritic biotite augen gneiss. Typically contains lensoid microcline megacrysts and microcline-plagioclase aggregates parallel to the foliation	<b>6q</b>	TILLERY FORMATION (Cambrian) - Laminated argillite	<b>mgs</b>	Metamorphosed quartz diorite, diorite, and tonalite; locally porphyritic	
		<b>6o</b>	Augen gneiss - Granitic to granodioritic biotite augen gneiss containing tabular to lensoid feldspar megacrysts; garnet common	<b>6r</b>	UNHARRY FORMATION (Cambrian and Proterozoic 2) - Felsic volcanic rocks	<b>mgd</b>	Metamorphosed quartz and granite; locally porphyritic	
		<b>6p</b>	Layered gneissic biotite granite to hornblende-biotite quartz diorite					
		<b>6q</b>	HENDERSON GNEISS (Cambrian(?)) - Granitic to granodioritic biotite augen gneiss. Typically contains lensoid microcline megacrysts and microcline-plagioclase aggregates parallel to the foliation					
		<b>6r</b>	Augen gneiss - Granitic to granodioritic biotite augen gneiss containing tabular to lensoid feldspar megacrysts; garnet common					
		<b>6s</b>	Layered gneissic biotite granite to hornblende-biotite quartz diorite					
		<b>6t</b>	HENDERSON GNEISS (Cambrian(?)) - Granitic to granodioritic biotite augen gneiss. Typically contains lensoid microcline megacrysts and microcline-plagioclase aggregates parallel to the foliation					
		<b>6u</b>	Augen gneiss - Granitic to granodioritic biotite augen gneiss containing tabular to lensoid feldspar megacrysts; garnet common					
		<b>6v</b>	Layered gneissic biotite granite to hornblende-biotite quartz diorite					
		<b>6w</b>	HENDERSON GNEISS (Cambrian(?)) - Granitic to granodioritic biotite augen gneiss. Typically contains lensoid microcline megacrysts and microcline-plagioclase aggregates parallel to the foliation					
		<b>6x</b>	Augen gneiss - Granitic to granodioritic biotite augen gneiss containing tabular to lensoid feldspar megacrysts; garnet common					
		<b>6y</b>	Layered gneissic biotite granite to hornblende-biotite quartz diorite					
		<b>6z</b>	HENDERSON GNEISS (Cambrian(?)) - Granitic to granodioritic biotite augen gneiss. Typically contains lensoid microcline megacrysts and microcline-plagioclase aggregates parallel to the foliation					

