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## Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson

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# Studies in South Carolina Archaeology

*Essays in Honor of Robert L. Stephenson*

Edited by  
Albert C. Goodyear, III  
and  
Glen T. Hanson

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**ANTHROPOLOGICAL STUDIES 9**

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Occasional Papers of the  
South Carolina Institute of Archaeology and Anthropology  
The University of South Carolina

Studies in  
South Carolina Archaeology

*Essays in Honor of Robert L. Stephenson*



Robert Lloyd Stephenson  
Director and State Archaeologist, 1968-1984

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South Carolina Institute of Archaeology and Anthropology  
The University of South Carolina  
Columbia, South Carolina

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## Robert Lloyd Stephenson

Robert Lloyd Stephenson was born in Portland, Oregon, February 18, 1919, and was reared in the eastern Oregon town of Lakeview. Here he began surface collections of artifacts unaware that this could lead to a career in archaeology. He used the collections to establish a small museum in the High School.

He received his undergraduate training at the University of Oregon, initially in law, but changed to anthropology in his junior year. During his undergraduate years he participated in several cave and open site excavations in the desert of southeastern Oregon under the direction of Dr. Luther S. Cressman. He received his Bachelor of Arts degree under the direction of Dr. Cressman in 1940. Together with Alex Krieger he spent several months in 1939 in survey and excavation along the Columbia River behind the Grand Coulee Dam in eastern Washington.

After graduation he was employed by the University of Texas in the University of Texas-Works Progress Administration Program as laboratory supervisor in San Antonio. In 1941 he went to New Mexico where he and Joseph Toulouse excavated the ruins of Pueblo Pardo. That fall he returned to the University of Oregon where he earned the Master of Arts degree in 1942.

World War II interrupted his career, and he served four years in the United States Marine Corp seeing duty in South America. In 1945 he married Georgie E. Boydston of Lakeview, Oregon. After the war he returned to Texas where the Smithsonian Institution planned to open an office of the Bureau of American Ethnology's River Basin Survey. This did not materialize immediately, and he and Georgie bought and operated a grocery store for a year. In 1947 they sold the grocery and he became Director of the Texas Project of the River Basin Surveys under the direction of Dr. Frank H.H. Roberts, Jr.

After five years he took a leave of absence to pursue the Ph.D. degree at the University of Michigan but was recalled the next year to supervise the Missouri Basin Project of the River Basin Surveys at the University of Nebraska in Lincoln. He completed his doctorate in 1956 with a dissertation on the Accokeek Creek site in Maryland. He continued as Director of the Missouri Basin Project until Dr. Roberts's retirement in 1963 when he was asked to come to Washington, D.C., as Acting Director of the River Basin Surveys for the entire United States.

When the Bureau of American Ethnology was abolished in 1966 he asked for, and received, the first sabbatical ever awarded by the Smithsonian Institution. He then joined the University of Nevada to establish the Nevada Archeological Survey where he served as statewide coordinator for two years.

In August 1968 he came to the University of South Carolina as Director of the Institute of Archeology and Anthropology and as State Archeologist. He served in this capacity until his retirement in June of 1984. His wife had died in 1983 and he married Patricia Ewer of Gold Hill, Oregon, in 1984. Patricia died in November 1988.

During his 16 year tenure, the Institute grew from two persons to a staff of over 25 full-time employees including professional archaeologists and support staff. He founded and edited the *Notebook* to report research and activities of the Institute and initiated the Research Manuscript Series to report on small projects and the Anthropological Studies to publish the major monographs of the Institute. He brought to the Institute the same purpose that characterized the Smithsonian Institution: to promote "the increase and diffusion of knowledge among men". The essays in this volume testify to the wisdom and success of that philosophy.

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# Foreword

This *Festschrift* celebrates our esteemed colleague Dr. Robert Lloyd Stephenson and his 16 years of service to South Carolina and its cultural heritage.

In 1988 the South Carolina Institute of Archaeology and Anthropology celebrated its 25th anniversary, it having been created in 1963 as the South Carolina Department of Archaeology with a Director and State Archaeologist. Dr. Stephenson was the second State Archaeologist and the second Director of the Institute (as it became in 1967) from his arrival in 1968 to his retirement in 1984. A great deal of the modern professional archaeological research in the state was done during this period of his tenure and under the influence of the Institute. Thus, it is most fitting that this volume summarizes much of that research activity and those accomplishments.

Bob Stephenson's legacy of support for the Institute and for South Carolina archaeology goes well beyond his prominent service as the Director and State Archaeologist. For example, at his retirement Bob donated to SCIAA his considerable library, a very important body of books, journals, and papers collected over 50 years.

In recognition of this valuable gift by Bob, and as an effort to well maintain and expand the Institute's library, a trust fund was established for the Institute at the University of South Carolina. This "Robert L. Stephenson Library Fund" was created by Dr. Al Goodyear in honor of Bob, and the earnings will directly support the intellectual value of the SCIAA library. Funding for this trust came from the private contributions of over 70 people, friends who have known and admired Bob over his long and productive career.

Further, in 1989 Bob once again showed his commitment and support for the Institute and the archaeology of South Carolina by giving us a \$50,000 endowment to, in his words, "...promote the increase and diffusion of knowledge of and about the prehistoric and/or historic peoples of the State of South Carolina on land or beneath the waters of the State." The earnings from this trust will supplement the actual research of SCIAA and the administration and publication of that research.

And as for this *Festschrift*, I warmly acknowledge the work of Dr. Al Goodyear and Mr. Glen Hanson in its creation. We are all grateful to them for this effort and also for their own personal and professional dedication to South Carolina archaeology.

It is clear from the examples set by Bob Stephenson, and as illustrated by our many colleagues who contributed their works to this volume, that the field of American Archaeology and the intellectual corpus of our South Carolina Cultural History both exist as a composite of the works of many individuals. Thus we see that we all stand, *Festschrift* and all, on the shoulders of those such as Dr. Robert Lloyd Stephenson, who have gone before.

Let this work in Bob's honor stand as testimony to what was accomplished in the first 25 years of the Institute's and others' investigations in our great State, and as an inspiration for us, and our future, to build upon.

Bruce Rippeteau  
Director, and  
State Archaeologist

Albert C. Goodyear, III  
Associate Director for Research

## Preface

This volume was initially conceived around the time of the 40th Annual Southeastern Archaeological Conference held in Columbia, South Carolina, in 1983. The senior editor organized a session at that conference on aboriginal archaeology in South Carolina which was an effort to bring together scholars who could synthesize aspects of the state's prehistoric research to that date. It was also realized that Bob Stephenson's retirement as Director of the Institute and as State Archaeologist would take place the following year, and that it would be timely and appropriate to collect a series of papers that might both summarize the past 20 years of research in South Carolina and honor Bob. In 1984, invitations were extended to other colleagues who it was thought could contribute additional summaries and essays.

From the time he became Director until his retirement in 1984, Bob had a very inclusive view of archaeology. Drawing on his considerable experience with Federal archaeology programs in the Plains, he was predisposed to see the value of historical archaeology, not only of Indian populations but American, European, as well as African. And, archaeology was not just something to be done on dry land but underwater as well. The Institute under his leadership reflected great growth in the pursuit of prehistoric, historical, and underwater archaeology, each of which on several occasions was recognized at the national level for its accomplishments. The way much of this archaeology was accomplished was through cultural resource management studies. Bob had made a commitment early in his career to the study of endangered archaeological resources, first with the Bureau of American Ethnology's River Basin Surveys and for the last 16 years before retirement as the State Archaeologist of South Carolina. In Bob's view, the Institute was not only a full-time research facility with its own set of objectives, but was also a center that could and should help other organizations and individuals pursue their archaeological research. He enjoyed working with those outside the Institute whether they were in other state and federal agencies, colleagues in other departments and disciplines, students, or avocational archaeologists. The array of papers presented in this volume and the varied interests they reflect all speak of Bob's supportive interactions during his tenure.

We believe this volume to be a useful selection of the substantive findings, literature, and interpretive thinking of archaeologists working in South Carolina for the past 25 years. A concerted effort was made to obtain papers on all the major time periods as well as special topics wherever possible. At least two important topics of study are not included. These are the prehistoric Early Archaic period and the 16th century Spanish site of Santa Elena. For the Early Archaic, the interested reader may consult the summary article by David Anderson and Glen Hanson published in 1988 in *American Antiquity* (Vol. 53, No. 2, pp. 262-286). For the work at Santa Elena, Stanley South, Russell Skowronek, and Richard Johnson also published in 1988 their lengthy volume *Spanish Artifacts from Santa Elena* as Anthropological Studies 7 in the Institute's Occasional Papers.

It is difficult to adequately thank the many people who made this volume possible. First, we would acknowledge the patience and good will of the authors who suffered for these many years waiting for their papers to be published. The senior editor will accept responsibility for the delays and state that without the Macintosh computer aid provided by Glen Hanson beginning in 1988, it is unlikely the volume would now be published. The interest and encouragement of Dr. Bruce Rippeteau, Director and State Archaeologist, is also acknowledged. Word processing was done by Mary Joyce Burns and Diane Moses. Technical editing was done by Kenn Pinson. Final proofreading was done by George S. Lewis. Formatting and layout was done by Karen Wooten. We would particularly like to acknowledge Karen's talents in her craft and would attribute any aesthetically pleasing qualities of the book to her.

Albert C. Goodyear, III  
Glen T. Hanson

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# Chapter 1

## SOUTH CAROLINA HUMAN REMAINS AS AN ARCHAEOLOGICAL RESOURCE: AN UPDATE

Ted A. Rathbun

### INTRODUCTION

The importance of human remains as a significant archaeological and historical resource increasingly is being recognized. This paper, originally written for non-physical anthropologists, reviews the major points of consideration for human remains in archaeological contexts, provides some examples of osteological research conclusions, and indicates some of the major works available for further reference. Results from osteological studies conducted since 1980 have been added.

Finding an old bone may not be as exciting as the discovery of a Paleoindian projectile point, a temple mound, or the stockade of an historic town, but the potential for a better understanding of the life ways of these earlier South Carolinians may be present in the bone itself. Because the skeleton is a living system, it reflects the influences of both genetic and environmental conditions – natural and social – of the individual during development. Although each of us is unique in a technical sense, we share certain characteristics with our local groups and have experienced similar influences during our development. There are many similarities between the analysis of patterns within human variation and the analysis of patterns in past and present cultural systems. Just as the potsherd or broken lithic tool may indicate cultural process, so too may a human bone fragment reflect cultural processes.

Although there is a considerable range of archaeological information available about South Carolina's past, we still know very little about the early people themselves. This gap in our knowledge can be attributed to two interrelated factors. Preservation of skeletal material is not particularly good in the acidic and often wet soils of the state. Even given the relatively poor expectations for recovering perishable materials such as bone, there has been surprisingly little systematic attempt to locate and recover human remains. In fact, there are disturbing rumors that some archaeologists avoid burials because of the amount of time involved in their proper excavation. Examples of hasty

and poor exhumation also exist. Needless to say, the osteologist's reaction is one of dismay.

Given this state of affairs, why should human remains be of such concern? From a particularistic or humanistic perspective, the remains of these earlier people reflect the particular place in history and deserve documentation and analysis in their own right. They should be treated with the same respect we trust that our own remains will receive.

The scientific analysis of human remains can help document the structure of the group, reflect subsistence activities, illustrate cultural change processes through demography and pathology, and record the interaction of cultural and biological factors of human development. A data base of the biosocial nature of past groups should be a vital aspect of cultural resource management and preservation, as should archaeological research.

The mortuary practices of a group also reflect the ideological component of the cultural system. Documentation of settlement patterns, population growth, and pressure on a particular habitat, resource utilization, migration, and contact are of mutual interest to the archaeologist – traditional and "new" – and the osteologist. Ubelaker (1980) presents a clear, concise argument for human remains as a valuable archaeological resource. An edited volume by Brown (1971) illustrates numerous regional applications of mortuary data, and the collection by Blakely (1977b) documents biocultural adaptation in the Southeast through a range of new techniques. The 1985 meetings of the Southeastern Archaeological Conference also included a symposium specifically focusing on osteological findings in the Southeast region. The following material briefly reviews the major points of consideration for human remains in archaeological context, provides some examples of osteological research conclusions, and indicates some of the major works available for further reference.

## RECOGNITION AND TREATMENT OF HUMAN REMAINS

Bone is often encountered at sites of human activity. Recognition of the nature of the bone is relatively easy if the bone is intact and carries particular landmarks. Skulls are easily identified, but other parts of the skeleton can be identified as well. Observation of the teeth is especially important in the determination of humanness, and the joints and muscle attachment areas are important for correct diagnosis. Animal bone appears more ivory-like and compact than human bone, and in cross section, animal bone appears more laminated or layered. If the animal bone is relatively complete, it can be examined against a comparative collection to determine the variety of the specimen. If comparative collections are not available, several published works have drawings and descriptions to aid identification. Cornwall's (1956) *Bones for the Archaeologist* is still useful, and Olsen (1964, 1979) is especially useful for mammal and bird remains in the Southeast. Gilbert (1973) should be consulted for mammals in North America. Highly fragmented bone material can be a real challenge even for the professional osteologist. All bone should be retained since many new techniques of trace element analysis depend upon base line data drawn from the chemical composition of bones of herbivores as well as carnivores. No preservative should be applied unless absolutely necessary.

If the bone appears human, STOP! The disturbance or exhumation of human remains may have legal ramifications. Once it has been established that the bone is human, the local coroner should be contacted if the bone appears *recent*. This public official is charged with determining the manner, mode, and cause of death of all medically unattended deaths. The coroner, in turn, should be advised to contact a forensic physical anthropologist, the State Archaeologist, and the local law enforcement agency for proper collection and interpretation of material at the scene/site. If the remains are undoubtedly and obviously of prehistoric origin, the State Archaeologist should be contacted for advice. Although South Carolina has no official legal policy concerning prehistoric archaeological human remains, the possibility of complications from possible descendants of the past groups should be considered. Not only are native Americans increasingly concerned with *prehistoric* remains, but the descendants of *historic* groups – black, white, and red – may have sensitivities that must be considered. A number of these problems and alternative policies have been documented (Cybulski *et al.* 1979; Burke and Hall 1981; Bastian 1981; Ferguson 1971; Zimmerman and

Alex 1981; Anderson *et al.* 1978; Stump 1981; Talmage 1981). Some of the ethical problems and proposed guidelines for legal and less formal agreements among groups concerned with human remains are examined by Rosen (1980).

## EXHUMATION/EXCAVATION

Once proper clearance for excavation/exhumation has been obtained, the human remains should be treated as an archaeological feature in recovery strategy. Although general archaeological principles of scientific excavation apply, special considerations for human remains are documented by Bass (1971) and Brothwell (1963). The film, "Where Man Lies Buried," which is available through Instructional Services of the University of South Carolina, illustrates excavation and removal of burials in a number of contexts. Special techniques for the recovery and interpretation of osuary deposits are documented by Ubelaker (1974, 1978). Even forensic specialists have recognized the importance of archaeological techniques in these special circumstances (Morse, Crusoe, and Smith 1976). A more detailed treatment of methods of forensic archaeology is available (Morse *et al.* 1984), and Brooks and Brooks (1984) discuss the techniques for historical burials in the West.

