9-1978

An Archeological Reconnaissance Survey and Evaluation of Cultural Resources of the Cane Creek 10-D Reservoir, Lancaster County, South Carolina

James D. Scurry

William B. Lees

An Archeological Reconnaissance Survey and Evaluation of Cultural Resources of the Cane Creek 10-D Reservoir, Lancaster County, South Carolina

Keywords

Excavations, Dams, Reservoirs, Cane Creek, Watersheds, Lancaster County, South Carolina, Union County, North Carolina, Archeology

Disciplines

Anthropology

Publisher

The South Carolina Institute of Archeology and Anthropology--University of South Carolina

Comments

In USC online Library catalog at: http://www.sc.edu/library/

AN ARCHEOLOGICAL RECONNAISSANCE SURVEY AND EVALUATION OF CULTURAL RESOURCES OF THE CANE CREEK 10-D RESERVOIR, LANCASTER COUNTY, SOUTH CAROLINA

by

James D. Scurry and William B. Lees

Research Manuscript Series No. 136

Prepared by the
INSTITUTE OF ARCHEOLOGY AND ANTHROPOLOGY
UNIVERSITY OF SOUTH CAROLINA
September, 1978

MANAGEMENT SUMMARY

The Soil Conservation Service of the United States Department of Agriculture has proposed the construction of a dam and reservoir on Bear Creek near South Carolina county highway 36 in Lancaster County. The 10-D project is one aspect of a large, overall program of water management for the Cane Creek watershed system of Lancaster County, South Carolina and Union County, North Carolina. The purpose of the program is to: 1) apply needed land treatment; 2) protect agricultural lands from flooding; 3) store a minimum of 2,868 acre-feet of water for the city of Lancaster and 1,000 acre-feet of water for Lancaster Water and Sewage District; and 4) to develop basic recreational facilities in North Carolina (United States Department of Agriculture 1967:10).

The Cane Creek Impoundment 10-D (Bear Creek) archeological survey was conducted in compliance with the National Environmental Policy Act of 1969 and Executive Order 11593, at the request of the Soil Conservation Service from June 29 to July 6, 1977 by William B. Lees and Mike Harmon of the Institute of Archeology and Anthropology, University of South Carolina staff. Two subsequent one day trips to the project area were conducted during December, 1977 and March, 1978 in order to re-examine several sites and to survey one portion of the project area which was not legally accessible during the original survey. The purpose of the survey was to locate and evaluate the archeological resources within the proposed project area and to make recommendations pertaining to the preservation or conservation of those resources.

The environmental conditions existing in the project area determined, to a large extent, the field methodology. Examination of the area consisted of an on-foot survey, checking plowed fields, eroded gullies, and any other cleared surfaces for cultural material. Since most of the area was covered, either by dense vegetation or pasture, it was necessary to excavate 275 small 30 by 30 centimeter test squares.

Sixteen archeological sites were located during the survey. Of the sixteen--three sites, 38LA50, 38LA53, and 38LA57, were historic; nine sites, 38LA45, 38LA47, 38LA48, 38LA51, 38LA52, 38LA54, 38LA56, 38LA58, and 38LA60 were prehistoric; and four sites, 38LA46, 38LA49, 38LA55, and 38LA59 contained historic and prehistoric components.

A search of relevant archeological literature revealed that a mill was at one time located within the proposed project area, at the confluence of Bear Creek with two unnamed tributaries (Mills 1965). Visual inspection and subsurface testing in this area failed to locate the mill site and it is probable that bridge and road construction have destroyed the archeological materials once present.

Seven of the prehistoric component sites located during the survey--38LA45, 38LA46, 38LA47, 38LA51, 38LA52, 38LA56 and 38LA58--were low to moderate density lithic scatters. While artifacts from these sites are non-diagnostic, based on the absence of ceramics and the

presence of a lithic industry, an Archaic period (8000 to 1000 B.C.) habitation is suggested.

Early Archaic (8000 to 5500 B.C.) occupation of area is indicated by a Coastal Plain chert Palmer biface (Coe 1964) fragment found at 38LA49. Middle Archaic (5500 to 3000 B.C.) occupation is represented by the presence of Morrow Mountain II type bifaces (Coe 1964 at sites 38LA54 and 38LA59. Savannah River (Coe 1964) and Otarre (Keel 1976) bifaces indicative of Late Archaic period (3000 B.C. to A.D. 1000) occupation were found at sites 38LA54 and 38LA59.

Although no prehistoric ceramics were found at any of the sites located during the survey, Yadkin (Coe 1964) and Adena (Cambron and Hulse 1964) bifaces, indicative of the Woodland period (A.D. 1000 to A.D. 1600) were found at 38LA55 and 38LA48.

Early colonial (1750-1800) settlement of the project area is indicated by the presence at 38LA49 of 11 blue shell edged pearlware sherds, 12 plain pearlware sherds, 5 hand painted polychrome pearlware and creamware sherds, 2 annular ware sherds, 5 creamware sherds, 1 pipe fragment and several other whiteware and glass fragments. Mid-to-late 19th century occupation is represented at sites 38LA53 and 38LA59 by modern glass bottle fragments and several whiteware ceramic fragments. Four of the historic component sites--38LA46, 38LA50, 38LA55, and 38LA57--are of the 20th century and represent recent occupation of the area. Artifacts from these sites include ironstone whiteware, albany slipware, milkglass bottle or jar fragments, round nails and 2 door hinges.

In summary, prehistoric occupation of the project area during each of the three phases of the Archaic period (8000 to 1000 B.C.) and Woodland period (1000 B.C. to A.D. 1000) is indicated by the presence of representative lithic tool types and industries. Historic occupation is indicated by the presence of ceramics dating from the 1750's to the present.

Only three sites--38LA48, 38LA52, and 38LA56--recorded during the Cane Creek 10-D archeological survey were located within the direct impact zone of the project. Site 38LA52 was located in an area which had been recently used as a borrow area. Due to previous construction disturbance, no further archeological work is recommended for these two sites. Site 38LA56 is on a small bottomland knoll located in the floodplain of Bear Creek near the construction site of the proposed dam (Fig. 1). This site is represented by a moderate density of quartz and slate flakes. Ten test excavations were placed in this site with quartz and/or slate flakes occurring in eight of the tests. Although this indicates a moderate to high density of material, with the absence of any diagnostic artifacts it is felt that further testing would not be cost-effective in terms of the type of scientific information to be gained.