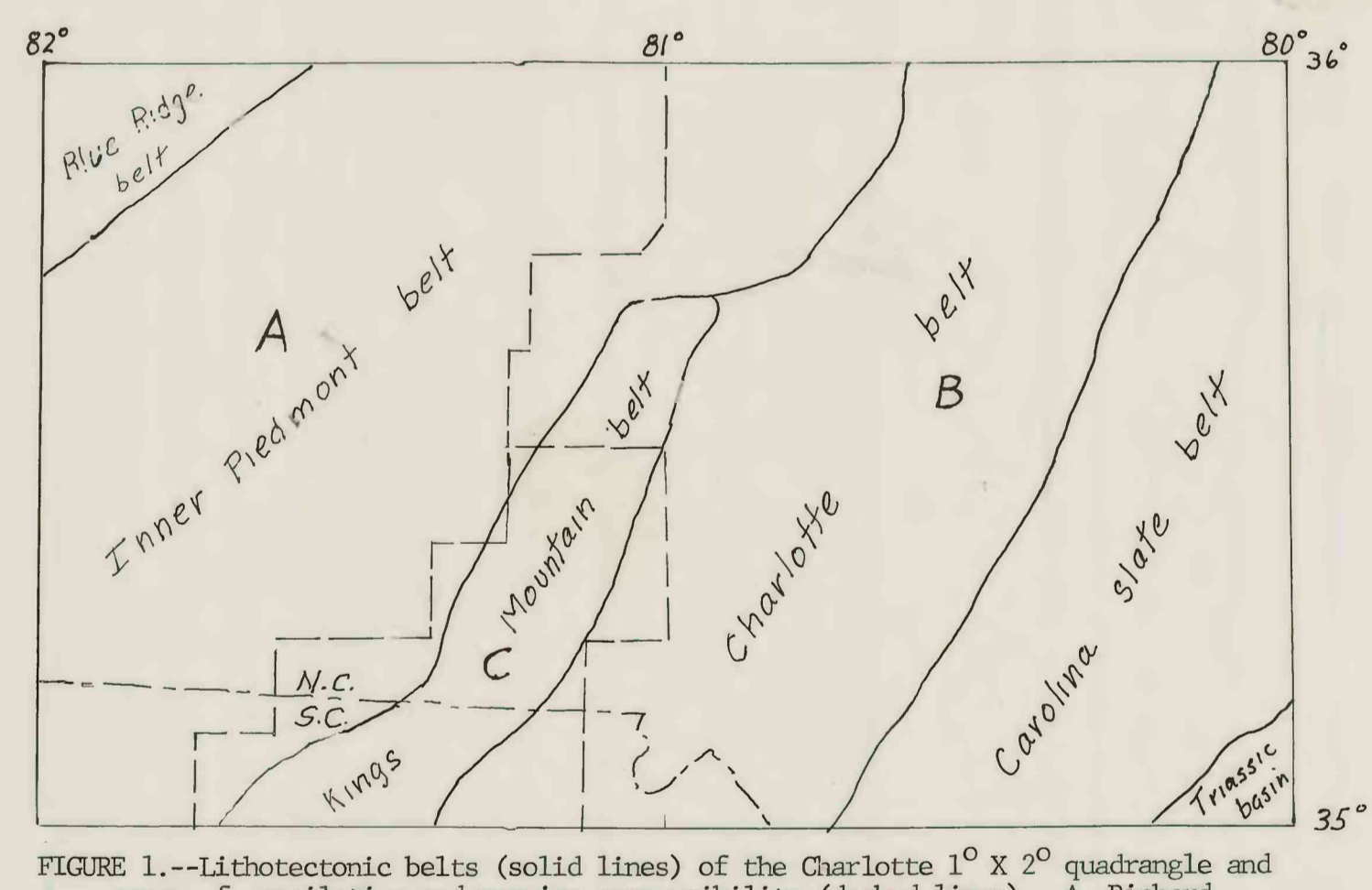
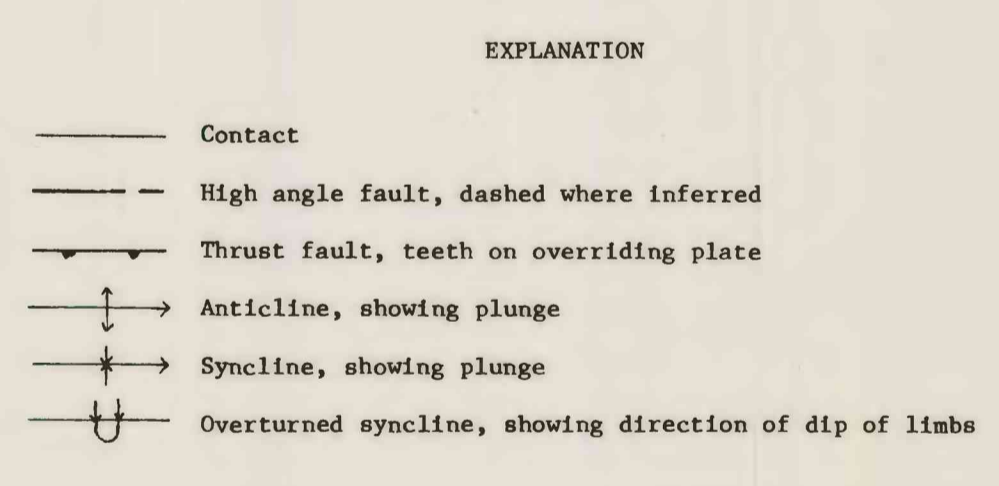


FIGURE 1.--Lithotectonic belts (solid lines) of the Charlotte 1° x 2° quadrangle and areas of compilation and mapping responsibility (dashed lines): A, Richard Goldsmith; B, Daniel J. Milton; C, J. Wright Horton, Jr.

<b>p</b>	Phyllite and mica schist; minor quartzite
<b>q</b>	Quartzite; subordinate mica schist and phyllite. Probably includes both metamorphosed sandstones and metamorphosed hydrothermally leached and silicified rock
<b>pgm</b>	Sericite phyllite or schist and subordinate beds of marble, micaceous quartzite, and amphibolite
<b>qs</b>	Quartz sericite schist and phyllite, and subordinate beds of quartz pebble conglomerate, quartzite, kyanite or sillimanite quartzite, and manganese schist
<b>mv</b>	Metavolcanic rocks, undivided - Includes mafic, intermediate, and felsic volcanic rocks and Flat Swamp Member of the Old Mudstone

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SIMPLIFIED PRELIMINARY GEOLOGIC MAP OF THE CHARLOTTE 1° X 2° QUADRANGLE,  
NORTH CAROLINA AND SOUTH CAROLINA

By  
Richard Goldsmith, Daniel J. Milton, and J. Wright Horton, Jr.