The poor preservation of bone from acidic soils and moist conditions often found in the Southeast presents the excavator with numerous problems. Special care must be taken when the bone is first exposed. It should be very lightly brushed since the outer covering frequently flakes away. The bone should be allowed to dry naturally out of direct sunlight. Cloth frames over the excavation allow the bone to dry slowly and provide shade for the excavator. Although preservative can sometimes be applied to consolidate crumbly bone, at least half of the skeleton should remain untreated if at all possible. Many of the new techniques for determining diet rely upon trace elements, and preservatives may chemically alter the bone. Special attention should be given to the skull, pelvis, and ends of long bones since they are critical for later analysis. Hogue (1977) summarizes many of the techniques and problems for skeletal material in the Southeast.

Too often a skeleton exposed in the field and then photographed has disintegrated by the time it reaches the laboratory. As much care should be given to the removal, packing, and transportation of the material as went into its excavation. Bone should be pedestaled, allowed to dry, removed as a unit, wrapped in newspaper, placed in a labeled bag (indicate left, right, part of body, etc.), and then boxed as a unit. Most of the dirt

should be removed from the skull and not be allowed to dry into a hard ball which will further the destruction of the bone in transit. Small bones of the hands and feet should be bagged together and labeled as to orientation (e.g., which anatomical side).

### LABORATORY PROCEDURES

In many respects, human bone can be processed with the same techniques used for other archaeological specimens. Each skeleton should be treated individually and special care given to prevent mixing of the individuals. If preservation allows it, the bone should be dry-brushed. If dirt must be washed off, use only cool clear water, not soap. Use a shallow pan or place a screen over the drain of a deep sink since small fragments can be lost easily when the water is dumped. Any breaks should be noted and inspected to see if they are recent or old breaks. Breaks that occurred during burial or in the ground will have the same coloration as the exterior of the bone, but fresh breaks usually appear lighter in color. Old breaks may indicate that the skeleton was a secondary burial. Never scrape the bone since such scratches may be interpreted as cut, "scalping," or dismemberment marks by later investigators. Taphonomy or patterns of bone breakage and skeletonization may indicate cultural processes.

If deterioration is severe and preservation necessary, small units of the skeleton can be dipped into a solution of gelva and alcohol and then air dried. Do not use plastic cups dissolved in acetone, or white glue. Always save some of the bone untreated and mark it as such. Although restoration should be left to a professional, if a bone should break during processing, glue the broken pieces together with Duco cement after the bone has dried. Each fragment of bone should be labeled with water proof ink. Loose teeth should not be glued into the sockets, since examination of the root tip may indicate age of the individual. The tooth can be placed into the socket and kept with the bone. Bass (1971) provides a very good summary of the most important laboratory procedures.

### INDIVIDUAL ANALYSIS

Each individual skeleton deserves analysis. The collective features of a population are derived from individuals and are only as good as the analysis of each individual skeleton. Although the maximum amount of information will come from a complete skeleton, even fragmentary remains will provide data to expand our knowledge of a group. The procedures and techniques used in osteological, archaeological, and forensic work are similar but have different intents. The best

guides for basic analysis include Bass (1971), Ubelaker (1978), and Stewart (1970, 1979). New techniques are continually being developed and are published in the *American Journal of Physical Anthropology*, *Human Biology*, *Journal of Forensic Sciences*, and other journals.

In preparation for analysis, the bones should be laid out in anatomical order. Bass (1971) is the best guide for this since he provides descriptions and drawings of each individual bone and lists the criteria for determining side. Reference can also be made to anatomical drawings. The analysis of the individual skeleton should include determinations of sex, age, race, and specific features such as stature, handedness, metric and discrete features, as well as pathology. The composite description of the group can then be used to document population dynamics of past populations.

Humans, as well as many other species of animals, are sexually dimorphic; that is to say, the male and female attributes are expressed differently in the skeleton. The main differences are in size and robusticity of the different bones and the different architecture of the female pelvis which is adapted for both erect posture and child birth. Unfortunately, sex can be determined reliably only for adults. No single factor indicates sex, but the general pattern is for males to be larger and to have more highly developed crests and areas for muscle attachment. Since there is always a degree of overlap in the range of expression of characteristics, diagnosis of the morphological characteristics of the skull is accurate at approximately the 80% level of reliability. Bass (1971) and Stewart (1979) summarize the major characteristics. If the skull and mandible are complete, sex can be determined by applying discriminate function statistics to as few as three to nine metric dimensions. This technique yields an accuracy of 83% to 88% (Giles 1970). Even fragmentary skulls can indicate sex with a reasonable, but varying, degree of certainty when morphological features are evaluated.

The female pelvis is distinctive because the birth canal must be wide enough to accommodate the delivery of an infant. The width and depth of the female pelvis are produced by a long narrow pubic portion, a wide subpubic angle, and a wide sciatic notch. Phenice (1969) documents this evaluation from observations of the morphological characteristics with an accuracy of above 90%. Ubelaker (1978), Bass (1971), and Stewart (1979) illustrate the characteristics with drawings and photographs. Special care should be given to the intact recovery of the pelvis since it is so critical for both sex and age determinations.

If the skeleton is extremely fragmented, other characteristics can indicate the sex of the skeleton. Even on complete, well-preserved skeletons, the additional features should be evaluated and measured for corroborative evidence. Most of the features follow the general pattern of males being larger and females relatively smaller. Stewart (1979) and Bass (1971) summarize studies that show the usefulness of the following for sex diagnosis: length of the clavicle or collar bone, scapula (shoulder blade) height, and height of the glenoid fossa (oval articulation for the humerus at the shoulder), humeral head diameter. Giles (1970) developed discriminate function statistical formulae for sex diagnosis from the measurement of multiple long bones which produce an accuracy of 93% to 98%. Steele (1976) has developed similar formulae for the talus and calcaneus (ankle and heel bones) with an accuracy of 79% to 89%. Even fragments of the femur (thigh bone) mid-shaft, if the circumference can be determined, indicate sex with an accuracy of 82% to 85% (Black 1978; DiBennardo and Taylor 1979). Although the statistical formulae are generally applicable, they are most accurate when they are standardized for a particular population, which means that enough of the skeletons of a group must be relatively complete to establish the normal range of variation for each sex. Many of the techniques and features for both the morphological and statistical analysis were determined by physical anthropologists through studies of skeletal populations in anatomical collections of known demographic features and have been applied to archaeologically derived groups and forensic cases.

Age at death determinations from the skeleton are based on the biological progression of appearance, growth, and then deterioration of specific anatomical features of bone. Although there is individual variation in the rate of these changes, there is enough commonality for general standards to be developed for age categories. The teeth, long bones, and the pubic symphysis of the pelvis are the major areas of importance for morphological examinations. Ubelaker (1978) illustrates many of these changes with photographs.

From birth to two years of age, the eruption of the deciduous or baby teeth provide an indication of age. From three to six years of age, x-rays are necessary to evaluate the development of the permanent tooth buds in the bone, but the diaphyses or shafts of the long bone can also be measured to give an approximate age based on length. Although the standards for comparison may be generally applicable, the lengths of the long bones are really only appropriate for a specific group with a

determinable growth rate. Johnston (1962) developed standards from birth to age six for the Indian Knoll population; this would be most applicable to populations in the Southeast. Merchant and Ubelaker (1977) developed standards for the Arikara of the Plains. Maresh (1955) has published standards for recent whites. These standards should be applied to the appropriate group but can give a general estimate of age if the variability is recognized. The latter two studies include material on children through age 16.

The formation and eruption of the permanent dentition provide the best estimates of age at death between six and 12 years. Although there is some individual and population variability, standard charts (see Ubelaker 1978:47) are consulted to determine the age of individual skeletons. Age is always expressed within a range of months, and the sexes are combined since immature skeletal material provides no indication of sex of the individual. When the dentition is lacking, the standards of long bone shaft lengths, mentioned previously, can be used for general age categories.

Age during the teen years is evaluated by examination of the ends of the long bones. In childhood the major tubular bones consist of shaft (diaphysis) and end sections (epiphyses). The epiphyses develop from cartilage, ossify, and then finally attach during the teens. The examination of those epiphyses which have united can be correlated with age when compared to standard union tables. The basic tests mentioned earlier contain charts which can be consulted. The degree of union must be evaluated and, again, the age is presented within a range.

In contrast to immature skeletal material, the sex of the individual adult must be determined for a reliable age estimate. The most widely used method involves changes of the areas where the two hip bones meet in the front. This section of bone changes from a highly ridged configuration from around age 20 to 25, through a low mound phase from age 25 to 30, and then an irregularly nodulated appearance in later adult life. The method is unreliable after about 50 years of age. Todd (1920) combined the sexes when he established 10 stages of aging. The newer male standard (McKern and Stewart 1957) and the female standards (Gilbert and McKern 1973) may require comparison with plastic casts. Photographs and drawings of the various stages of remodeling for all three systems appear in Bass (1971), Stewart (1979), and Ubelaker (1978).

Since the pelvis often deteriorates in burials, other

aging methods frequently are necessary in archaeological specimens. Because bone is living tissue and is continually being remodeled through life, microscopic examination of thin sections of the long bones can be used to determine age. As age increases there are more areas of bone resorption and remodeling (osteons), which appear as oval holes filled with concentric circles. These and other features are counted and regression formulas applied (Kerley 1965). Ubelaker (1978: 65) has revised the formula for the cortex of the femur, tibia, and fibula. The procedure involves destruction of some of the bone and fairly elaborate laboratory materials. Microscopic examination of the internal structures of the teeth can also be used to determine age. Gustafson (1950) developed the technique, and it has been tested and refined by Burns and Maples (1976). These methods involve considerable training and laboratory experience, but are becoming increasingly important in physical anthropology.

A very general idea of age at death can be indicated by the degree and location of degenerative changes such as arthritic lipping of the vertebrae and joint disease with stress or arthritic changes (Stewart 1958). Other changes to be considered include thinning of the parietal bone with advanced age, or fusion of the ribs to the sternum (Kerley 1970), and the amount of dental attrition or wear on the teeth. It should be noted that dental attrition by itself is very unreliable in estimating age because it depends upon diet and genetics of the particular population being examined. Brothwell (1963) establishes a wear rate for premedieval British skeletons.

Estimation of stature, besides individualizing the skeleton, can provide indications of group adaptation and, perhaps, social differentiation. Although final adult height is under genetic control, the potential can be modified by non-genetic factors such as diet, stress, social position, and individual histories. This technique for estimating adult stature rests on the relation of individual bone lengths to overall body height. The basic, most widely used and tested formulae were developed by Mildred Trotter and G. Gleser (1952, 1970). The formulae are most accurate for the tibia and femur, but even fragments of some long bones can be used to estimate the length of the original bone and skeletal living stature (Steele 1970). The procedures are most accurate for American Whites and Blacks, but since most archaeological specimens in our area are of Asian (American Indian) ancestry, the Mongoloid and Mexican formulae by Trotter and Gleser (1958), or the Mesoamerican Indian ones by Genoves (1967), are more appropriate. The original data bases of both of

these studies, however, may differ from our local populations. The works by Bass (1971), Ubelaker (1978), and Stewart (1979) illustrate the correct measurement procedures, bones, and formulae to be used.

Besides the individual information to be derived from the stature of an individual, population concerns include the relative difference between males and females in the group as an indicator of potential work capacity and dietary access, structural changes as an individual change (Wolanski and Kasprzak 1976), and subsistence base (Nickens 1976). Hatch and Wiley (1974) also have correlated stature differences with probable social standing in Tennessee skeletal material.

#### POPULATION ANALYSIS – METRIC DATA

Osteologists have a long tradition of taking measurements of bones for descriptive and analytical purposes. Because standardization of technique and repeatability of study are central to much of science, numerous landmarks, measurements, and instruments for quantifiable data have been developed through the years. Although they were initially developed to aid in standardized description, many of the measurements can now be used in more sophisticated statistical analyses. Size is an important aspect of human variation expressed in the skeleton, but shape is also important. Numerous indices, which are basically ratios, were developed to express shape. These indices have since been categorized into descriptive units such as broad or long-headed skulls. Although these categories can be useful, it should be remembered that they are essentially arbitrary and do not adequately account for the range of variation within a group. Although size and shape of skeletal parts are under strong genetic control, external factors can modify the final expression. The standard comprehensive reference for both measurement and formulae for indices is Martin (1928), but Bass (1971) and other basic texts include selections that are commonly used. Especially useful because it includes landmarks, instruments, measurements, and indices with descriptive titles, is the article by Vallois (1965). Howells (1973) is a very comprehensive work for method and analysis of cranial variation of populations around the world.

Although the individual skeleton and its parts can be important in understanding developments in a geographical area, the basic unit of analysis for both evolutionary change and comparative studies is the population. Numerous statistical tools have been developed to characterize the ways a group may vary,

and the number of statistical tests and manipulations seems to increase yearly. The main information to be derived from treating skeletal collections as samples of a population includes the number in the population sample, the arithmetic mean for each measurement or character, an indication of the amount of variation as expressed by the standard deviation or variance, and an indicator of normal or skewed distribution. Although the symbols and language of statistics often can be intimidating for the uninitiated, basic arithmetic often may suffice. One of the most useful and easier to understand treatments of basic statistics for skeletal data can be found in Appendix A of the basic physical anthropology text by Bennett (1979). A somewhat more comprehensive treatment is provided by Welkowitz *et al.* (1971), and the volume by Sokal and Rohlf (1969) is widely used by professionals. These works also provide good discussions of tests for comparisons and manipulations for hypothesis testing.

Most statistical tests rely on the rules of probability and include the descriptive features mentioned above. The most widely used test for the comparison of sample means is the student "T-test." Determination of the association of continuous variables, such as measurements, is expressed by correlation and regression. Discussion of these tests along with examples and formulae can be found in the works mentioned above. More elaborate treatments of skeletal data abound in the journals, but one must beware of measurement for measurement's sake.

Skeletal data as an archaeological resource can most often be used in asking questions about descent of particular populations, change within a group over time, and the degree of affinity of associated groups in a geographical area. Although a particular piece of research may require a special type of analysis, a sample of five individuals is the smallest that can be treated statistically. The analysis of similarity among populations may use a single measure at a time for comparison (univariate analysis) if the measure is thought to be significant. A more complex, and also frequently more fruitful, approach uses a number of measures at the same time and evaluates the relative degree of affinity of the mosaic. This multivariate analysis is then used to give a measure of "biological" distance and can be used to depict graphically the relationship of groups over time. Many of the techniques are discussed by Weiner and Huizinga (1972) and Constandse-Westermann (1972), and new approaches appear frequently in the major journals of physical anthropology.