The remaining thirteen archeological sites are located above the waterpool and are presently out of danger of being inundated by the proposed reservoir. The possibility of secondary impact from clearing and construction activities exists in areas adjacent to the waterpool.

The material collected from sites 38LA46, 38LA47, 38LA49, 38LA53, and 38LA55 represent total surface collections and sites 38LA45, 38LA51, 38LA58, 38LA50, and 38LA57 are low density artifact scatters; no further work is recommended for these sites. Several of the sites--38LA54, 38LA59, and 38LA60--are moderate to high density lithic scatters and could contribute valuable scientific knowledge to South Carolina prehistory. Any possible impact to these sites should be mitigated by controlled surface collections and limited excavations.

INTRODUCTION

The Soil Conservation Service of the United States Department of Agriculture has proposed the construction of a dam and reservoir on Bear Creek near South Carolina county highway 36. The 10-D project is one aspect of a large, overall program of water management for the Cane Creek watershed system of Lancaster County, South Carolina and Union County, North Carolina. The purpose of the program is to: 1) apply needed land treatment; 2) protect agricultural lands from flooding; 3) store a minimum of 2,868 acre-feet of water for the city of Lancaster and 1000 acre-feet of water for Lancaster Water and Sewage District; and 4) to develop basic recreational facilities in North Carolina (United States Department of Agriculture 1967:10)

The Institute of Archeology and Anthropology, University of South Carolina, conducted a reconnaissance survey of the area to be impacted by construction of the 10-D dam and reservoir. The purpose of the survey was to locate and evaluate the archeological resources that may be affected and to make recommendations pertaining to the preservation or conservation of those resources.

The Cane Creek Impoundment 10-D, Lancaster Co. is located in the Piedmont physiographic province of South Carolina. The Piedmont was formed as a result of extensive erosion of the Appalachian fold belt. During the Paleozoic era, former sediments on the continental shelf were folded by lateral compression from the collision of continental crustal plates and by volcanic activity to form the Appalachian fold belt. Subsequent erosion since the Paleozoic has resulted in the present day topographic distinctions (Butzer 1976:285-87). The terrain ranges from gently sloping to steep with gentle to strong slopes being dominant and steep slopes occurring along the drainages. Elevations in Lancaster County ranges from 700 ft. above sea level along the northeast corner of the county to 300 ft. above sea level at Lynches River to the southeast (Rogers 1973:124).

The drainage pattern in Lancaster county is dendritic with the Catawba, Lynches, and Little Lynches rivers and their associated tributaries being the major drainage systems of the county. Bear Creek, for which impoundment 10-D has been proposed, is one of the main tributaries of Cane Creek and the Catawba River (Rogers 1973:124).

Rock formations indigenous to the area consist of chlorite schist, talc schist, argillite, granite, kaolinite, and augen gneiss. All of these are part of the Carolina slate belt and date from the Ordivician to Mississippian geologic periods (United States Department of Agriculture 1967:3). Quartz veins, although not large, are quite common throughout the area, offering prehistoric populations a variety of easily accessible raw materials for tool production.

The climate of Lancaster county is moderate and fairly well balanced throughout the year. The average temperature ranges from the low 50's during the winter to the low 70's during the summer, with an average of 73 days where the temperature exceeds 90 degrees. The

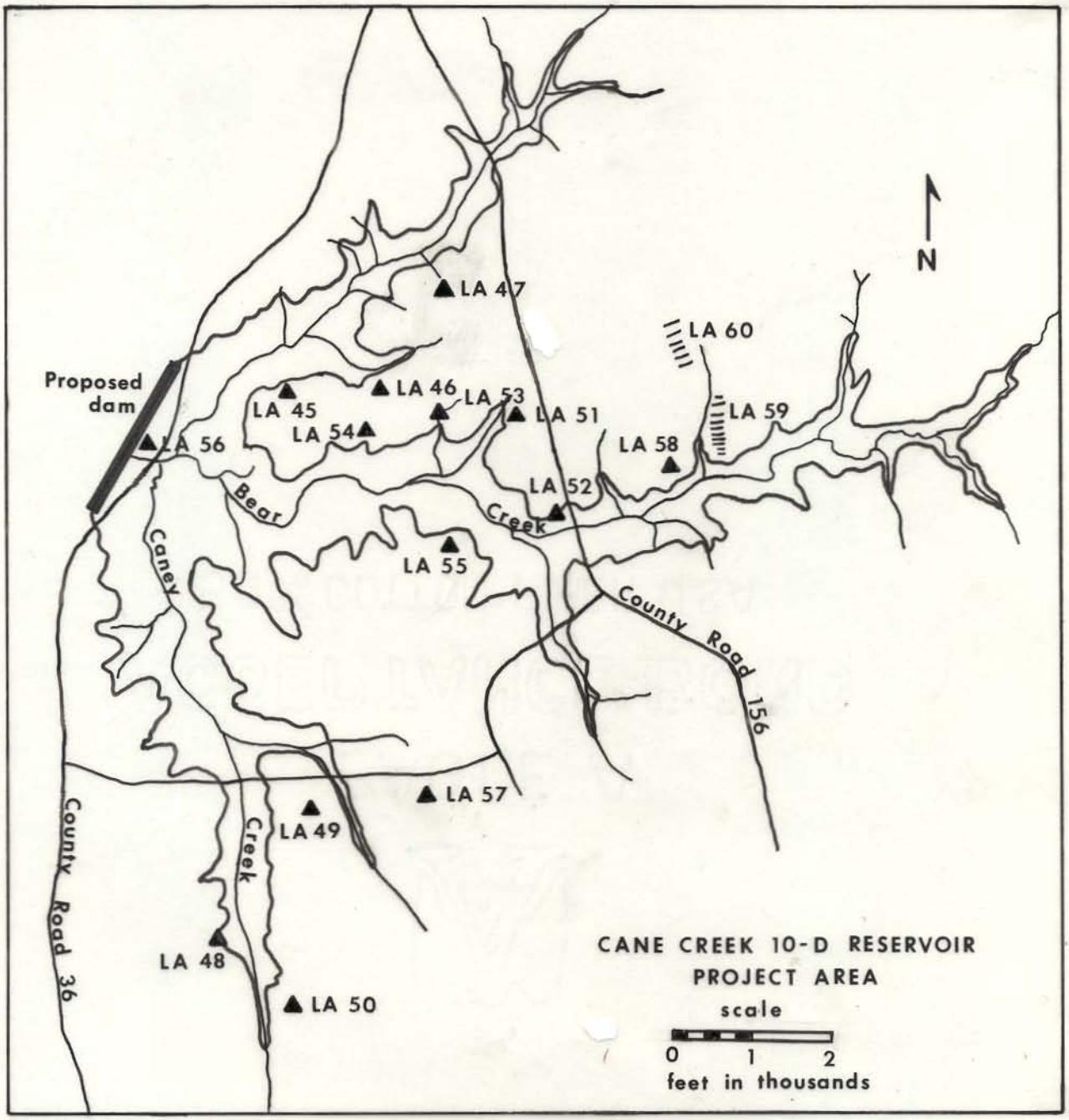
N
LA 47
LA 60
Proposed dam
LA 46
LA 53
LA 45
LA 51
LA 59
LA 54
LA 56
LA 58
LA 52
Bear Creek
Caney Creek
LA 55
County Road 156
LA 57
LA 49
County Road 36
LA 48
LA 50
CANE CREEK 10-D RESERVOIR
PROJECT AREA
scale
0 1 2
feet in thousands

