NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES

NORTH CAROLINA GEOLOGICAL SURVEY
DIVISION OF LAND RESOURCES

OPEN FILE REPORT 94-3
PLATE 1

Base topographic map by the U. S. Geological Survey 1978

Geology mapped in 1993

GEOLOGIC MAP OF THE STANCILS CHAPEL 7.5-Minute QUADRANGLE, NORTH CAROLINA

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1994

Revised 1995

Summary of Map Units

UNCONSOLIDATED SEDIMENTARY ROCKS

Quaternary

Qal — **Alluvium** - White to light-gray, unconsolidated clay, silt, sand and locally, gravel associated with floodplains.

Qt — **Alluvium- stream terrace-** Unconsolidated silt, sand, and gravel occurring above the present floodplain.

Pliocene?

Cpu — **Coastal Plain Sediment-**Unconsolidated to poorly consolidated, fine- to coarse-grained sands and clayey sands, with local gravel and clay beds. Gravel, gravelly sand, and coarse, poorly sorted, angular to subangular sands occur at the base of the Coastal Plain section. These sediments are typically overlain by finer sands. In the northeast portion of the quadrangle at elevations above 240 ft., fine, well sorted subangular to rounded sand contains a major reserve of heavy minerals with ilmenite, zircon, and rutile as the most valuable minerals. Coastal Plain sediments in the northeast corner of the quadrangle are considered to be of Pliocene age (Carpenter, 1991; Hoffman and Carpenter, 1992).

INTRUSIVE ROCKS

Late Paleozoic

Sg — **Sims pluton**

Conner granitoid phase of the Sims pluton (287±9 my). Coarse-grained, megacrystic, very pale orange to grayish-orange monzogranite with perthitic microcline grains up to 5 cm across. Groundmass is plagioclase and biotite with local alteration to muscovite, chlorite, epidote, and rutile. Accessory minerals are apatite, thorite (?), and zircon. Greisen- coarse-grained muscovite-quartz rock.

METAMORPHIC ROCKS

Late Precambrian to Early Paleozoic

Sedimentary Sequence

slt — **Metasiltstone** - Fine-grained, yellowish-gray to greenish-gray metasiltstone. Composed of quartz, plagioclase, muscovite, and chlorite. Accessory minerals include titanite, epidote, apatite, and magnetite (?).

ar — **Argillite** - Very fine grained, light-gray to light-olive-gray laminated argillite. Chlorite-muscovite-graphite(?) layers generally < 1mm in thickness alternate with thicker quartz-rich layers.

Volcanic Sequence- Upper Group

ffv, ph, sp, cms2, q, cms1, qxp — **Fine-grained felsic volcanic (ffv).** Aphanitic, gray, quartzo-feldspathic, volcanic rock interpreted to be vitric and vitric-crystal tuff on the Stancils Chapel quadrangle. Quartz crystals are conspicuous near the base in serictized **quartz crystal phyllite (qxp).** Interbedded units consist of **meta-andesite (cms1)** and **metabasalt (cms2)**. Felsic volcanic rocks are commonly altered. Sericitic alteration is prominent in **sericite phyllite (ph)**. Sericitization, silicification, and pyritization are present in the **siliceous phyllite unit (sp)** which contains chloritoid and concordant zones of **massive quartz (q)**. Common alteration minerals in mafic volcanic rocks are chlorite, epidote, and quartz.

Volcanic Sequence- Lower Group

ls — **Laminated epiclastic rocks and felsic lithic-crystal tuff** - Medium- to coarse-grained, light-gray laminated rock. Consists of flattened pumice lapilli, quartz crystals, and layers of sediment in a matrix of quartz, feldspar, and mica. Locally phyllitic.

qft — **Felsic crystal tuff** - Fine- to medium-grained, light-gray felsic volcanic rock containing phenocrysts of quartz and/or feldspar, locally up to 0.5 cm in size.

Symbols

- Contact- well located
- Contact - concealed
- Contact- approximately located
- Strike and dip of bedding
- Strike and dip of foliation
- Strike and dip of cleavage (primary schistosity)
- Strike and dip of secondary (crenulation) cleavage
- Strike of vertical bedding
- Strike of vertical foliation
- Strike of vertical cleavage (primary schistosity)
- Strike of vertical secondary (crenulation) cleavage
- Observation site in crystalline rocks
- Outcrop locality referred to in text
- Location of water well- crystalline rocks identified in cuttings
- Axial trace of overturned synform (approximate, concealed)
- Axial trace of overturned antiform (approximate)