Discriminate function analysis such as  $D^2$ , Penrose

Size and Shape, and principal component analysis are frequently used. Key and Jantz (1981) illustrate the utility of this approach for archaeologically derived skeletons of Plains Indians. Jantz (1974) provides a good example of the application of osteological data to the solution of archaeological problems concerning direct historical affiliations of groups. He also shows the importance of differential mobility of males and females among groups such as the Arikara, Ponca, Pawnee, and Omaha. If the sample sizes are large enough, it is often important to compare the sexes separately, since gene flow between groups may depend on cultural factors (Rathbun 1974). Berryman (1980) documents the relationship of Late Mississippian groups in Eastern Tennessee in this way.

#### NON-METRIC DATA

Measurements and their analysis traditionally have been the major means of dealing with skeletons in an archaeological context. Because the skulls and other body features must be relatively complete for such treatment, fragmentation of bones often precludes thorough analysis. The use of non-metric or discrete traits such as various foramina (holes), crests, ridges, and forms of anatomical features have been used productively in a number of circumstances for investigation of archaeological problems. Although the analyses of these characteristics with groups usually are recommended to be done in conjunction with metric work, animal studies as well as human studies have shown that a strong genetic component may be modified by environmental "noise."

A variety of trait lists has been developed and used. This approach was first shown to be useful by Berry and Berry (1967). Since then, a number of studies have illustrated their importance. Finnegan and Faust (1974) have developed a large bibliography pertaining to traits, and Ossenberg (1976) and Corruccini (1974) discuss the various traits and their meaning with suggestions for types of analysis.

As with metric data, adequate sample size is essential for meaningful statistical analysis. After each individual skeleton has been examined and the traits to be used have been scored as present, absent, or data missing, the group is characterized by statements of trait frequency, usually as a percentage. Because these data are discontinuous in contrast to the continuous metric data, different descriptive and analytical statistics are necessary. Frequencies of occurrence of a particular trait in a population can be expressed simply by the number of occurrences, but there should always be concern with the type of distribution which is

expressed by distribution curves.

Because the presence or absence of a trait is much like the possibilities of the toss of a coin (heads or tails), probability distributions entail binomial features (e.g., the probability that a coin will land heads or tails with each toss must also be applied to each individual skeleton separately). The expected rate of occurrence of a trait can then be estimated for the population. If the group expresses a different frequency than would be expected by chance, the results can be tested for "goodness of fit" and significance of difference between two groups by use of the chi-square statistic. Tables are then consulted to determine at what level of probability the differences are significant. As with the metric data, the larger the sample size, the higher the confidence of interpretation. Bennett (1979) presents one of the more easily understood discussions of these techniques and formulas that can be used.

Frequencies of discrete traits can be used much like metric data for determining the degree of affinity among populations to be compared, either at one time or historically. Many of the same sources mentioned in the discussion of metric data also are applicable to non-metric data. However, the choice of the correct statistic to be used is under debate. Currently, the most widely used statistic is the Mean Measure of Divergence (MMD). It is a multivariate statistic, and it can be used to analyze the composite picture of all traits under consideration. Although many of the arguments are esoteric to most, Green and Suchey (1976) and Finnegan and Coopridge (1978) review numerous statistical procedures for analysis of non-metric traits and make recommendations for data treatment. Once population distances have been determined, they can be used to construct a cluster analysis which will graphically express the population's biological closeness.

Analysis of non-metric traits has proved useful in a number of archaeological contexts. Lane and Sublett (1972) use cranial traits to suggest patrilocal residence among New York Indians by showing that there was much less variation among males at the site than among females, who varied more widely among themselves and probably came from different groups. Turner (1980) hypothesizes the migration of populations into the Tennessee River Valley with the advent of the Mississippian culture in North Alabama on the basis of discrete traits of the temporal bone. Wolf (1977), using both metric and discrete data, however, finds that migration was not a major factor in the distribution of Mississippian populations in Arkansas, Missouri, and Illinois. Buikstra (1976) also uses this kind of data

analysis to compare Middle Woodland communities in Illinois which she found to be relatively stable local groups. Discrete trait frequencies have been collected from South Carolina skeletal material at Daws Island (38BU9), Mulberry Mound (38KE12), Scotts Lake Bluff (38CR355), and the Allen site (38AL2), but the analysis is not complete. Larger and more complete skeletal samples are needed before a regional synthesis can be attempted.

#### PALEODEMOGRAPHY

The reconstruction of the demographic structure of past populations has developed into a subfield within physical anthropology in recent years. Archaeologists, as well, have developed a major interest in the role of demographic variables in the functioning and variation of cultural systems. Both subdisciplines share an interest in the interaction of subsistence, settlement, techno-culture, and social organization in relation to demography. Ecological concerns are another common meeting ground, and numerous theoretical models have been developed. Hassan (1979) reviews the current literature on the interaction of demography and archaeology. His statement (1979: 138) is noteworthy: "In addition to theoretical models, demographic explanation in archaeology must be based on empirical data."

This empirical foundation rests on adequate, systematic recovery of human remains. The basic procedures for determining sex and age at death, reviewed previously, are applicable here. Once these basic determinations have been made, the group can be characterized in a number of ways. The basic descriptive tools include the allocation of all individuals, no matter how fragmentary, into five-year periods and summarizing the number and percentage of the population in each category. These basic data can then be used to determine mortality and survivorship curves, and to construct a life table which expresses percentages of deaths, survivors, probability of death, and life expectancy, for those individuals in each age category. Ubelaker (1978) reviews the rationale and necessary procedures for using these methods with skeletal samples. Weiss (1973) provides model life tables for numerous types of groups with specific technocultural development. Although these models were generated from both ethnographic and archaeological data, they provide important ways of interpreting demographic information. Swedlund and Armelagos (1976) review most aspects of demographic anthropology and provide many basic sources. Acsadi and Nemeskeri (1970) also have gathered extensive data on the mortality and



life expectancy of past groups.

Regardless of the promise of demographic interpretation for unraveling the cultural processes of the past, the reliability of the reconstruction rests on the accuracy of the age and sex estimates and the representativeness of the skeletal sample. The latter is directly related to archaeology because errors can enter by undetected differential disposal of the dead, inadequate archaeological sampling of a cemetery, and excavator selection for recovery of only the more complete and preserved specimens. Differential preservation, especially of infants and children, also may distort the demographic reconstruction.

The special problems encountered in ossuaries are reviewed by Ubelaker (1974), and the analysis should serve as a model for others considering reconstruction and interpretation of paleodemographic data. Such material also has been used in attempting to determine population pressure and estimates of total population size among North American Indians. Lovejoy *et al.* (1977) document a large group of Late Woodland individuals at the Libben Site in Ohio. Both of these works illustrate the utility of analyzing adult females and males separately to discover patterns of differential access to resources and the various features contributing to mortality which can be related to socio-cultural dynamics. Blakely (1971) examines the mortality profiles of Archaic, Middle Woodland, and Middle Mississippian populations, showing relative adjustment to different sorts of cultural conditions. His work at Etowah (1977b) also illustrates social divisions within a society as reflected by demographic events. His work prompted the statement, "I am arguing that anthropologists not abuse this tool - (model) - that instead of trying to fit societies into models, anthropologists should adapt models to society. When models are mistaken for reality, we have obviated the need for the models" (Blakely 1977: 62).

#### PALEOPATHOLOGY

Like paleodemography, the study of disease conditions in past populations has had a resurgence of interest lately due to its potential for illustrating many of the ecological features affecting a particular group. Numerous models have been developed, especially in relation to medical anthropology (Wellin 1978), ecology (Armstrong *et al.* 1978), and hypothesis testing (Hunt 1978). The basic premise is that the health of a group can be taken as an indicator of ecological adjustment.

Although the skeletal system does not reflect all of

the disease conditions experienced by an individual, those diseases that affect the individual during growth, near death, or are of a chronic nature may leave traces in the bones. The patterns of pathology within the populations often can attest to the subsistence base, cultural practices, and demographic structure. Because the skeleton is a living system, nutrients or their absence from the subsistence base can be documented by growth rates and, in some instances, by gross anatomical defects or trace elements incorporated into the bone. Differential access to food resources can be detected by analyzing segments of the society or by analysis of the sexes separately. The demographic structure of the group will influence the incidence rates of particular diseases associated with the different age categories. Populations with a high infant mortality rate will have higher numbers of infants with pathologies, and older populations will have higher rates of degenerative diseases associated with the aging process.

The major categories of disease that frequently appear in the skeleton include trauma, arthritis, infections, tumors, endocrine and nutritional deficiencies, and dental pathologies. Some pathologies cannot be linked to a specific causative agent and differential diagnosis may be difficult even for medical experts. A number of general works that should interest archaeologists have been published. Steinbock's (1976) basic textbook has good general coverage and illustrations. Brothwell's planetary distribution of diseases in antiquity includes a wide range of medically related topics. Morse (1969) surveys paleopathologies and their distribution among Midwest populations, and the extensively illustrated catalogue of the Hrdlicka paleopathology collection (Tyson and Alcauska 1980) serves as an excellent reference for unusual bones encountered from archaeological sites. Ortner and Putscher (1981) have published an excellent, illustrated atlas of skeletal pathologies with discussions of process and frequency.

Because the disease process alters the normal structure of bone, excavated bones should be examined individually for variations in size, texture, lesions, or swelling. In some instances, X-ray, chemical, or other tests may be necessary. The suspected pathology should not be submitted for analysis as an isolated piece of bone. Just as the single artifact is difficult to appreciate correctly out of context, the single bone or tooth, even if it appears "funny," is difficult to diagnose out of its systemic location. Differential diagnosis often can depend upon comparison with the other skeletal components.

Although the clinical approach to individual pathologies is useful, more valuable information in relation to biocultural process can be determined from analysis of the patterns of occurrence under an epidemiological perspective, which can then be tested with empirical data. Buikstra and Cook (1980) critically review the advances in the collection, analysis, and interpretation of pathologies in recent research. The continuing theme is one of the biocultural contexts and collaborative efforts. This is reflected as well by the continued growth of the Paleopathology Association and the utility of the *Paleopathology Newsletter* which contains reviews of current publications and serves as a clearing house to form common interest study groups.

The nutritional aspect of pathology has been especially productive in the analysis of cultural change and subsistence base. A general review is provided by Wing and Brown (1979). Periodic deprivation can be detected in dental defects and interruption of growth of the long bones during development. Other indirect indicators of nutritional adequacy, for example, infection rates and the relationship of iron deficiency anemia with heavy maize reliance during the Late Woodland, have been documented in many areas. Parham and Scott (1980) illustrate the relationship of heavy maize reliance and anemia for the late Mississippians in eastern Tennessee, and Rathbun, Sexton, and Michie (1980) provide hypotheses concerning the carrying capacity of the South Carolina coastal ecotone as reflected by the disease patterns. Larsen (1980) documents the decrease in size of the skeleton and the dramatic increase in dental carries rates that accompanied the shift to maize agriculture along the Georgia coast. Blakely (1980) illustrates the differing sociocultural implications of pathology among the Etowah skeletal samples from the village and Mound C. He finds indications of ranking within both the elite and general populations.

The analysis of trace elements such as strontium, magnesium, copper, etc., in relation to the amount of calcium in bone, promises to help document the relative role of meats and cereal grains in the diet. Gilbert (1977) reviews the major elements and the application of their analysis to problems in archaeology. Because the concentration of various elements differs with types of food in the diet, a higher concentration of an element will be found in the human bone if the individual consumed higher amounts of a particular type of food. For example, since strontium is more concentrated in cereals like maize than it is in animal flesh,

populations with high-level dependence upon maize and less dependence on meat in their diet would have higher levels of strontium in their bones. Numerous researchers have applied strontium analysis as well as other trace element analyses to study the agricultural transition. Analyses of differential access to meat resources by sex and class categories have been attempted with mixed results.

Cultural features can also affect the relative amounts of trace elements found in bone. Auferheide *et al.* (1981) report high levels of lead in the skeletons of a planter and his family at the colonial Cliffs Plantation in Virginia, while the skeletons of indentured servants and slaves have lower levels of lead.

This difference probably is due to the differences in exposure to lead caused by differential ownership of cooking and eating utensils, storage containers, and access to luxury items. Comparative data for the remains from South Carolina's colonial Belleview Plantation are intermediate between the two Virginia groups, although two individuals have very high levels of skeletal lead (Aufderheide *et al.* 1981).

#### COSTS

The degree of fragmentation of a particular skeleton will strongly influence both the amount of information that can be gained from it and the cost of cleaning, restoration, conservation, and finally analysis. Time and labor are the primary concern in cost estimation for professional preparation and analysis of human remains. The materials are relatively inexpensive, but for a skeleton in good condition requiring a minimum of restoration, 10 hours are required for preparation. Because the work is labor intensive, estimates range from approximately \$100 to \$195 for conservation (Singley 1980).

Diagnosis of sex, age determination from gross observations, X-ray and microscopic thin sectioning, racial identification, dental analysis, paleopathology, paleodemography, and stress evaluation for a final report and interpretation have a usual estimated cost of \$100 to \$300 per complete skeleton (Rose 1981). Specific costs will vary with the particular project. Because most osteological analysis is conducted in an academic setting, instruments, library resources, and computer time are generally available. The professional's commitments and responsibilities at a particular time must be considered, however, to allow sufficient time for systematic work with the material. Excavation strategies should also be discussed to allow

the maximum return of scientific information. Involvement of an osteologist in the field excavation also would be an asset to the comprehensive collection of information. This would be especially important if the remains were in poor condition because some observations and data collection could be made *in situ*. Arrangements should also be made for the curation of the human remains so that their utility will continue to be enhanced by their availability for further study.

#### HUMAN REMAINS IN SOUTH CAROLINA

The recovery and analysis of human remains in South Carolina can contribute significantly to our understanding of past populations and document more recent cultural heritages. The study of ecological adaptations at different prehistoric and historic periods is especially illustrative. The three major physiographic zones in the state (Coastal Plain, Fall Line, and Piedmont) provide different adaptive potentials as well as limitations. The dietary, pathological, and demographic patterns provided by human remains will supplement archaeological information on local and systemic adaptations. Measures of population affinities from metric and discrete trait data should reflect the degree of population stability and contact within and between the major zones.

Diachronic studies of human remains have been shown to be valuable in several adjacent states (see Blakely 1977, Larsen 1981, Parham and Scott 1980). Documentation of biosocial changes that occurred with the agricultural transition should be especially productive. Population affinities, as well as demographic, dietary, and pathological patterns should be investigated both within and between areas to extract data on the processual changes. Of special interest are the indications of a social change from an egalitarian to a ranked society. To date, few prehistoric human remains in South Carolina have been recovered and fully analyzed. The samples have been small and the information spotty due to poor preservation and recovery. The Daw's Island (38BU9) coastal population of the Formative (Archaic) period has been analyzed (Rathbun *et al.* 1980; Brockington 1971; Michie 1974), and collections of Mississippian period skeletal material have been described from the Mulberry and Scott's Lake Bluff sites (Carter and Chickering 1973, 1974). Isolated or small groups of human remains also have been reported from around the state. No regional or large scale synthesis of South Carolina human remains from the prehistoric past has been attempted.