FIGURE 1

last spring frost occurs around March 28 and the average growing season lasts for 7½ months, with the first fall frost around November 11. Annual rainfall ranges from a high of 69.59 inches to a low of 30.19 inches (Rogers 1973:124).

Soils in the Cane Creek watershed system are grouped into six distinct associations; 1) Cecil-Davidson, 2) Herndon-Georgeville-Tatum-Nason, 3) Goldston-Nason, 4) Primus, 5) Appling-Chesterfield-Durham, and 6) Helena-Appling. These soils are mostly deep, well-drained, sandy and silty loam with clay subsoils (United States Department of Agriculture 1967:3). Much of the project area, as well as the Piedmont in general, has undergone extensive erosion from clearing and poor management practices since European settlement (Trimble 1974).

Aboriginally the Piedmont vegetation was composed of oak-hickory forest with few pines; however, extensive clearing during European settlement and during the platation period has resulted in the present day oak-pine forest typical of the region (Trimble 1974). Vegetation characteristic of the area consists of shortleaf, Virginia, and loblolly pine, red and white oak, hickory, poplar, red gum and dogwood in the uplands and red maple, red and black gum, water and willow oak and other water tolerant species in the bottomland areas (United States Department of Agriculture 1967:5). Fauna associated with the oak-hickory forest and hunted during aboriginal times include deer, turkey, raccoons, opossums, squirrels, skunks, snakes, and lizards (Shelford 1974:59-60).

Several archeological sites have been recorded previously in the Lancaster area, but were not located within the proposed impact area. Mills' Atlas of South Carolina (1965) indicated the presence of a historic mill within the project area. Efforts to locate the mill site proved unsuccessful and it is probable that road construction has destroyed the site. More recently Susan Jackson (1975) and Paul Brockington (n.d.) of the Institute of Archeology and Anthropology conducted reconnaissance surveys of two proposed reservoirs for the Soil Conservation Service. To date, these surveys represent the total of archeological work in Lancaster county, an area where systematic, research-oriented surveys are badly needed. It is only through surveys such as these, in line with directed on-going research of the Institute of Archeology and Anthropology, that our understanding of the cultural systematics of the South Carolina Piedmont will be furthered (Goodyear 1975).

ARCHEOLOGICAL AND HISTORICAL BACKGROUND

Archeological evidence suggests that the Piedmont of South Carolina has been occupied on a continuous basis for at least 12,000 years. Culture-historical reconstructions of southeastern prehistory have been developed based on work from neighboring states of Georgia and North Carolina (Coe 1964; Wauchope 1966; see also Willey 1966; Griffin 1952). An understanding of the cultural systematics of the more localized South Carolina Piedmont is beginning to develop from projects such as the Interstate 77, Laurens-Anderson connector, and Richard B. Russell Reservoir surveys, as on-going, problem oriented research in the region (House and Ballenger 1976; Goodyear, Ackerly, and House n.d.; Taylor and Smith n.d.). The following brief summary of the Piedmont prehistoric sequence is intended as an aid to the non-archeologist in understanding the descriptions and analyses to follow. This sequence is summarized primarily from works by Coe (1964) and Wauchope (1966).

Paleo-Indian

The Paleo-Indian period dates from the first occupation of South Carolina until the end of the Pleistocene at around 8000 B.C. The lifestyle of these early inhabitants involved a hunting and gathering economy based on the exploitation of now extinct Pleistocene megafauna. Fluted points, indicative of Paleo-Indian occupation, are found primarily in the riverine zone of the Coastal Plain and Fall Line with only a few having been found in the Piedmont (Michie 1976).

Archaic

The Archaic period dates from 8,000 to 1000 B.C. and is characterized by a hunting and gathering exploitation of regional environments. The beginning of the Archaic is marked by the end of the Pleistocene and the extinction of its associated megafauna, and ends with the apperance of Deptford ceramics around 1000 B.C. The Archaic has been divided into three periods based on observed regularities in the technologies characteristic of each.

The Early Archaic (8,000 to 5500 B.C.) has been subdivided into Dalton, Palmer, and Kirk phases on the basis of distinctive projectile point types (Coe 1964). According to Brooks (n.d.) there are consistencies in the occurrence of Early Archaic sites in the Piedmont. Generally, these sites are small and are represented by only Early Archaic components; however, Early Archaic diagnostic types also may be minimally represented at large multi-component sites. There is also a tendency for Palmer sites to be located on major watershed divides (Goodyear 1978:12).

The Middle Archaic (5500 to 3000 B.C.) is characterized by Stanly, Morrow Mountain, and Guilford biface types (Coe 1964). Middle Archaic sites occur more frequently than sites of other prehistoric occupations in the Piedmont. Most sites of this period are small lithic scatters; however, Middle Archaic components are often highly represented at multicomponent sites. Tools of the Middle Archaic are often resharpened but not to exhaustion, as with Early Archaic types (Brooks n.d.).

