PETROGRAPHIC CHARACTERISTICS OF ROCK SAMPLES FROM SELECTED ARCHAEOLOGICAL QUARRY SITES, CENTRAL NORTH CAROLINA PIEDMONT

STODDARD, Edward F., Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, Raleigh, NC 27695-8208; skip_stoddard@ncsu.edu

Purpose

This project was undertaken to assist the Cultural Resources Office at Fort Bragg, North Carolina, in attempting to determine the sources of lithic artifacts found at archaeological sites on its base. In the first phase of the study, known and suspected archaeological quarry sites in the central Piedmont of North Carolina were visited. From each quarry, hand specimens were collected and petrographic thin sections were examined in an attempt to establish a basis for distinguishing the quarries. If material from each quarry was sufficiently distinctive, then quarry sources could potentially be matched with Fort Bragg lithic artifacts. A companion study is investigating chemical characteristics of the same quarry samples. In the next phase of the study, these sections of selected artifacts will be studied for comparison to the quarry information.

Procedure

74 samples from 12 quarries and quarry groups were examined. All of these samples are from five quarry groups in the Uwharrie Mountains region; 16 of these were collected and described previously by Daniel and Butler (1986). All specimens were collected from seven additional quarry sites in Chatham, Durham, Person, Orange, and Pittsylvania Counties.

Figure 1. Relict igneous phenocrysts. A. Quartz (P forms) and plagioclase, Uwharries East. B. K-feldspar, Silk Hope. C. Euhedral and resorbed quartz, with plagioclase, in porphyry, Orange County. Crossed polars.

Geology

All quarries are within the Carolina terrane, and the Uwharrie counties sample the Tillery, Caro, and Uwharrie Formations (Stromquist and Simpson, 1989). Rocks include both metavolcanic and metasedimentary types. Compositional, metavolcanic rocks are dacitic, and include flows, tuffs, breccias, and pumiceous. Metasedimentary rocks are metamorphosed and fine metamorphic.

The Uwharrie counties are divided into five groups: Uwharries North, South, East, West, and Southeast. The groupings are based primarily on macroscopic petrography and follow the results of Daniel and Butler (1986). Each of the Uwharrie counties represents one of six individual groups in relatively close proximity. Rock specimens are all various felsic metavolcanic rocks, but groups may be distinguished based upon mineralogy and texture. See Table.

The remaining quarries include three from Chatham County (Pitboro, Silk Hope, and Siler City), and one each from Orange, Person, Durham, and Cumberland Counties. Rocks from the Pittboro, Durham, and Person counties are dominated by fine-grained metasedimentary rocks. The Silo Hope and Orange County quarries are meta-igneous. The Cumberland County (Cape Fear) quarry is from a deposit of alluvial cobbles, and the New City quarry is a mixture of metasedimentary and metavolcanic types.

Figure 2. Relict igneous textures. A. Basalt fragment, Silk Hope; PP. B. Sphene, Uwharries South; XP. C. Glass shard, Silk Hope; PP.

Figure 3. Relict sedimentary features. A. Graded bedding, Person County, XP. B. Volcanic sandstone, Durham County; XP. C. Possible trace fossil, Person County; PP.

Results

The table summarizes the results of the first phase of the study. Although two of the quarries (Siler City and Cumberland County) are too heterogeneous to be of much use in sourcing lithic artifacts, the other ten show promise. Each of the seven metavolcanic groups represents one of six individual groups in relatively close proximity. Rock specimens are all various felsic metavolcanic rocks, but groups may be distinguished based upon mineralogy and texture. See Table.

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References


References