Although archaeologists studying prehistoric periods increasingly realize the importance of burial information in their attempt to interpret the past, the analysis of human remains from the historic period has been less frequent. Understanding of the rich colonial and antebellum history of South Carolina can be supplemented with osteological data. Diet, demography, and disease patterns for the colonial period could extend the chronicle of traditional historical sources such as diaries, journals, and church records. Since these records quite frequently chronicle only certain segments of society, the data base could be extended by including osteological information from all levels of society. The same argument can be made in reference to later antebellum and circumbellum groups. Thirteen individuals, who may represent the Edward Croft family from the colonial Belleview Plantation (Scurry 1980), are currently being analyzed. The basic osteological data have been collected and are in preparation for publication in Rathbun and Scurry (in press). The analysis of the lead content of the bone reveals a somewhat different pattern than that at Cliff's Plantation in Virginia where high levels of lead in the elite were attributed to dietary practices.

#### RECENT FINDINGS IN SOUTH CAROLINA

Since the initial publication of this article, a number of skeletal samples have been excavated in South Carolina. Although a few additional skeletons have been inadvertently located during archaeological excavation for other research purposes, the majority of the human remains have been excavated and analyzed by the author as part of the bioarchaeology orientation in research and student training. A partial summary appears in Rathbun (1986a).

A major historical sample was added to the record through a cemetery relocation project in Mt. Pleasant, South Carolina (38CH778). The analysis of 36 human skeletons provides data on health and disease for a 19th century sample of Afro-Americans. The majority of the group dates from 1840-1870, but some freed Blacks are probably included.

The sample includes eight subadults, 13 adult males, and 15 adult females. Gender differential in mortality is evident with the average age at death for males at 34 and females at 40. Females, besides living longer, had more missing and carious teeth, but fewer abscesses. Both genders expressed developmental stress as seen by linear enamel hypoplasias. Males, however, had a higher incidence (92%) of hypoplasias than did females (70%). Age at occurrence was more widely

distributed for females, but ages two to four were most critical for both genders. Post-cranial indications of stress, Harris lines, were also more frequent for males with 4.5% having lines in contrast to 1.8% of the females.

Anemia, probably both genetic and acquired, was a significant health problem. No gender difference is noted with 35% of both sexes expressing cribra orbitalia. Subadults, however, had 80% with lesions. Diploic expansion was relatively common in the sample. Infection also was frequent. Sixty-nine percent of the males, 60% of the females, and 80% of the subadults had some sort of infection.

Ubiquitous skeletal changes are those associated with demanding physical labor. The shoulder and hip are especially affected with arthritic changes, the cervical vertebrae frequently express osteophytosis, and males show a preponderance of Schmorl herniations and hypertrophy of the supinator crest of the ulna. Skeletal trace elements indicate a relatively moderate exposure to lead, but which occurs at a higher level than for colonial samples. Bone strontium is relatively elevated, and zinc and copper are relatively low.

The analysis is continuing with this group for genetic affinities, remodeling of tubular bones with osteoporosis, and related esoteric human biological research. The health and disease patterns analysis was presented as part of a larger symposium on Afro-American biohistory at the annual meetings of the American Association of Physical Anthropologists in 1984 and appears in the journal of that organization (Rathbun 1987). Such historically related research has been applied to other groups in Arkansas, Louisiana, Pennsylvania, the Mid-Atlantic states, and Barbados. A number of social and economic historians have been using biological data of this sort in their own research.

Another sample of 19th century South Carolinians was examined for one week when they became available during renovation of a church crypt in Charleston. This sample included approximately 30 individuals of which only 13 were examined. The opportunity to compare health and disease patterns from elite and slave groups in the same area is unique. Trace element analysis is currently under way and other findings are tentative. The elite sample included both more children and aged individuals than did the slave group. Infection rates also appeared less, but dental pathology was equally represented. One aged female exhibited one of the first attempts in South Carolina of dental restoration (filling) with gold foil. The dentition was

examined by a professional dentist. Metric and discrete trait data were collected and await analysis.

Another 19th century sample of 18 skeletons has been recovered from Folly Beach, South Carolina in 1987 and 1988. All are males and appear to be Union troops stationed there during the siege of Charleston in 1863. Initial analysis indicates that they were probably free Blacks of the 54th or 55th Massachusetts regiments. This sample is a unique one and will broaden our understanding of Afro-American biohistory through comparative studies.

Five extremely deteriorated 18th century burials were accidentally discovered during excavations of a plantation site in Berkeley County (38BK202). This sample is a good example of the importance of field participation by an osteologist. The remains were in such decomposed condition that only in situ measurements were possible. Laboratory analysis was possible only with the dental crowns which consisted only of the outer shell. Gender, age, stature, and a few indicators of health could be determined. Linear enamel hypoplasias were common and most likely occurred at weaning times of one to two years. Racial ancestry was determined by limb proportions and the recovery of hair which was found sandwiched between layers of collapsed skull bones. Three females, one male, and one child aged four to six years were recovered. One female was 25-35, and another was 35-40 at death. Only adult age could be determined for the other female, and the male appeared young, but more precise diagnosis was impossible. The complete analysis (Rathbun 1986) appears as part of the contract report to the South Carolina Department of Highways and Public Transportation prepared by Carolina Archaeological Services and the Charleston Museum (Zierden *et al.* 1986).

Single burials or small samples continue to come to light with prehistoric archaeological research along the coastal plain and the Savannah River. A six- to nine-month-old child was discovered in a vessel at 38AL23, a Deptford phase adult male 20-24 was recovered under a substantial rock deposit at 38AK228, a Mississippian male 25-35 was excavated on Callawassie Island (38BU398), and five individuals were recovered from the mound on the island (38BU19) which dates to the St. Catherine's period (Brooks *et al.* 1982). The late period burials vary in particular mortuary practices, but share a marked robusticity, cranial deformation, relatively low caries rates, frequently missing and abscessed teeth, and extensive occlusal attrition. Infection rates, particularly of the lower limbs, are

indicative of localized as well as systemic involvement. Pathologies associated with iron deficiency anemia are relatively rare. Morphology suggests a stronger connection to late groups in Georgia rather than to other areas of South or North Carolina. Two individuals (one adult male, one adult female) have recently come to light in the northern portion of South Carolina (38DA66) and appear to be quite late. They were found in a flexed position with the male having shell ornaments and beads in the grave. He had lost all mandibular molars and most of the maxillary right anterior teeth prior to death during his late fourth decade of life. Both individuals reflect cranial deformation, medium robusticity with wide faces, no anemic indicators, but marked infection of the limbs. Some lesions on the skull of the male are suggestive of treponemal involvement, but the diagnosis is not conclusive. The younger female (25-30) was considerably shorter and less robust. Dental disease was less advanced, but both exhibited considerable occlusal attrition.

One last prehistoric site has been investigated in the inner coastal-riverine ecozone that suggests mortuary practice similarity with portions of North Carolina. The site (38HR36) is located on a relic dune at the edge of a swamp approximately one-half mile from the Little Pee Dee River. No habitation area has yet been located, but ceramics and lithics on the dune range from early through very late woodland times. Although some testing, potting, and surface collection had been done earlier on the site by a number of parties, controlled excavation produced seven features with small ossuaries that included at least 42 individuals. Burial preparation ranged from cremation, disarticulation, and semi-articulated skeletons in the same feature. The number of individuals in each ossuary unit ranged from three to 15. Unfortunately, no diagnostic cultural materials were included in the ossuaries for dating association, and funds for radiometric dating of the bones themselves have not been forthcoming. This pattern of interment is similar to that described by early researchers along the Cape Fear River and is similar to the Cold Morning site near Wilmington, North Carolina (Coe *et al.* 1982) and to one excavated on Camp LeJeune.

At 38HR36 one feature included a semi-circular arrangement of skulls from which plowing had removed the upper portions. Other skeletal elements were randomly distributed through the feature. An adjacent feature, however, was highly compact and appeared to reflect a stacking of bundle burials. It could not be determined if this placement represented

simultaneous deposition or if the process was serial. Heavy leaching of fine sand had obliterated any indication of pit outlines, or perhaps the remains had been placed on the original surface and covered over with sand. The deposited bone was exposed at 30-35cm. below the current surface.

Although both genders are represented, males predominate and very few subadult skeletal elements were present. Analysis of the sample is currently underway. Health and disease, as well as genetic features, should add to our understanding of past cultural and biological processes in the area.

The contact between native South Carolinians and populations of European and African ancestry has produced a complex biological structure. Because these three major groups often had to adapt to different social as well as physical environments, comparative studies of genetic composition, as well as adaptive features, can broaden our understanding of the recent and distant pasts.

Although the potential value of human remains as an archaeological resource has been reviewed here, a number of steps remain to be taken to fulfill this potential. Not only is additional, better preserved skeletal material needed, but knowledge of and access to previously excavated material is necessary. A survey of burial remains from South Carolina that have been reported to the South Carolina Institute of Archaeology and Anthropology (SCIAA) is being compiled. It should be emphasized that this will include only those burials that have been reported. Not all of the material has been analyzed nor have all finds been reported. The availability of skeletal resources is indeed a problem when the material is kept in private collections, or when the material recovered in the state is sent to other areas for analysis and sometimes curation. A central repository for excavated human remains should be established within South Carolina, and provisions should be made for professional conservation and curation. The South Carolina Institute of Archaeology and Anthropology at the University of South Carolina would seem foremost in the ability to provide wide access to these collections for scholars working on specific problems. Rathbun and Catherine Smith recently completed a systematic inventory and curatorial refinement of all skeletal materials at SCIAA through funding from the National Science Foundation Grant BNS 8706342. This process of centralization will be even more critical if the current trend of widespread contract archaeological projects continues. Although reports are usually filed with the Institute and

collections are frequently deposited there, a strong antiquities law with curation provisions needs to be developed. Such a law should address skeletal remains of prehistoric and historic origin. Provisions for professional, timely analysis of human remains also should be included in all contract and grant supported archaeological activities.

If anthropology is to retain its holistic perspective, continued cooperation of subdisciplinary specialists and utilization of the full range of data from the past must be invoked. South Carolina has a rich cultural heritage. The resources and information from her past can be explained through multidisciplinary cooperation.

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## Chapter 2

### THE EARLIEST SOUTH CAROLINIANS

Albert C. Goodyear, III, James L. Michie, and Tommy Charles

The earliest humans to live in what is now known as South Carolina likely arrived there some 12,000 years ago. This is based on the finding of fluted points similar to many others also found in the southeastern United States which share attributes with classic Clovis points found in association with extinct Pleistocene fauna in the southwestern United States. No archaeological evidence of a pre-Clovis nature has been found there, a finding that would seem to parallel the North American situation (cf. Dincauze 1984).

This paper reviews the evidence of the first 1,500 years (11,500-10,000 B.P.) of human occupation in South Carolina based on lithic remains found there as well as comparable archaeological remains from adjacent regions of the Southeast. After discussing paleoenvironmental conditions, the history of Paleoindian archaeological research is reviewed focusing on the methods and results of the two lanceolate point surveys which have been conducted in South Carolina. Typological problems, geographic distributions, and patterns of raw material utilization are discussed for the fluted and lanceolate points recorded in the state.

#### THE EARLY HOLOCENE ENVIRONMENT

It is known primarily from palynological studies conducted throughout the Southeast that substantial climatic and vegetational changes occurred over this area during the late Pleistocene and early Holocene time period. To date, nearly all of these studies have taken place in states other than South Carolina. The one important exception to this situation is the study of White Pond located in the center of South Carolina (Watts 1980).

By convention the end of the Pleistocene and the beginning of the Holocene has been arbitrarily set at 10,000 B.P. or 8,000 B.C. (Whitehead 1965; Griffin 1967). This is a chronostratigraphic designation for purposes of world-wide periodization (Harland *et al.* 1982; cf. Mercer 1972). Palynological data gathered from throughout the Southeast in the past two decades, however, have substantially modified views as to the beginning of the Holocene climate and vegetation. In

the Southern Appalachians, by as early as 16,500 B.P., evidence of climatic amelioration is apparent as temperate deciduous tree species began expanding from refugial areas replacing boreal types (Delcourt and Delcourt 1985:19).

By 12,500 B.P., the transition from Pleistocene to Holocene biotic communities was quite distinct at mid-latitudes (33° - 37°), where a second major floral response occurred. This resulted in a complete change-over where temperate deciduous plant communities came to dominate the former boreal types (Delcourt and Delcourt 1985:19). These cool, mesic temperate species, such as beech, hickory, hornbeam, oak, elm, and ash were interpreted to represent what Watts (1980; Watts and Stuiver 1980) and others (Delcourt and Delcourt 1979:98) have variously called a mesic, cool, temperate, broad-leaved forest. This forest existed from about 12,500 to 8,500 B.P. and exhibited a clear southern boundary following the 33° N. latitude (Delcourt *et al.* 1983:164). In South Carolina, the 33rd latitude runs just north of Charleston, westward through Allendale. What is thought to be a remnant of this species-diverse, temperate deciduous forest exists today in the Piedmont province at Stevens Creek in McCormick County, South Carolina (Radford 1959; Delcourt and Delcourt 1979:98).

A classic palynological representation of the early Holocene mesic forest has been recorded at White Pond (Figure 2.1) located in the inner Coastal Plain near Elgin, South Carolina (34° 10' N). The early environmental changes outlined for the Southeast as a whole were clearly documented here by Watts (1980), complete with radiocarbon dates at critical points of change. For these reasons, the White Pond palynological sequence serves as a paleoecological benchmark for archaeologists working in South Carolina.