The Late Archaic (3000 to 1000 B.C.) is characterized by stemmed bifaces and by Stallings Island and Thom's Creek ceramics. Ceramics are frequently found on Late Archaic sites in the Coastal Plain, but rarely occur above the Fall Line (Stoltman 1974; House and Ballenger 1976; Phelps 1964). Also, characteristic of the coast during this time period is the extensive use of shellfish resources (Waring, in Williams 1968). In the Piedmont, Late Archaic sites tend to be associated with the riverine zone (Brooks n.d.; Goodyear 1978); however during the Laurens-Anderson survey, Goodyear (1973) found Late Archaic sites in the inter-riverine zone, located primarily along ridgetops. The general trend with the Late Archaic is for fewer, but larger sites, within the inter-riverine zone with exploitive behavior being increasingly oriented toward the riverine and larger drainages of the inter-riverine zone (Brooks n.d.).

Woodland

The Woodland period (1000 B.C. to A.D. 1000) is generally represented by the widespread manufacture of ceramics, the construction of mounds, and a shift in subsistence from purely hunting and gathering to include horticulture. This did not involve intensive agriculture, but centered around more intensive/extensive utilization of native wild plants (Meggars 1972). Badin and Yadkin projectiles, as well as Deptford, Wilmington, and Cape Fear (Coe 1964) ceramics are characteristic of this time period.

These sites are generally large, multi-component and are generally located along rank 2 or higher drainages or near the confluence of 2 or more drainages. The tendency for Woodland sites to be associated with drainages reflects the shift toward agriculture during this period which intensified during the Mississippian. Many of the Woodland traits carried over into the Mississippian period with a higher degree of elaboration.

Mississippian

The term "South Appalachian Mississippian" has been used to refer to the Mississippian period (A.D. 1000-1600) in South Carolina and portions of adjacent states (Griffin 1967). The Mississippian period is characterized by a more complex social organization and subsistence

based on intensive maize agriculture. Villages were on the average larger and more permanent than before and tended to be located along major drainages (Griffin 1967). One of the more striking features of Mississippian culture is the large platform mound complexes which were constructed during this time. The mounds served as bases for temples and often had large village sites situated around them. Ceramics of this period exhibit complicated stamp decoration (Griffin 1967), while projectiles were small and triangular in shape. Ferguson (1971, 1973a, 1973b, and 1974) has conducted extensive research on the "South Appalachian Mississippian" in South and North Carolina and summarizes our current knowledge of this cultural time period.

Historic Period

The first reference to European contact with the Indians of the South Carolina Piedmont occurs in the chronicles of DeSoto in 1540 (Swanton 1952). DeSoto chroniclers refer to a Mississippian village named Cofitachiqui which is thought to be located in the Wateree-Congaree river area (Baker 1975). There are several sporadic accounts of contact with the Indians by explorers and fur-traders but, it was not until European settlement at Charles Towne in 1670 that contact between the two groups was firmly established (see Oliphant 1964).

During the early eighteenth century, 22 small tribes organized to form the Catawba Nation (Brown 1966). A series of treaties eventually led to the last property owned by the Catawbas being sold to Europeans and the migration of the Catawbas to North Carolina. In 1842, a reservation was established in Lancaster and York Counties, South Carolina. In 1959 this reservation was dissolved and the property divided among the remaining Catawbas (Brown 1966).

European settlement of Lancaster county began during the sixteenth century with the first permanent settlement in 1751 (Rogers 1973:124). The city of Lancaster was surveyed in 1802 (Richards 1933). The first settlers were Scotch-Irish immigrants who left their Pennsylvania settlements for South Carolina. Westward expansion in Pennsylvania met hostile resistance from Indian groups there. On July 9, 1755 General Braddock was defeated, thus leaving the settlers totally open to attack. Denied help from the Quakers, many abandoned their settlements and came southward to the Waxhaw District of South Carolina, now Lancaster County.

Farming was the primary occupation of the early settlers. They cut and cleared fields in order to plant wheat, corn, hemp, and after 1790, cotton. By 1880, cotton was the major crop of the South Carolina Piedmont. Agricultural practices and land management were disastrous. Fields were cleared and planted to exhaustion. Once unproductive, a field would be abandoned and exposed to the processes of erosion and new fields were cleared and the cycle renewed (Rogers 1973:124; Trimble 1974).

The end of the Civil War brought major changes in the plantation system.

Modifications in the form of share-cropping and the lien system, allowed farming a last chance to maintain economic supremacy; however, by the end of the nineteenth century labor problems and depleted soils forced a shift from farming to manufacturing (Trimble 1974).

Today, the majority of the watershed area is rural nonfarm. Only 16% of the area is cultivated with another 20% in pasture or idle. Of the farms in the area, only 30% are considered commercial and almost half of these had sales of under $2,500.00 (United States Department of Agriculture 1967:3-6).

SURVEY METHODOLOGY

Preliminary to actual field survey, a check was made of the site files at the Institute of Archeology and Anthropology, University of South Carolina in order to determine if any sites had been previously recorded in the proposed project area. In addition, Mills' Atlas of South Carolina was checked for the possible existence of early historic structures in the area. Although no historic or prehistoric sites were on file at the Institute, Mills' Atlas (1965) recorded an historic mill located within the proposed project area, at the confluence of Bear Creek with two unnamed tributaries (Fig. 2). Visual inspection and subsurface testing failed to locate the site and it is probable that road construction has destroyed the site.

Field methodology was determined, to a large extent, by environmental conditions existing in the project area during the time of the survey (Fig. 3). Examination ot the area consisted of an on-foot visual survey, checking plowed fields, eroded gullies, and other cleared surfaces for cultural material. Since most of the project area was covered, either by dense vegetation or pasture, it was necessary to excavate 275 small 30 by 30 centimeter test squares.

Once identified, sites were plotted on U.S. Geological Survey topographic maps and surface collections were made in order to determine cultural affiliation, site extent, and density. An attempt was made at low density sites to make a total collection of surface material. The high density sites, however, were collected with the intention of attaining a representative sample of diagnostic artifacts and raw material.

If site extent could not be determined by surface examination alone, as with sites located adjacent to or in wooded areas, subsurface tests were excavated in the site. Site data and artifacts, as well as project photographs, were processed by lab personnel and are presently on file at the Institute of Archeology and Anthropology.

FIGURE 2. Vicinity of historic mill from Highway 36.

FIGURE 3. Environment typical of most of project area.

38LA45. This site, located on a ridge nose overlooking an unnamed tributary of Bear Creek, is represented by a low density lithic scatter of quartz flakes. Cultural material was collected from an area of 100 by 100 feet. Although the surface collections represent the total of observed cultural material, there is a possibility of more cultural material being present. Material collected includes 1 large quartz flake, 3 quartz thinning flakes, and 1 utilized quartz blade.