As recorded at White Pond, at approximately 12,800 B.P., a dramatic vegetation shift occurred where colder, drier boreal species such as *Pinus* (jack pine?) and *Picea* (spruce) were replaced by deciduous species. Watts (1980:192) refers to this remarkably dis-

## 2. The Earliest South Carolinians

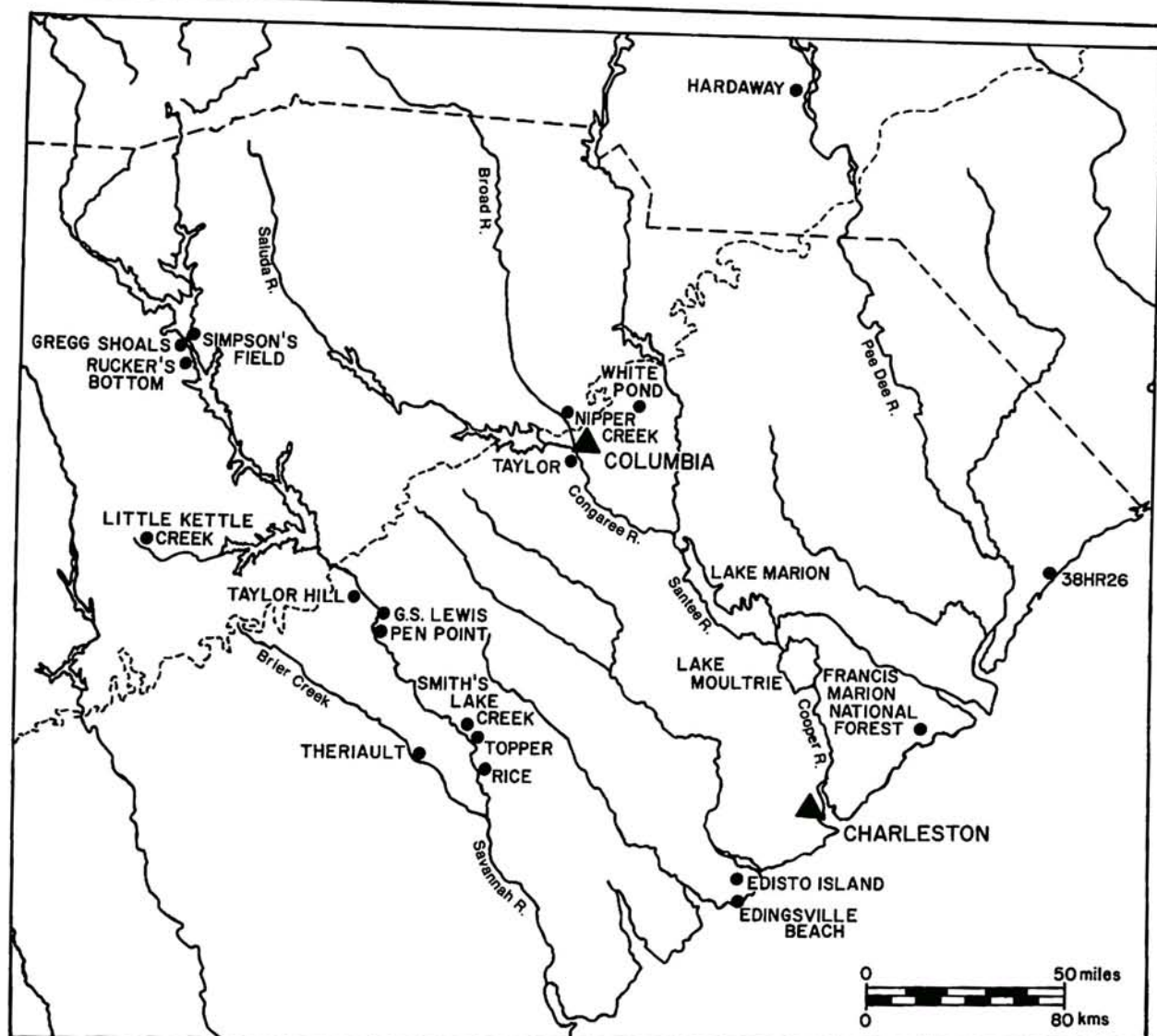


Figure 2.1: Locations of important paleoenvironmental and Paleoindian sites in and near South Carolina.

tinct horizon as the *Fagus-Carya* zone. It is neatly bracketed by  $C^{14}$  dates of  $12,810 \pm 190$  yr B.P. (QL-1170) and  $9,550 \pm 40$  yr B.P. (QL-1169). Deciduous species which dominate the pollen count are *Quercus* (oak), *Carya* (hickory), *Fagus* (beech), and *Ostrya/Carpinus* (ironwood). "*Betula* (birch), *Ulmus* (elm), *Acer saccharum* (sugar maple), *Juglans nigra* (black walnut), *Tsuga* (hemlock), and *Corylus* (hazelnut) are exclusive to the zone or infrequent outside of it" (Watts 1980:192). Watts suggests that beech and hickory may have comprised up to 25% of the nearby forest. For this period (ca. 13,000 - 9,500 B.P.), Watts (1980:197) concludes that the climate was moister and cooler than today, and he suggests that the modern temperatures of New York State and areas to the north may provide a climatic analog for the ancient *Fagus-Carya* zone. In the White Pond region, although winters were proba-

bly harsher during this time than temperatures of today, the growing season was probably not any shorter (Paul Delcourt, personal communication, 1986).

After 9,550 B.P., the *Carya*, *Fagus*, and *Ostrya/Carpinus* types were rapidly replaced by modern "southern" pine and oaks. *Liquidambar* (sweet gum) and *Nyssa* (blackgum?), the hardwood dominants of the Coastal Plain today, appear for the first time signalling the onset of the modern forest conditions (Watts 1980:194). From 9,500 to 7,000 B.P. oak was dominant. After about 7,000 B.P., pine replaces oak as the dominant and the modern forest was essentially established (Watts 1980:194).

The climate of the mesic deciduous forest across the mid latitudes of the Southeast is broadly recon-

structed by the Delcourts as "cool-temperate" with abundant moisture available in the growing season (Delcourt and Delcourt 1984:276). They attribute this to two different weather systems, the Pacific Air-mass dominating the winter and the Maritime Tropical Air-mass of the summer. The climate at this time interval also exhibited maximal seasonality compared to climatic periods before and later in the Holocene (Delcourt and Delcourt 1984:280).

South of the 33° N parallel across the Southeast during the period 12,500 to 8,500 B.P., climate and vegetation were different from the mid latitudes. Perhaps the most striking characteristic of the flora of the Southeast Coastal Plain, known as the Southeastern Evergreen Forest (Braun 1950), is its stability over the last glacial/interglacial cycle (Delcourt and Delcourt 1985:20). An example of the time depth of this stability is the site of Goshen Springs on the inner Coastal Plain of Alabama. From about 20,000 to 6,000 B.P., the area was dominated by oak, hickory, sweetgum, and southern pine (Delcourt and Delcourt 1983:269). Other pollen studies conducted on upland interfluvial sites on the Gulf Coast Plain and peninsular Florida indicate that "Even during the Wisconsin glacial maximum, no major invasions of cool-temperate or boreal species occurred..." (Delcourt and Delcourt 1983:269).

The climate reflected in the paleovegetation of the Coastal Plain was warm and temperate, as it is today. Delcourt and Delcourt (1983:269) view the interfluvial uplands as possessing a "... relatively constant flora, but with minor changes in the relative abundances of constituent species as they adjusted to subtle changes in drought stress and fire frequency". They infer from the pollen cores with time depth including those that exceed the time range of C<sup>14</sup> dating, that the Maritime Tropical air-mass has prevailed in the southeastern Coastal Plain during the last 60,000 years providing for general constancy in the climate.

During the early and middle Holocene some floristic changes from the area of White Pond southward throughout the Atlantic and Gulf Coastal Plains can be detected in fossil pollen assemblages that are attributable to changes in weather systems. The demise of the cool mesic temperate forest at about 9,500 B.P. north of 33° N led to an oak dominated forest with a minimum of pine over much of the Southeast (Watts 1975:290; Delcourt and Delcourt 1985:20). In the region of Goshen Springs in south-central Alabama, prior to 8,000 B.P., Delcourt (1985:21) reconstructs the upland vegetation as dominated by oak, hickory, and southern pine which indicate "warm-temperate temperatures

and summer drought". Sometime around 8,000 B.P. over the entire lower Southeast, there is strong evidence based on pollen data and sedimentation rates that summer precipitation was greatly increased. Beginning at about 8,000 B.P. southern *Diploxylon Pinus* increases at the expense of oak and hickory (Delcourt 1985:22-23). Lacustrine sedimentation is markedly increased as well as water depth resulting from an increased frequency of summer thunderstorms provided by the Maritime Tropical Air-mass (Delcourt 1985:22-23). From the standpoint of human adaptation, increased precipitation likely resulted in greater availability and reliability of surface water habitats beginning with what archaeologists call the Middle Archaic (Goodyear *et al.* 1979:106).

At this point in palynological studies of the late Quaternary of the Southeast, it is apparent that additional data are needed for the South Atlantic region (Watts 1980:188). The entire Coastal Plain of South Carolina is devoid of published pollen studies with radiocarbon dates and the Coastal Plain of Georgia nearly so. This represents a 500 km gap along the South Atlantic Coastal Plain (Delcourt and Delcourt 1985:Figure 1). In South Carolina, Carolina Bays are no doubt pollen traps as they are known to be elsewhere in the South Atlantic region. Limited coring of bays by geologists in the state has not usually yielded preserved organics necessary for palynological studies or at least organics of early Holocene age. An interesting exception is a core taken from a Carolina Bay near McClellanville in the Francis Marion National Forest (Figure 1) by Jan Brown and Peter Stone. This core yielded peat and other organics to a depth of seven meters. Peat was continuously present from the surface down to 4m. At 4m a radiocarbon date was obtained on peat dating 11,460 ± 160 B.P. (UM-2657) (Jan Brown and Peter Stone, personal communication). Work with this core is still in progress.

The Piedmont Province of the Southern Appalachians has scarcely been studied by palynologists owing to the rarity of geomorphic features suitable for pollen entrapment and preservation. The summary of paleoecological pollen studies of the Southeast prepared by Delcourt and Delcourt (1985:Figure 1) graphically illustrates this deficit. Some pollen work was done in connection with the Richard B. Russell reservoir archaeological mitigation studies along the Piedmont portion of the Savannah River as part of a larger program of paleoecological reconstruction (Carbone *et al.* 1982; Schuldenrein and Anderson 1988).

## 2. The Earliest South Carolinians

Three locations were studied by Sheehan, Whitehead, and Jackson (1985). Nodoroc was a bog located in the uplands near Winder, Georgia. As Sheehan *et al.* (1985) point out, a bog is a highly unusual geomorphic feature for the Piedmont. Transect Ten and the archaeological site of Gregg Shoals (9EB259) (Figure 1) both produced pollen contained in alluvial sediments. Differential preservation, truncated depositional sequences, and at one site (Nodoroc) possibly contaminated radiocarbon dates, variously affected the clarity of their results. Some parallels with Watt's (1980) findings at White Pond, however, could be determined. Sheehan *et al.* (1985:34) identified an "Early Postglacial (12,000-9,000 B.P.)" period at all three sites based on diagnostic mesic hardwood species and radiocarbon dates. The archaeological site of Gregg Shoals was particularly interesting in that lenses of organic matter about 20 cm in thickness were found resting on bedrock 100 to 200 m upstream from the site. Three radiocarbon dates, 10,370, 10,170, and 10,000 B.P. (all sigmas 140 yr) run by Teledyne Isotopes, Inc., were obtained for the organics (Sheehan *et al.*, 1985:7; Table 2). The range of pollen types from these lenses was comparable to the *Fagus-Carya* zone identified for White Pond by Watts (1980) (Sheehan *et al.* 1985:31).

The foregoing has emphasized pollen studies as a means of reconstructing the early Holocene environment. Paleontological data are also available to supplement these biotic reconstructions.

S. David Webb's (1981) paleontological synthesis of the Southeast coastal plains is particularly valuable. For the late Pleistocene, Webb (1981: Figure 4.1.10) posits three basic faunal regions distributed by latitude. From north to south these are Boreal, Temperate, and Subtropical (Figure 2.2). Interestingly, the present state of South Carolina is situated in a location geographically transitional to all three zones.

The Boreal zone (Figure 2.2) extends from about the center of South Carolina at Columbia northward through the Mid Atlantic states. Relevant species include woolly mammoth (*Mammuthus primigenius*), caribou (*Rangifer tarandus*), horse (*Equus*), and bison (*Bison*). These animals are grazers and indicate primarily a tundra habitat. Webb (1981:I-76,77) states that woolly mammoths "occur as far south as Charleston, South Carolina. There, however, they are less abundant than Columbian mammoths, and while they surely imply extensive grazing conditions, they may have been seasonal inhabitants of cool temperate grass-

lands rather than boreal tundra".

The Temperate faunal zone is located by Webb (Figure 2.2) from about the area of central South Carolina (34° N) southward to the present day city of Charleston. The approximate lower half of South Carolina was situated in this region. Biotically, this region was highly diverse consisting of mixed temperate forests and grasslands. In addition, Webb (1981:I-78) emphasizes that the Temperate zone was "markedly compressed in a north-south direction along the Coastal Plain". Animal populations here were comprised of both grazers and browsers. Because of its narrowness, being bordered to the north by the Boreal zone and the Subtropical region immediately to the south (Figure 2.2), the Temperate faunal region was a prominent ecotone.

Among the more common grazers were mammoth (*Mammuthus columbi*), *M. primigenius* (woolly), which is thought to have been a seasonal inhabitant, *Bison*, and *Equus*. Other grazers which ranged down into the Temperate zone were camelids (*Camelops* and *Hemiauchenia*) and the great amphibious rodents (*Capybaras*) (Webb 1981:I-79). Among the browsers, the chief representative is the American mastodon, *Mammut americanum*, known to exist in both spruce as well as mesophytic forests (Webb 1981:I-78). Voorhies (1974) has described a late Pleistocene faunal assemblage from Little Kettle Creek (Figure 1) in the east-central Georgia Piedmont. Economically important species include American mastodon (*Mammut americanum*), mammoth (*Mammoth sp.*), deer (*Odocoileus cf. virginianus*), and bison (*Bison sp.*) (Voorhies 1974:85). Based on these species and others, Webb (1981:I-80) notes that both grazing and woodland browsing habitats were present. Using the ratio of mammoth-to-mastodon finds as an index to open versus wooded habitats, Webb (1981:I-79) notes that the Coastal Plain had more grasslands and the Piedmont more woodlands.

The Subtropical faunal region ranged along the Atlantic Coastal Plain from about Charleston south through most of Florida and westward along the Coastal Plain of the Gulf of Mexico. This zone formerly included a much larger area of subaerially exposed shelf due to lower eustatic sea levels (Webb 1981:I-80). The faunal species represented in this region indicate a warm, moist, equable climate. The giant tortoise (*Geochelone crassiscutta*), which was unable to tolerate freezing temperatures, indicates that winter temperatures were very mild (Webb 1981:I-81).