38LA46. This site is located on a ridge slope overlooking an unnamed tributary of Bear Creek. All of the material, except for 1 large quartz flake, was historic in origin, and was collected from a plowed field over an area of 50 by 50 feet. Subsurface testing failed to locate any features or structures, therefore it seems probable that this site represents a modern dump area. Material collected from this site includes 11 ironstone whiteware, 2 albany slipware, 2 milkglass fragments, 7 carnival glass fragments, 1 round wire nail, and 1 door hinge, all indicators of 20th century occupation.

38LA47. This site is located on a ridge slope overlooking an unnamed tributary of Bear Creek. The site is situated above a pond in a highly eroded area near the top of the tributary valley. The material collected, which represents a total collection, consists of 2 Coastal Plain chert thinning flakes and 1 Coastal Plain chert biface fragment. Although the biface fragment is non-diagnostic, the presence of numerous step fractures and the lack of pressure flaking treatment suggests a Late Archaic/Woodland occupation. The material was collected from a 25 by 25 feet area which was badly eroded. Subsurface testing was implemented to determine site extent, however, no additional material was located with the tests.

38LA48. This site is located on the terrace edge of the floodplain, on the western side of Caney Creek, a tributary of Bear Creek. The material was found on an eroded pond dam and the surrounding area had been disturbed by the construction of the pond. No subsurface testing was considered necessary due to the construction disturbance. Material from this site consists of 1 quartz contracting stem biface and 1 quartz flake. The biface fragment conforms to the description, by Poplin (n.d.), of an Adena type, which represents Late Archaic/Early Woodland occupation.

38LA49. This is a multi-component (prehistoric and historic) site located on a ridge nose overlooking the confluence of Caney Creek and an unnamed tributary. Both historic and prehistoric material came from an area of 100 by 200 feet and represented a total collection of visible material. The field was in cultivation and had been recently plowed allowing for excellent ground surface visibility. Several subsurface tests were excavated in order to determine site density and depth, and to check for subsurface features. No material was located in any of the tests. There were no apparent concentrations of material and no evidence of structures or features. The prehistoric material consists of 1 Coastal Plain chert Palmer biface fragment, indicative

of Early Archaic (8000 to 5500 B.C.) occupation; 2 quartz biface fragments; 1 quartz side scraper; 1 quartz preform; and numerous quartz and slate flakes. The historic material consists of 12 plain pearlware, 11 blue shell-edged pearlware, 3 blue hand painted pearlware, 2 poly-chrome hand painted creamware, 1 annular pearlware, 1 kaolin pipe fragment, earthenware and whiteware fragments, wine glass, and 1 piece of kettle. An early colonial period occupation (1750-1800) is suggested by these ceramics.

38LA50. Located on the east side of Caney Creek just north of a county dirt road, this site consists of a frame tenant shack and a frame barn, located to the west of the house. Fairly recent occupation of this house is indicated by an electrical hook-up at the house and modern trash to the rear of the structure. The material was collected from a plowed field area 150 by 150 feet, approximately 75 feet northeast of the house. The material collected consists of several milkglass and bottle glass fragments, 10 ironstone whiteware fragments, 1 albany slipware, 1 fishing rod fragment (fiberglass), 1 blue and white marble, and 1 toothpaste tube top, all of which represent 20th century occupation.

38LA51. This site is situated on a ridge nose that overlooks a small tributary of Bear Creek, and is represented by a low density scatter of quartz and slate flakes. The material was found in an area 50 by 50 feet eroding from a field road. Subsurface testing in the wooded areas surrounding the site failed to locate additional material, thus supporting surface indications of a low density site. The material consists of 5 slate and 1 quartz thinning flakes.

38LA52. This site is located on a ridge nose that overlooks Bear Creek to the south. Five quartz flakes were collected from a 50 by 50 feet area which had been exposed by erosion and previous borrowing activities. No subsurface testing was felt necessary for this site due to past borrowing activities.

38LA53. This site, located on a ridge nose overlooking Bear Creek, is represented by two ceramic fragments (1 brown ironstone and 1 ironstone whiteware) found along an unimproved dirt road. The material collected represents a total collection of observed material and subsurface tests failed to locate any additional material. Mid 19th to early 20th century occupation is indicated by the artifacts.

38LA54. Located on a ridge top overlooking Bear Creek, this site represents Middle and Late Archaic (5500 to 3000 B.C. and 3000 to 1000 B.C.) occupation of the area. Material from this site consists of 2 Morrow Mountain II biface fragments and 1 Savannah River-Otarre biface of porphoritic rhyolite, which were collected from a plowed field approximately 500 by 200 feet. Although the three bifaces were the only material collected, the large supply of quartz in the field suggests the probability of more cultural material being present. No subsurface testing was considered necessary due to the excellent ground surface visibility from recent plowing activity.

38LA55. This site is located on a terrace which overlooks Bear Creek. Both historic and prehistoric material was found in an erosional

area approximately 50 by 50 feet adjacent to wooded bottomland. The material collected represents a total collection of visible material and subsurface testing failed to locate any additional material in the wooded areas surrounding the site. Cultural material from this site includes 1 slate Yadkin biface fragment, indicative of Early Woodland occupation; 3 slate flakes; 1 quartz biface fragment; and 3 quartz flakes. Historic material consists of a door hinge and 2 metal file fragments, all 20th century indicators.

38LA56. Located 150 feet west of county highway 36 at Bear Creek bridge, in the proximity of the proposed dam, this site is on a bottomland knoll/terrace remnant situated in the floodplain approximately 100 feet north of Bear Creek. The knoll is approximately 50 by 50 feet and 3 to 4 feet above the floodplain. Ten test excavations were placed in the site with eight of ten tests producing artifacts. The cultural material consisted primarily of quartz and slate flakes, with 1 quartz preform and several quartz chunks also being present. Although the site seemed to have a relatively high density of material, no diagnostic artifacts were recovered.

38LA57. Located on a ridgetop overlooking the confluence of two unnamed tributaries of Caney Creek, and south of a county dirt road, this site consists of a frame tenant house and a low density scatter of ceramic material. The collection of cultural material came from plowed fields around the structure, and consists of milkglass and bottle glass fragments, 2 albany slipware, 16 ironstone whiteware, and 1 yellow glazed ironstone ceramic fragments. All of this material is indicative of 20th century occupation. The structure is set on unmortared stone footings and is constructed with wire nails.