A famous late Pleistocene fossil site, that of Edisto

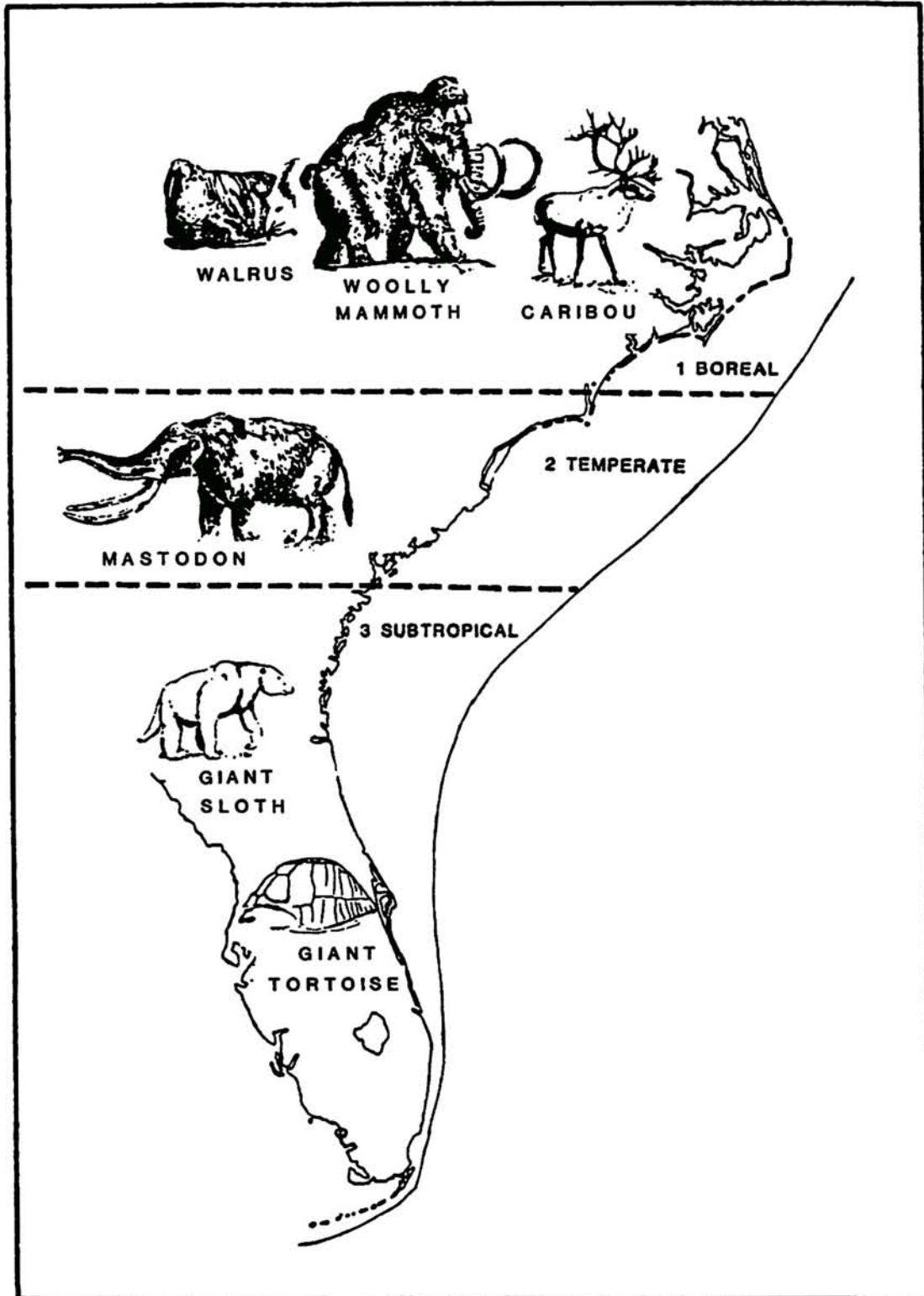


Figure 2.2: Late Pleistocene faunal regions of the southeastern United States coastal plains. From Webb (1981) as adapted by Carbone (1983).



Island, South Carolina (Figure 2.1), forms the basis for much of the paleofaunal reconstruction for the Subtropical region in South Carolina and Georgia (Webb 1981:I-104; Roth and Laerm 1980). Based on fossils recovered from Edisto Island, Webb (1981:I-104) provides the following ecological interpretation for the biota:

"The predominant vertebrate fossils are large grazers, most of which were herd ungulates. These include horses, camels, mammoths, and bison. Giant tortoises, glyptodonts, and most of the ground sloths also fall in this broad category. Browsing vertebrates were also present, notably mastodons, tapirs, and peccaries. Large freshwater mammals, notably giant beavers, giant capybaras, and abundant muskrats, not to mention fishes, turtles, and alligators indicate the proximity of a major river system. The aquatic and terrestrial vertebrate fauna suggests a mosaic of deciduous woodland and grassland savanna, crossed by major meandering streams."

In addition, Webb (1981:I-81) states that many species from the Temperate region ranged south making the fossils of the Subtropical region "... typically the richest and most diverse vertebrate samples of the late Pleistocene" (Webb 1974). Webb (1981:I-77) offers his concurrence with the statement originally offered by Edwards and Merrill (1977:35) that "... during the late Pleistocene the region from Florida to the Carolinas approached optimal conditions for the earliest Americans."

### PROBLEMS IN EARLY HOLOCENE HUMAN ECOLOGY

The preceding review of paleoenvironmental data is sufficient to indicate that considerable temporal and spatial variation existed between 12,000 and 8,000 B.P. within what is now called South Carolina. Given this heterogeneity, it is important that these differences be considered in any attempts at modeling human settlement. Because of the great amount of climatic and environmental change recorded for this span of time, the natural world faced by the earliest inhabitants can well be described as dynamic.

Beginning with the penetration of Clovis or Clovis-related populations into South Carolina around 12,000 to 11,000 B.P., it is clear from the pollen sequence at White Pond that these people were living in the cool, mesic, deciduous forest of the upper Southeast (above

33° N) not the boreal forest of previous millenia. The climate indicated by palynological data is that of harsher winters and cooler summers than that of today, although it is unlikely that the growing season was shorter. This is also considered a time of maximum seasonality. The majority of the Coastal Plain and all of the Piedmont were contained within this forest, a condition that apparently lasted until the Early Archaic (ca. 9,500 B.P.). Below the 33rd latitude, i.e., from about Charleston southward (Figure 2.1), the climate was warmer and drier with less moisture in the growing season. Given depressed eustatic sea levels (Colquhoun and Brooks 1986) and a larger subaerial Coastal Plain, the major drainage that would have had the greatest representation in each zone was the Savannah River. Of all the river valleys in South Carolina, it likely contained the most environmental variation in terms of temperatures, moisture, and biota. The mouth of the Savannah in late Pleistocene-early Holocene time periods would have met the Atlantic Ocean between 50 and 100 km off the present coastline (see Ruppel 1980:Figure 4) placing it well within Webb's (Figure 2.2) Subtropical faunal region.

From the standpoint of paleoenvironmental reconstruction, the cool, mesic, deciduous forest was relatively uniform and distinct as represented in the pollen record at Whites Pond, with its appearance and demise (ca. 13,000-9,500 B.P.) rather abrupt stratigraphically (Watts 1980:190). The character of the faunal life of this early Holocene interval and their temporal-spatial dynamics, however, are not well known.

The paleontological reconstructions of Webb (1981) for the late Pleistocene, while in many ways corroborated by palynological reconstructions, as yet lack the chronological controls that would allow the placing of species in time *vis a vis* archaeological manifestations. To further complicate the matter, a number of economically significant faunal species went extinct during the period from 12,000 to 10,000 B.P. The tri-zonal partitioning of the South Atlantic Coastal Plain by Webb (1981) into faunal regions as discussed, may be more representative of the full glacial or boreal climatic period, i.e. pre-13,000 B.P. as opposed to the early Holocene. Some of the Subtropical species were intolerant of freezing temperatures, such as the giant tortoise, which at one time lived as far north as Charleston. South of the ice sheets, climate is thought to have been more equable during maximum glaciation, i.e., warm winters and cool summers, because cold arctic air would have been blocked by the fused Cordilleran and Laurentide ice sheets (Bryson and Wendland 1967). Delcourt and Delcourt (1984:278)

have argued that "The sustained arrival of the Arctic Air mass south of the continental ice sheets occurred between 12,000 and 11,000 B.P., after the opening of the ice-free corridor between the Cordilleran and Laurentide Ice Sheets (Bryson and Wendland 1967)". Clovis-age peoples should have been arriving in South Carolina about that time and were probably witnesses to the impact of cold winter temperatures on the animal populations. Whether these freezing temperatures were significantly related to the extinction of Pleistocene fauna beyond the frost intolerant types is a matter of debate for paleontologists (cf. Martin and Klein 1984). What is certain, however, is that several economically relevant animal species died out about this time or just thereafter.

In a recent study by Meltzer and Mead (1985) of available published radiocarbon dates relevant to the late Pleistocene faunal extinctions, the authors re-evaluated some 363 dates in light of strict criteria of reliability. Of interest to archaeology is the fact that the highest peak for deaths occurs between 11,000 and 11,500 B.P. (Meltzer and Mead 1985: Figure 2). According to their rating system, there are no dates that are considered reliable after 10,000 B.P. and there is a strong suggestion in the data that for such genera as *Camelops*, *Equus*, *Mammut*, *Mammuthus*, *Nothrotheriops*, and *Panthera leo atrox*, that their extinctions were complete by 10,800 B.P. (Meltzer and Mead 1985:166). Haynes (1984) has argued based on the stratigraphy of the Pleistocene-Holocene boundary and the lack of Pleistocene megafauna in post-Clovis culture sites, that extinction occurred during the Clovis period and thus was complete at least by 10,500 B.P. If Clovis culture folk were the last and only groups to exploit the megafauna, the temporal window for association is even smaller as Clovis sites in the West date from about 11,200 to 10,900 B.P. (Haynes *et al.* 1984: Table 2).

The issue of Paleoindian exploitation of late Pleistocene megafauna in the eastern United States has long been controversial. Since the publication of Ronald Mason's (1962) major synthesis on Paleoindian in the East, surprisingly little headway has been made in resolving the economic relationship between fluted point makers and now-extinct fauna (cf. Meltzer 1988:2). Very few indisputable associations have been found. In terms of mastodon, the Kimmswick site in Missouri (Graham *et al.* 1981) is perhaps the sole clear association of fluted points and proboscidea. From there one must go all the way to the springs and rivers of Florida to list additional associations of ex-

tinct fauna.

The famous site of Little Salt Spring in southwest Florida is a fresh water cenote with a long archaeological history of occupation. The excavations of Clausen *et al.* (1979) have produced some amazing preservations particularly in faunal and wood remains. Situated on a now inundated ledge in the spring was an extinct tortoise (*Geochelone crassiscutata*) found resting on its back where it apparently had been cooked. A wooden stake which was driven into the tortoise was radiocarbon dated at 12,030 B.P. (Clausen *et al.* 1979:609).

Webb (*et al.* 1984) report a *Bison antiquus* skull from the Wacissa River in north Florida with a fragment of a chert projectile point still embedded in the fronto-parietal region. Because of its fragmentary nature the type of point is indeterminate. Two radiocarbon dates were obtained from the bison bone averaging 10,500 years B.P. Bullen *et al.* (1970) reported an obviously worked (butchered?) mammoth vertebra from the Sante Fe River in north Florida. The Florida beveled bone points reported by Jenks and Simpson (1941) resembling the bone points found at Clovis, New Mexico, are known to be made of ivory, which were apparently worked while in a green state. Webb *et al.* (1984:390) also mention the finding of other Pleistocene mammal bones such as a mammoth rib and horse from the rivers which bear evidence of human butchery. The recent underwater excavations by Jim Dunbar and S. David Webb in the sinkholes of the Aucilla River in north Florida (Dunbar *et al.* n.d.) have yielded humanly modified proboscidean bone. They are conducting underwater excavations of in situ stratified remains with datable organics in a context which should allow more precise statements to be made regarding Early Man and late Pleistocene faunal subsistence relationships.

In South Carolina evidence for human exploitation of extinct fauna has been meager. In 1975 a dragline working on a development known as Surfside Springs (38HR26) (Figure 2:1) in Horry County pulled up several animal bones and charcoal fragments with what may have been two crude stone tools (Wright 1976). The bone material came from an organic rich sand overlying a yellowish sand. All the bone and charcoal came from the upper organic layer. Don Colquhoun, a geology professor with the Department of Geology, University of South Carolina, interpreted the organic zone as a Holocene lake overlying a yellow sand related to the Sangoman stadial (Wright 1976:1).

## 2. The Earliest South Carolinians

Some of the bone was identified as *Mammuth americana*, *Bison*, *Cervus*, and *Ursus* and some unspecified bone was described as burned. The two tools were described as made from "cemented marl" and were found in the spoil piles not in situ. These lithics were re-examined at the Institute in 1988 by Goodyear and Michie where the archaeological and faunal materials from this site are stored. The item described as a "bifacial tool" (Wright 1976:2) is made from a metavolcanic material of poor conchoidal fracture. It does appear crudely bifacially retouched and/or battered. The second item described as a "blade" by Wright (1976:2) is questionable as an artifact based on the absence of definite flake landmarks or any technological modification. It is made from the same metavolcanic material as the first lithic which has a weak conchoidal fracture. A third lithic was found in the collections from 38HR26 that was not mentioned in the report by Wright. It is a large (3,214.6 gm) bifacially worked core made of a weathered diorite. It exhibits a clear series of bifacial flake removals from opposite margins. Whether or not Surfside Springs was an association of extinct Pleistocene fauna and man is moot. It does serve as an example of the potential for finding in situ paleontological remains which might contain a cultural association.

A more probable example of human utilization of Pleistocene fauna is a mineralized bone from Edingsville Beach on Edisto Island. This fossil was collected by Robert Mackintosh of the South Carolina Department of Archives and History and has been identified by S. David Webb of the Florida State Museum of Natural History as a proximal fragment of a proboscidean rib. The leading edge of the rib exhibits a nearly continuous series of grooves or incisions over about a eight cm area (Figure 2.3). There appears to be some erosion of the marks on one end of the series but the remaining incisions(?) are quite sharp (Figure 2.4).

The senior author took this specimen to the First World Summit Conference on the Peopling of the Americas (Tomenchuk and Bonnicksen 1989) where a number of scholars familiar with humanly modified megafaunal material were able to examine it. The consensus was that there were so many marks present that simple butchering marks seemed improbable. Because the marks are so extensive, it was thought by many to be either the result of purposeful cutting or from natural processes. Further work using the Scanning Electron Microscope to the view the cross sections of the marks is planned. The specimen now resides at the South Carolina State Museum (SCSM

Cat. No. SC 84.27.1). Edisto Beach is a well known fossil collecting locality with a rich late Pleistocene faunal inventory (Roth and Laerm 1980; Webb 1981) which should provide a high potential for finding humanly modified bones. Most of the fossil finds reported in South Carolina have come from the coast and coastal rivers. Hay (1923:119) mentions finds of mastodon in Lee County and mastodon and horse near Darlington, South Carolina.

The findings of Meltzer and Mead (1985) indicating that Pleistocene faunal extinctions were completed by 10,000 B.P. and perhaps as early as 10,800 B.P. is interesting in light of the available data gathered from throughout the Southeast for the Early Archaic period. Early Archaic side and corner-notched point lithic assemblages to date have not been accompanied by faunal remains of extinct species (Goodyear 1982; Smith 1986: Table 1.2; Meltzer and Smith 1986). Although subsistence data from Dalton sites are very limited, the available faunal remains indicate that only modern Holocene animals were exploited (Goodyear 1982:391). If the revised chronological position of the Dalton horizon from 10,500 to 9,900 B.P. is correct (Goodyear 1982), there would appear to be a maximum period of a thousand years during which people and the now-extinct fauna would have been contemporary (ca. 11,500-10,500 B.P.).

### ARCHAEOLOGICAL INVESTIGATIONS IN SOUTH CAROLINA AND RELATED ENVIRONS

As Stephenson (1975) has discussed in his history of archaeological research in South Carolina, there was no strong professional presence in the state until the late 1960's. This is reflected in the weakly developed state of knowledge for nearly all periods of prehistory but perhaps none more so than that of the elusive Paleoindian (Michie 1977:38). Like most southern states, an understanding of pre-10,000 B.P. peoples based on excavated in situ archaeological remains has remained difficult to acquire.