38LA58. This site is located on a ridge nose that overlooks Bear Creek to the south. Artifacts from this site consist of an isolated find of two quartz thinning flakes. Quartz material is abundant over the area, therefore, the presence of additional material is probable.

38LA59. Located on a ridge nose overlooking Bear Creek, this multi-component site is represented by a moderate density of lithic material over an area of approximately 800 by 200 feet. An attempt was made to collect a representative sample of observed artifact types and raw material. The cultural material consists of 1 slate Morrow Mountain II biface and 1 quartz Savannah River biface fragment, indicative of Middle and Late Archaic occupation; 1 quartz unidentified biface fragment; 2 quartz preforms; 19 quartz flakes; 24 slate flakes; and 1 slate chunk. Since the material was collected from a plowed field, which allowed for excellent ground surface visivility, no subsurface testing was considered necessary. The high percentage of various stage thinning flakes in relation to low percentage of diagnostic artifacts indicate that this site has probably been extensively visited by local collectors. The historic material consists of a low density scatter of ceramic and glass fragments including 3 fragments of ironstone whiteware and 1 glass bottle neck fragment.

38LA60. This site consists of a moderate density scatter of lithic material, and is located across a small drainage to the northwest of site 38LA59. The site is situated on a ridgetop and the adjacent slopes

overlooking a small tributary of Bear Creek. The drainage has been dammed for the construction of a small stock pond, which is located to the east of the site. Cultural material was collected from a plowed field approximately 600 by 200 feet and consists of 4 slate and 7 quartz flakes and 1 quartz chunk. No diagnostic material was located at this site and it seem probable that local collectors have exhausted the original representation. No subsurface testing was considered necessary for this site due to the excellent ground surface visibility from recent plowing.

THEORETICAL ORIENTATION AND SITE PATTERNING

Observed Regularities in the Carolina Piedmont and Their Change Through Time

Working with data from the Piedmont of South Carolina, Brooks (n.d.) has noted several regularities in site patterns and has plotted change through time. These regularities are based on data presented by House and Ballenger (1976), Goodyear (1978), Taylor and Smith (n.d.), Cable and Michie (1977) and Cable, Cantley, and Sexton (1978). From these observed regularities he has developed a subsistence-settlement model based on a late winter-early fall riverine resource exploitation and a late fall-early winter exploitation of the inter-riverine zone. According to this model the prehistoric populations were using the highly productive riverine zone during late winter to early fall; however, with the onset of late fall until early winter they were following the deer into the oak/hickory forest which existed on the higher, better drained soils. During this time the inter-riverine zone offered not only concentrations of deer, but also nut and acorn gathering opportunities. House and Ballenger (1976), from data from the I-77 survey, suggested a similar model based on seasonal inter-riverine/riverine resource use. The following data are summarized from Brooks (n.d.) which is followed by an application of Cane Creek 10-D site data into the model.

The Archaic period (8000 to 1000 B.C.) has the highest representation of prehistoric sites in the Piedmont, with the Middle Archaic (5500 to 3000 B.C.) sites being found more frequently than Early or Late Archaic sites. Archaic sites are generally located on ridgetops where the terrain is relatively flat or gently sloping. Most Archaic sites in the Piedmont inter-riverine zone are low density lithic scatters associated with rank 1 and 2 drainages; however, large Archaic sites overlooking rank 2 or higher drainages have been recorded. Small extraction sites exhibit evidence of late stage biface tool manufacture and maintenance, whereas larger/occupation sites exhibit evidence of early and late stage manufacture. These small extraction sites may be located along less productive areas, on slopes and adjacent to narrow, undifferentiated rank 1 and 2 drainages.

Within the Archaic period, Early Archaic sites (8000 to 5500 B.C.) are the least frequently found and these sites are generally small with only an Early Archaic component, or Early Archaic components may be minimally represented at large multi-component sites. There is a tendency for Early Archaic sites to be located along watershed divides.

Middle Archaic sites (5500 to 3000 B.C.) are often highly represented at multi-component sites. These sites are commonly associated with Late Archaic components. Most Middle Archaic sites are low-density lithic scatters not exceeding 75 meters.

Late Archaic sites (3000 to 1000 B.C.) tend to be poorly represented

in the inter-riverine zone of the Piedmont, however, when present, they are most often associated with Middle Archaic components and are often highly represented at large sites where the terrain is relatively flat. Sites from the Late Archaic are highly represented at rank 2 and higher drainages where Middle Archaic and Woodland sites are present. The number of sites seems to have declined over the Middle Archaic with a shift toward fewer but larger sites and behavior seems increasingly oriented toward riverine and higher ranked drainages of the inter-riverine zone.

The Woodland period (1000 B.C. to A.D. 1000) represents a small percentage of the total of sites in the inter-riverine zone. These sites are often large multi-component sites and are generally associated with relatively broad bottomland areas along rank 2 or higher drainages or near the confluence of 2 or more drainages. Woodland components may be minimally represented at large multi-component Archaic ridgetop sites. During this period there is a decline in the number of low density lithic scatters in the less than optimal zones.

Mississippian period (A.D. 1000 to 1600) sites are found only infrequently in the Piedmont inter-riverine zone. These sites tend to be larger than sites of previous periods and are more likely to be single component sites. Mississippian sites tend to be located along high ranked drainages with considerable bottomland.

Site Patterning in the Cane Creek 10-D Project Area

Although the Cane Creek 10-D survey represents a small restricted environmental situation and should not necessarily be considered indicative of Lancaster county or the South Carolina Piedmont as a whole, the data from this project area does tend to support Brooks' (n.d.) model of settlement in the inter-riverine zone of the South Carolina Piedmont.

Archaic sites from the Cane Creek survey are generally low density lithic scatters associated with rank 1 and 2 undifferentiated drainages. Four of the seven Archaic sites were located along ridge slopes instead of level, relatively flat areas; however, if these sites represent extractive/maintenance activities, then they may tend to be located in less than optimal zones where the resource may be located (see Table 1).

A further breakdown of the data shows that, in line with the model, Early Archaic sites are the least represented of the Archaic components and the sites occur as a single component site. Middle Archaic sites show a correlation with late Archaic components as well. The Late Archaic sites (38LA47, 38LA48, 38LA54, and 38LA59) are all multi-component with 38LA54 and 38LA59 containing Late and Middle components, while 38LA47 38LA48 contain Late Archaic and Woodland components. Following Brooks' model, these multi-component sites are associated with rank 2 drainages. The Woodland sites are poorly represented in the Cane Creek 10-D project area with respect to the Archaic sites. Two of the three Woodland sites

are multi-component sites, associated with Late Archaic components, and all three sites are located on rank 2 drainages (see Table 1).

According to Brooks' model, changes through time reflect the changing oak/hickory forests associated with the climatic change that took place in the Southeast during the glacial and post-glacial periods up to modern times. The changes in site patterning reflected in the archeological record are viewed as the results of changes in organizational/exploitive patterns resulting from evironmental/subsistence base changes. For a more complete discussion of this model see Brooks (n.d.).

Although the data from the Cane Creek 10-D archeological survey tend to support the subsistence settlement pattern for the Piedmont of South Carolina as developed by Brooks (n.d.), there are several problems which must be considered in evaluating sample representativeness. The sites recorded during this survey were opportunistic finds from plowed fields, and erosional areas; therefore all potential resources may not have been given equal opportunity to be recovered. Sites buried by modern alluvium cannot be recovered by our present survey methodologies. Also much work needs to be done toward determining site function before the model will be adequately tested.

TABLE 1

DIAGNOSTIC PREHISTORIC SITES IN CANE CREEK RESERVOIR

Site Number	Cultural Affiliation	Geographical Location	Drainage Rank	Site Extent (ft.)	Multi-Component
			Early Archaic		
38LA49	Palmer	top of ridge nose	confluence of 2 rank 2	100 by 200 feet Low density	
			Middle Archaic		
38LA54	Morrow Mountain II	ridge top	2	500 by 200 feet Low density	w/LA
38LA59	Morrow Mountain II	ridge nose	confluence of rank 1 and 2 drainage	800 by 200 feet Mod. density	w/LA
			Late Archaic		
38LA47	Late Archaic	ridge slope	1 & 2	25 by 25 feet Low density	w/W
38LA48	Adena (L.A./E.W)	terrace	confluence of rank 1 & 2		
38LA54	Savannah River-Otarre	ridge top	2	500 by 200 feet Low density	w/MA
38LA59	Savannah River	ridge nose	confluence of rank 1 & 2	800 by 200 feet Low density	w/MA
			Woodland		
38LA47	E.W.	ridge slope	1 & 2	25 by 25 feet Low density	w/LA
38LA48	Adena (L.A./E.W.)	terrace	2		
38LA55	Yadkin	terrace	2	50 by 50 feet Low density	

ARCHEOLOGICAL SIGNIFICANCE AND RECOMMENDATIONS

Several factors severely restricted the evaluation of potential archeological resources located in the Cane Creek 10-D project area. The lack of good ground surface visibility, due to dense vegetation and heavy leaf litter, made detection of surface material almost impossible. Considering the limitations of subsurface testing for locating low density sites, it seems probable that buried sites or sites in areas of dense vegetation went undetected.

Before any recommendations can be made pertaining to the archeological resources present in the Cane Creek 10-D project area, an assessment of the significance of these sites is essential. This includes an assessment of several factors, including the historical, recreational, educational, and scientific potential of those resources to the cultural heritage of the State. The sites recorded during the Cane Creek survey offer little potential for further historical, recreational, or educational information and therefore are not considered eligible for the National Register of Historic Places.

The prehistoric sites recorded during this survey are significant in terms of their scientific contributions to the understanding of South Carolina Piedmont prehistory. These sites fit well into the subsistence-settlement model for the inter-riverine zone of the Piedmont (Brooks n.d.) and are significant in terms of on-going research objectives of the Institute. While most of the sites are low density lithic scatters with undiagnostic artifacts, three of the sites are of moderate density and should be further studied if in danger of future impact.

Only three sites--38LA48, 38LA52, and 38LA56--recorded during this survey were located within the direct impact zone of the project. Sites 38LA48 and 38LA52 had been previously disturbed by recent construction and borrow activities. Due to the disturbance and to adequate surface collection during the survey, no further archeological work is recommended for these sites. Site 38LA56 is a small, bottomland knoll site located in the floodplain of Bear Creek near the construction site of the proposed dam. This site is represented by a moderate density of slate and quartz flakes, as indicated by the presence of material in eight of ten test excavations. Due to the lack of diagnostic artifacts or features, it is felt that further work at this site would not be cost-effective in terms of the type of scientific information to be gained, therefore no further work is recommended for this site.

The remaining thirteen archeological sites are located above the water pool level and are presently out of danger of being inundated by the proposed reservoir. The possibility of secondary impact from clearing and future construction activities exists in areas adjacent to the water pool. The material collected from sites 38LA46, 38LA47, 38LA49, 38LA53, and 38LA55 represent total surface collections and sites 38LA45, 38LA50, 38LA51, 38LA57, and 38LA58 are non-diagnostic low density lithic scatters. Although these sites are significant in terms of the subsistence-settlement model for the Piedmont inter-riverine

zone, due to the low density or total collections made, it is felt that routine surface collections made during the intial survey have sufficently mitigated any adverse impact of the proposed reservoir on these sites. Therefore no further work is recommended for these sites.

Three sites, however --38LA54, 38LA59, and 38LA60--are moderate to high density lithic scatters with representative diagnostic material. Any possible impact, either from reservoir construction or from future development of the area, should be mitigated by controlled surface collections and limited test excavations. These conservation measures would take 3 field days per site with an additional 9 days per site for laboratory analysis. Controlled surface collections and limited test excavations would allow for inferences to be made concerning possible activity areas within each site, site function, inter- and intra- site varibility, and determination of the presence or absence of subsurface features. This type of information is necessary in order to determine the function of these sites in terms of the subsistence-settlement model for the Piedmont of South Carolina.

In summary, sixteen sites were recorded during the Cane Creek 10-D archeological survey. These sites are significant to on-going problem oriented reserach of the Institute of Archeology and Anthropology. Only three sites were located within the direct impact zone and routine surface collections have adequately mitigated the potential impact. Therefore, the 10-D impoundment area, within the flood pool and dam area is given archeological clearance for construction of the dam and reservoir. Those sites located outside the flood pool level may possibly be impacted by secondary construction and future development activities. The potential impact to ten of these sites has already been mitigated by routine surface collecting and sampling. The remaining three sites--38LA54, 38LA59, and 38LA60--represent a wealth of potential scientific information and these areas should be avoided as access roads, borrow areas, etc. during construction of the dam and reservoir or during future development of the area. If impact to these sites cannot be avoided then appropriate mitigation should be undertaken. This would involve 3 field and 9 laboratory days at each site.