In 1966, Dr. William E. Edwards, State Archeologist and Director of the South Carolina Department of Archeology, conducted extensive excavations (142 m<sup>2</sup>) at the Theriault site (9BK2) (Figure 2.1), located along Brier Creek near Girard, Georgia (Stephenson 1975:52). This site and others like it along Brier Creek are famous for their abundance of chert artifacts related to local outcrops of a high quality Coastal Plain chert (Waring 1961:551-552). A single fluted point was excavated between 30 and 34 inches below surface

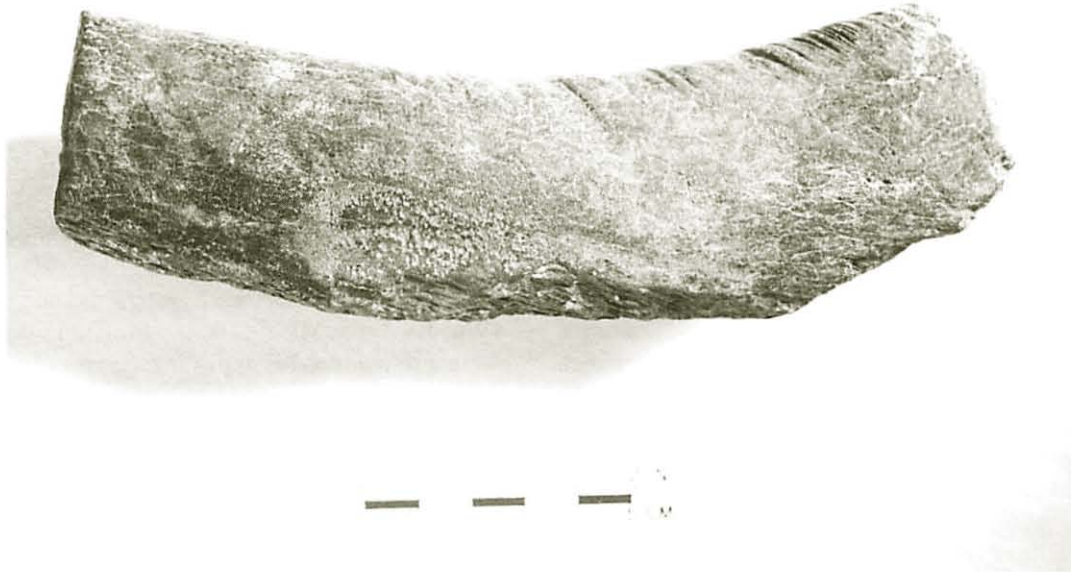


Figure 2.3: Photograph of proboscidean rib from Edingsville Beach, Edisto Island, South Carolina, showing location of probable cut marks. SCSM Catalog Number SC 84.27.1.

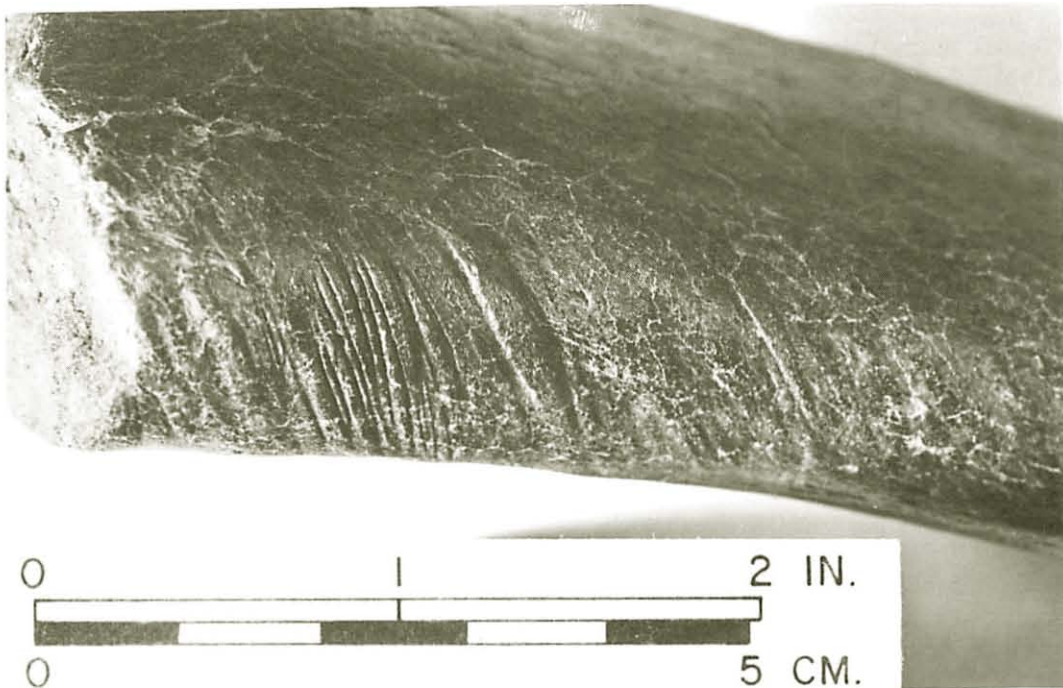


Figure 2.4: Close-up view of probable cut marks on proboscidean rib from Edingsville Beach, Edisto Island, South Carolina. SCSM Catalog Number SC 84.27.1.

## 2. The Earliest South Carolinians

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along with Dalton and other Early Archaic points (Brockington 1971). Excavations by the Institute with the help of local archaeological societies at the 1716 British site of Fort Moore (38AK4&5) located on the Savannah River south of Aiken, South Carolina, yielded a base of a fluted point which had been redeposited into a cellar (Joseph 1971), probably from a Paleoindian occupation close by.

Beginning in the late 1970s, as a result of federally mandated cultural resource management projects, a few individual fluted points were excavated in the Savannah River valley. A single fluted point was excavated at the Rucker's Bottom site (9EB91) amongst several Early Archaic notched points (Anderson and Schuldenrein 1983), and one at Simpson's Field (38AN8) (Figure 2:1), also associated with Early Archaic artifacts (Wood *et al.* 1986). Both of these excavations were conducted as part of the archaeological mitigation studies of the Richard B. Russell Reservoir. Elliott and Doyon (1981) reported a fluted Dalton-like point and a fluted preform from test pits excavated at the site of Taylor Hill (9RI89), a floodplain site located near Augusta, Georgia (Figure 2:1). This project was a result of a proposed railroad relocation. Like other excavations yielding fluted points, these two pieces were found at the bottom of the site but with later Early Archaic notched points present (cf. Elliott and Doyon 1981:Table 14). Nonetheless, the density of curated, specialized unifacial tools recovered from Taylor Hill is quite impressive, as noted by Anderson and others (Anderson *et al.* 1986)

The discovery and excavation of Paleoindian sites with stratigraphic integrity, clarity, and interpretable assemblages, the foundation of all Paleoindian studies, is yet to be realized in South Carolina. To date, the most productive research strategy has been the state-wide lanceolate point survey (Michie 1977; Charles 1986).

The discovery of a fluted point with the remains of an extinct bison at Folsom, New Mexico, in 1927 launched a search for fluted points and kill sites throughout North America. Lacking similar kill sites, research activities in the East for nearly the next four decades were characterized primarily by the recording and description of fluted points and other lanceolate forms believed to be early, the development of morphological types, and the plotting of their geographic distributions (Mason 1962; Williams and Stoltman 1965). Because of limited reporting, South Carolina played only a minor role in these geographic summaries.

In 1939, Wauchope published a brief comment in *American Antiquity* on the existence of four fluted points from South Carolina, all found in private collections (Wauchope 1939). Two of the points were said to come from near Columbia, the other two from the Babcock collection said to have been made from around Chester. Some years later, Waring (1961) reported on four fluted points found in Beaufort and Jasper Counties. These points, probably all made of Coastal Plain (Allendale?) chert, were clearly fluted (Waring 1961: Figure 1). In the 1960s sufficient awareness was reached among avocational archaeologists within the state that fluted points were recognized and reported (Waddell 1965; Michie 1965). Preliminary attempts were also made to begin placing the sporadic finds of lanceolate points into current Southeast projectile point typologies (Michie 1970). These included Clovis, Simpson, Suwannee, Quad, and Dalton (Michie 1970, 1973; Hemmings 1972). The descriptive-typological work of Ripley P. Bullen (1968) with the Florida Paleoindian lanceolates had an obvious affect on classificatory thinking by investigators in South Carolina (e.g., Michie 1970). Beginning in 1969, recording of lanceolate points became standardized in the state through a form developed by E. Thomas Hemmings of the Institute. This form has been used by both Michie (1977) and Charles in their Paleoindian point surveys and has been published by Charles (1981:20). It has also been adapted to the Georgia Paleoindian recordation project (Anderson *et al.* 1986:6-11).

The first systematic and extensive survey of Paleoindian points was done by James L. Michie (1977). This work was summarized and presented as a Senior Thesis in the Department of Anthropology at the University of South Carolina. He presented metric and other data on 95 points obtained over a 15 year period, most of which were recorded from 1968 to 1976. Michie obtained access to the 95 specimens by developing a network of artifact collectors through personal contact and by advertising his interest in fluted points in the publications of the Archeological Society of South Carolina. Nearly all the specimens examined were in private collections (Michie 1977:42). Michie (1977:51-65) used the types Clovis, Clovis-variant, Suwannee, and Simpson to classify all of the specimens, although he points out that many specimens shared attributes of more than one type. Dalton points, much more numerous than these, were not recorded in the study.

Using this typology, Michie (1977:Tables 1-5) found the following patterns (Table 2.1). Of the 95 lanceolates, 70 were considered Clovis and five were Clovis-

variants. Thus, 75 or 79% of the points were considered Clovis related. Sixteen were classified as Suwannee and four as Simpson. Taken together, 20 or 21% of the 95 specimens were Suwannee and Simpson. The raw material distributions by type revealed a predominance of Coastal Plain chert (Table 2.1). For Clovis, 54 of the 75 points were made of chert or 72%. Fifteen Clovis or 20% were made of "slate" (Table 1). Michie (1977:65) noted that "slate" and quartz seemed to be chosen for the Clovis-variants and that they were relatively small. Of the 20 Suwannee and Simpson points, 17 or 85% were made of chert (Table 2.1).

In terms of geographic patterns, Michie (1977:87) observed that most of the lanceolate points were from the Fall Line and Coastal Plain, with the majority found on the Coastal Plain. Suwannee and Simpson points are best known in Florida (Bullen 1975) where they are made exclusively from Coastal Plain chert. [According to his distribution map (Michie 1977:Figure 12), all of the Suwannee and Simpson points are from the southern part of the state.] His geographic distributions indicated that the larger river valleys of the state contained the majority of the specimens (Michie 1977:Figure 12), although smaller streams near the

Fall Line such as Black Creek in Lexington County, and Stevens and Turkey Creeks in McCormick and Edgefield Counties, also seemed to have concentrations (Michie 1977:90). Within drainage systems, a pattern was noted that "In the majority of cases the Clovis has been found near the intersection of creeks and river valleys, especially on the highest portion of land near those intersections." (Michie 1977:87). Nearly every find was a single occurrence. Often a site was of a low artifact density or was strongly multicomponent yielding later Early Archaic points and tools (Michie 1977:42-43).

Realizing the scientific potential inherent in private artifact collections which could be found throughout the state, Michie proposed a survey and planning grant study to the South Carolina Department of Archives and History to fund a state-wide collections inventory. Five phases or seasons of survey work were undertaken by Tommy Charles for the Institute beginning in 1979, concluding in 1986 (Charles 1979, 1981, 1983, 1984, 1986). One of the objectives of this collections survey was to record lanceolate points thought to be Paleoindian. As of 1986 when the survey was formally concluded, a total of 805 new prehistoric

Table 2.1

Paleoindian Lanceolate Points by Type and Raw Material from the Michie Survey (1977:Tables 1-5)

	Chert	Slate	Quartz	Quartz Crystal
Clovis n= 70	52 (74%)	13 (19%)	2 (3%)	3 (4%)
Clovis Variant n=5	2	2	1	0
Suwannee (16)	13 (81%)	2 (13%)	1 (6%)	0 0
Simpson (4)	4 (100%)	0 0	0 0	0 0
n=20	17 (85%)	2 (10%)	1 (5%)	0 0
N=95	71 (75%)	17 (18%)	4 (4%)	3 (3%)

## 2. The Earliest South Carolinians

sites were added to the Institute site files and 323 private collections were recorded and analyzed. In terms of lanceolate points, a total of 204 new examples were recorded (Charles 1986:17). The survey of Charles sought to obtain as wide a coverage as possible in order to more accurately include variability among lanceolate points. An effort was made to visit every county in the state.

In studies such as these, the factors that may be influencing the patterning in point types, raw materials, and resultant geographic distributions are numerous and probably not completely known. The biases associated with private collectors, their collecting habits, the variability in landscape exposure, depth of soil erosion as well as the historical trends in such conditions all provide for biases in our data that are difficult if not impossible at this point in time to accurately assess. With these thoughts in mind, it is worthwhile to see how comparable the Michie and Charles survey results are with one another (Tables 2.1 and 2.2).

Typologically, both investigators used the same Clovis, Suwannee, Simpson distinctions. Michie, dur-

ing the late 1960s, began using the generic category "slate" to denote what has since come to be known as "metavolcanic". Charles, building on the petrologic studies of Novick (1978), House and Wogaman (1978), and Anderson (1979; Anderson *et al.* 1982), incorporated more precise distinctions such as rhyolite, welded tuff, differentially crystallized tuff, and felsic tuff. He was also able to incorporate the black, gray, and blue cherts suspected to be from the Ridge and Valley Province in his recordings, as well as distinguish as yet unsourced cherts that are unlike those normally found in the Flint River formation of Allendale County, South Carolina, and Brier Creek in Burke County, Georgia (Cooke 1936; cf. Goodyear and Charles 1984). The term "Coastal Plain chert" used by both Michie and Charles likely refers to these high-quality fossiliferous Oligocene period cherts. Cherts that match the siliceous qualities and colors of the Allendale County cherts have been found in limited outcrops in Greenwood and Edgefield Counties, South Carolina. However, it is clear that these Piedmont cherts constitute a smaller source of cryptocrystalline raw material compared to the abundant, high-quality chert sources of the Flint River formation.