REFERENCES

BAKER, STEVEN G.

1975 Working draft of the historic Catawba peoples: exploratory perspectives in ethnology and archeology. Department of History, University of South Carolina. Prepared for Duke Power Company and other sponsors of Institutional Grant J-100.

BEATTY, ERNEST A.

1923 Historical perspectives. In Lancaster County, economic and social, edited by Ernest A. Beatty and Carl W. McMurray. *Bulletin of the University of South Carolina* 132.

BROCKINGTON, PAUL E.

n.d. An archeological survey of the Soil Conservation Service Cane Creek Reservoir 18A, Lancaster County, South Carolina. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series,* in preparation.

BROOKS, MARK J.

n.d. Archeological survey of Stony Fork Creek in York County, South Carolina; with a subsistence-settlement model of culture change for the inter-riverine Piedmont of South Carolina. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series,* in preparation.

BROWN, DOUGLAS S.

1966 *The Catawba Indians: the people of the river.* University of South Carolina Press, Columbia.

BUTZER, KARL W.

1976 *Geomorphology of the earth.* Harper and Row Publishers, New York.

CABLE, JOHN S. AND JAMES L. MICHIE

1977 An archeological reconnaissance of the Chesnee by-pass, Cherokee and Spartanburg Counties, South Carolina. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* 119.

CABLE, JOHN S., CHARLES E. CANTLEY AND JIM S. SEXTON

1978 A study of prehistoric utilization of the inter-riverine Piedmont: the U.S. 176 by-pass survey from Union to Pacolet, South Carolina. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* 131.

CAMBRON, JAMES W. AND DAVID C. HULSE

1964 *Handbook of Alabama archeology,* part 1, *point types,* edited by David L. Dejarnette. Archeological Research Association of Alabama.

COE, JOFFRE L.
1964 The Formative cultures of the Carolina Piedmont. *Transactions of the American Philosophical Society*, n.s. 54.

FERGUSON, LELAND G.
1971 *South Appalachian Mississippian*. Ph.D. dissertation, University of North Carolina. University Microfilms, Ann Arbor.

1973a Mulberry plantation exploratory archeology. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* 54.

1973b Exploratory research at Scott's Lake site (38CR1): Santee Indian mound-Fort Watson, summer 1972. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* 36.

(EDITOR)
1974 Archeological investigations at the Mulberry site. *Institute of Archeology and Anthropology, University of South Carolina, The Notebook* VI (3 and 4).

GOODYEAR, ALBERT C.
1975 A general research design for highway archeology. *Institute of Archeology and Anthropology, University of South Carolina, The Notebook* VII (1): 3-38.

1978 An archeological survey of the primary connector from Laurens to Anderson, South Carolina. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* 122.

GOODYEAR, ALBERT C., NEAL W. ACKERLY, AND JOHN H. HOUSE
n.d. Regional settlement models in the South Carolina Piedmont: a survey of the Laurens-Anderson connector route. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* in preparation.

GRIFFIN, JAMES B.
1952 *Archeology of eastern United States*. University of Chicago Press, Chicago.

1967 Eastern North American archeology: a summary. *Science* 156 (3772): 175-191.

HOUSE, JOHN H. AND DAVID L. BALLENGER
1976 An archeological survey of the I-77 route in the South Carolina Piedmont. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* 104.

JACKSON, SUSAN
1975 A survey and evaluation of the Little Lynches Creek watershed in Lancaster County, South Carolina. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series* 75.

KEEL, BENNIE C.
1976 *Cherokee Archeology*. University of Tennessee Press, Knoxville.

MEGGARS, BETTY J.
1972 *Prehistoric America*. Aldine Publishing Company, Chicago.

MICHIE, JAMES L.
1977 The late Pleistocene human occupation of South Carolina. Senior Honors Thesis, Department of Anthropology, University of University of South Carolina.

MILLS, ROBERT
1965 *Mills' Atlas of South Carolina*. Robert Pearce Wilkins and D. Keels, Columbia.

OLIPHANT, MARY C. SIMMS
1964 *The history of South Carolina*. Laidlaw Brothers, Publishers, River Forest.

PHELPS, DAVID S.
1964 *The final phases of the Eastern Archaic*. Ph.D. dissertation, Tulane University. University Microfilms, Ann Arbor.

RICHARDS, J. P.
1933 The background of the history of Lancaster County, South Carolina. Radio broadcast at WBT, Charlotte, December 1, 1933.

ROGERS, VERGIL A.
1973 *Soil survey of Lancaster County, South Carolina*. United States Department of Agriculture, Soil Conservation Service, Washington, D.C.

SHELFORD, VICTOR
1974 *The ecology of North America*. University of Illinois Press, Arbana.

STOLTMAN, JAMES B.
1974 Groton Plantation: an archeological study of a South Carolina locality. *Peabody Museum, Harvard University, Monograph* 1.

SWANTON, JOHN R.
1952 The Indian tribes of North America. *Bureau of American Ethnology Bulletin* 145.

TAYLOR, RICHARD AND MARION SMITH
1978 The report of the intensive survey of the Richard B. Russell Dam and Lake, Savannah River, Georgia and South Carolina. *Institute of Archeology and Anthropology, University of South Carolina, Research Manuscript Series*, in preparation.

TRIMBLE, STANLEY
1974 *Man-induced soil erosion on the Southern Piedmont.* Soil Conservation Society, Ackeny, Iowa.

WAUCHOPE, ROBERT
1966 Archeological survey of Northern Georgia. *Society for American Archeology, Memoir* 21.

WILLEY, GORDON R.
1966 *Introduction to American archeology*, Part 1, *North and Middle America.* Prentice-Hall, Englewood Cliffs, New Jersey.

WILLIAMS, STEPHEN (EDITOR)
1968 The Waring papers: the collected works of Antonio P. Waring, Jr. *Papers of the Peabody Museum of Archeology and Ethnology* 58.

UNITED STATES DEPARTMENT OF AGRICULTURE
1967 *Watershed work plan: Cane Creek watershed, Lancaster County, South Carolina and Union County, North Carolina,* United States Department of Agriculture, Soil Conservation Service.