**Table 2.2**  
Paleoindian Lanceolate Types by Raw Material from the Tommy Charles Survey

	Coastal Plain Chert	Unident. Chert	Ridge & Valley Ch.	Rhyolite	Welded Tuff	Differ. Crys. Tf.	Meta- volcanic	Qtz. Qtz.	Qtz. Crys.
Clovis	52	10	6	13	13	6	4	13	9
n=126	(41%)	(8%)	(5%)	(10%)	(10%)	(5%)	(3%)	(10%)	(7%)
Clovis-variant	0	0	5	2	3	1	0	1	2
n=14	0	0	(36%)	(14%)	(21%)	(7%)	0	(7%)	(14%)
Suwannee	39	1	1	6	0	0	1	8	1
n=57*	(68%)	(2%)	(2%)	(11%)	0	0	(2%)	(14%)	(2%)
Simpson	5	0	0	1	1	1	0	0	1
n=9	(60%)	0	0	(10%)	(10%)	(10%)	0	0	(10%)

N=206

\* (one made of orthoquartzite - 2%)

Table 2.2 was constructed using the data recorded by Charles from 1979 through March 16, 1988. A total of 206 specimens were complete enough or clear enough in their form to permit classification by type. Of the 206 points, 126 were considered Clovis and 14 Clovis-Variant for a total of 140 Clovis points. Thus, 140 or 68% of his sample can be classed as Clovis. Michie's data revealed 79% Clovis. Of the 206 cases, 57 were classed as Suwannee and nine as Simpson (Table 2.2) or 66 which constitutes 32%. Michie's data revealed 21% were Suwannee and Simpson. In terms of raw material breakdown, 52 or 37% of the Clovis and Clovis-Variant were made from Coastal Plain chert versus 72% for Michie's data.

There are some significant differences between the data sets in terms of proportions of types and raw materials represented. Clearly, Charles saw more Suwannee and Simpson points than Michie. For raw material, Charles saw less Coastal Plain chert artifacts compared to the Piedmont metavolcanic types of raw material.

Regarding geographic distributions, some sense of coverage and patterning can be obtained by viewing Charles' map (Charles 1986: Figure 2) which is reproduced here as Figure 2.5. A Piedmont-Fall Line-Coastal Plain division can be made by calling the counties of Aiken, Lexington, Richland, Kershaw, Chesterfield, and Marlboro as Fall Line Counties. Remaining counties above and below are Piedmont and Coastal Plain respectively. By this classification there are 18 Piedmont counties producing a total of 86 lanceolate points. There are six Fall Line counties yielding 70 points and a total of 158 Paleoindian points came from the 22 Coastal Plain counties (Figure 2.5). (There are 314 points plotted in Figure 2.5 for South Carolina as Charles combined Michie's distributional data with his own).

Some significant patterns can be seen in Figure 2.5. First, by combining the Michie and Charles survey data it seems that little difference in density exists between the Piedmont and Coastal Plain. The Coastal Plain area represents about twice the land mass as the Piedmont and it has about twice the number of points (158 versus 86). However, it is possible that the deeper and less eroded soils of the Coastal Plain are not as exposed as the Piedmont soils which have almost uniformly been severely eroded (Trimble 1974). Accordingly, the Coastal Plain may be underrepresented. Compared to the Piedmont and the Coastal Plain, the Fall Line counties represent a much smaller

area yet they have produced 70 lanceolate points. The Fall Line density is specifically accounted for by the concentrations along tributary creeks which drain into the major rivers. For example, the cluster outside of Columbia is situated along the Congaree, Thoms and Black Creeks. Also, the Taylor site (38LX1) (Figure 1) (Michie 1971, 1977) situated on an old alluvial terrace near the Congaree River, has produced an estimated 12 to 15 fluted and basally thinned lanceolate points from private collecting, more than any other site known in South Carolina (Michie n.d.).

Points made of Coastal Plain chert can be seen to distribute over the entire state, but with most specimens concentrating in the south and southwestern portions (Figure 2.5). Of all the raw material sources, it is Coastal Plain chert that is best known as quarries have been found. The Allendale County chert quarries have been mapped and test excavated (Goodyear and Charles 1984), as well as examined petrologically by a geologist (Upchurch 1984). The terrestrial chert outcrops and quarries plus the sources available within the Savannah River itself, represent the greatest source of high quality cryptocrystalline lithic raw material known within the state. For Charles's data, 96 or 47% of the 206 points were made from Coastal Plain chert, many of which were probably made in Allendale County. While a few other cherts sources are known from the Coastal Plain in the upper Congaree (Michie 1977), lower Wateree (Anderson *et al.* 1982), and middle Santee river drainages (Anderson *et al.* 1979; Anderson *et al.* 1982), they tend to be inferior for technological purposes due to a high density of fossils and probably do not have the degree of exposure as manifested in the Allendale County quarries, such as the extensive Rice quarry (38AL14) (Figure 2.1). The high concentration of chert artifacts in Allendale and Hampton counties probably reflects more of a prehistoric reality than simply collector biases. While collecting in Allendale County is popular, it is also the source area for the high-quality Allendale chert. The cluster of points in Beaufort and Jasper counties probably reflects the proximity to the Allendale quarries. There are also river transported cobble cherts of Allendale quality found near Beaufort which may be local sources (Goodyear and Charles 1984:114-115; Michie 1980:76). The high-quality technological characteristics ascribed to the Allendale Coastal Plain chert would appear to be born out by the fact that Paleoindian lanceolates made from this material show up at the foot of the mountains and nearly to the North Carolina border (Figure 2.5), a distance in some cases of 150 miles. The Allendale chert sources are also important



for modeling Paleoindian and Archaic settlement systems because there is reasonable geographic closure on the origin of the lithic artifacts made from this distinctive material (Goodyear and Charles 1984; Sassaman *et al.* 1988; Anderson and Hanson 1988:Figure 8). From a southeastern U.S. Coastal Plain perspective, the Allendale outcrops appear to be the northern most expression of Tertiary age cherts which run fairly continuously from Tampa Bay, Florida to the western edge of Allendale County, South Carolina (Goodyear *et al.* 1985).

Lanceolates made of metavolcanic Piedmont raw materials appear to have nearly as extensive a distribution across the state as those of Coastal Plain chert (Figure 2.5). Metavolcanic lanceolates participate in the Fall Line river valley clusters, such as those near Columbia and Camden, and two were found near the chert quarry sources of Allendale County, one each in Hampton and Colleton Counties (Figure 2.5). Piedmont metavolcanic tools of Early Archaic and possibly Paleoindian age are known even at Allendale chert quarries where they appear as probable discards (see Goodyear and Charles 1984:104-105). Metavolcanic lanceolates are well represented in the Pee Dee and Santee Rivers, a logical occurrence as both drain areas of the metavolcanic-rich Piedmont of northern South Carolina and western North Carolina. The concentrations in Kershaw, Lancaster, Chesterfield, and York Counties, South Carolina, are suspected to be related to high-quality rhyolite and welded tuff outcrops which occur in the Uwharrie Mountain region just over the border in North Carolina (Novick 1978). In fact, these concentrations appear connected to similar high densities of metavolcanic fluted points reported for Mecklenburg, Union, Stanly, and Union Counties in North Carolina (Peck 1988:Map 2).

Metavolcanic points occur in the western Piedmont sporadically. It is our impression that rhyolite and other conchoidally fracturing lithic materials are available here naturally, but are not as siliceous and homogenous as similar materials to the east. Some of the black, gray, and green welded vitric tuff artifacts found in Lancaster and Chesterfield Counties almost appear to be chert they are so dense and siliceous. The differentially crystallized tuff is of the same quality as these. More work is needed to locate and describe these cryptocrystalline metavolcanic sources which are suggested based on Paleoindian and Archaic artifact distributions to be located in the northern area of South Carolina (Cable and Cantley 1979; Charles 1981:46,55).

The predominant siliceous material in the western Piedmont is quartz (Canouts and Goodyear 1985; Charles 1981:53). It is clear from both the work of Michie and Charles (Tables 2:1, 2:2) that quartz was utilized for the production of fluted and other basally thinned lanceolate points. This material no doubt posed certain technological problems in the production of long flutes. The recognition of Paleo-Indian lanceolates among quartz bifaces has caused us some consternation because recognition of fluting and other subtle flaking patterns are difficult. The possibility of not recognizing Paleoindian lanceolates made from quartz because they lack the diagnostic flute or deep basal thinning flake is probably real.

The last raw material distribution that merits discussion is the presence of dark colored, vitreous cherts which probably originated in the Ridge and Valley Province of eastern Tennessee. In Figure 2.5 it can be seen that the majority of these specimens occur in the northwest portion of the state, especially along the Savannah River. The origin of the dark cherts, usually black, gray, and blue in color, both translucent and opaque, may not be completely in the mountains, however. While many dark chert artifacts and debitage from the Archaic and Woodland periods are identical with Ridge and Valley cherts of eastern Tennessee, there may be a Piedmont source for some of this material based on the presence of a hard, pitted volcanic-like cortex (see Goodyear *et al.* 1979:184-187; Anderson and Schuldenrein 1983:181-183). Preliminary petrologic analysis (Anderson 1979:37; Sam Upchurch, personal communication) would indicate that some of it has an igneous-metamorphic origin rather than sedimentary suggesting a Piedmont source. In addition to the interesting geographic distribution indicated for the dark chert Paleoindian points, is their relatively small size compared to lanceolates made from Coastal Plain chert and metavolcanic materials. Lumps of chert and cortical flakes suggest that the original nodules were small (<10 cm diameter). Five of the 12 "Ridge and Valley" points recorded by Charles (Table 2.2) are classified here as "Clovis-variant" meaning they were small and triangular or pentagonal in blade outline. Two black chert fluted points were excavated in the Richard B. Russell Reservoir data recovery program. One waterworn specimen came from a Mississippian midden at the Clyde Gulley site probably collected and reused late in prehistory (Tippitt and Marquardt 1984: Figure 8-3, j). The second one was excavated from the lower levels of Rucker's Bottom (Figure 2.1) among several Early Archaic artifacts (Anderson and Schuldenrein 1983:Figure 2, j-k).

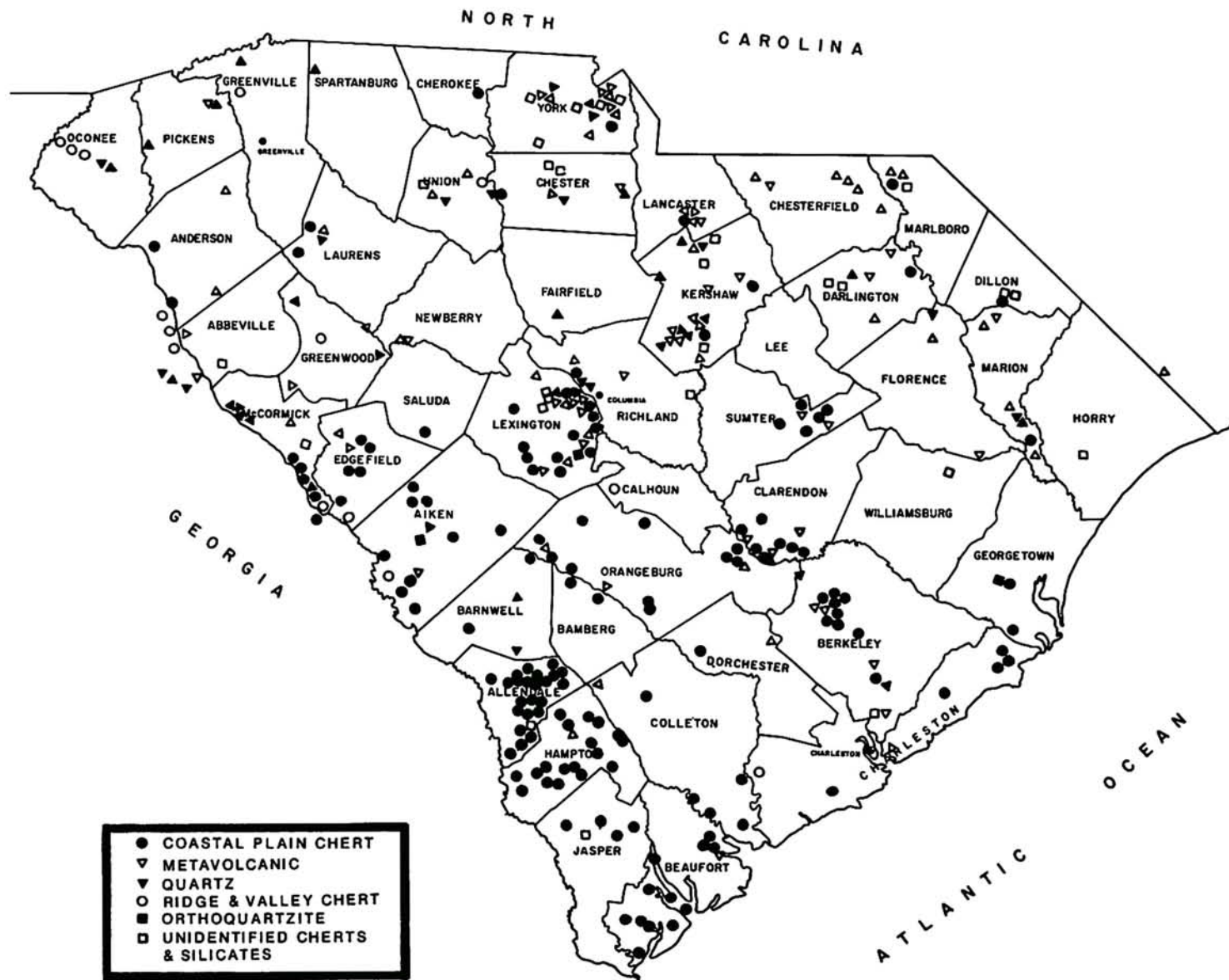


Figure 2.5: Distribution by raw material of points from the Paleoindian period in South Carolina. (From Charles 1986: Figure 2).

Anderson and Schuldenrein (1983:183) suggest that this fluted point may have been redeposited by Early Archaic groups or represents a case of stratigraphic compression (Anderson 1988:107). Both points were fairly small, the first 46 mm and the second 49 mm.

#### TYOLOGICAL AND TECHNOLOGICAL CONSIDERATIONS

To date, our classification of Paleoindian points has been qualitative and to a large degree subjective. It has been qualitative in the sense that certain ideal morphological forms have been employed in classification which often are not mutually exclusive. Other nominal data as well as metric data have been recorded in the survey projects of Michie and Charles that could profitably be examined. At this point, it is necessary to describe and illustrate the various categories which have been employed.

**CLOVIS** The primary distinguishing feature of these points is the pronounced flute (Figure 2.6). Flutes were detached as single or multiple elongated flakes or as a single scallop-like detachment. Considerable variability exists in point size, blade shape, basal outline, and basal concavity. As previously discussed, Clovis points occur on a wide variety of raw materials, of Coastal Plain, Piedmont, and mountain in origin (Table 2:2). They consistently appear to be made from the best quality cryptocrystallines, a pattern that is continental wide (Goodyear 1979). If a lanceolate had a substantial flute or flutes on the base, it was classed as Clovis regardless of blade and basal configuration. The one exception is Michie's Clovis-variant type. These points are fluted but small and have narrow triangular or pentagonal blade shapes (Figure 2.6: n,o). Michie was able to detect this form based on five specimens. By examining the drawings and photos recorded in Charles's data, the senior author was able to detect a total of 14 more.

Within the Clovis points, there are two significant patterns. The first relates to basal configuration and raw material. The second concerns the raw material, shape, and geographic distribution of the Clovis-variant.

It can be seen that among the fluted points, the base or haft area is either straight (Figure 2.6: a-g) or is slightly incurved toward the base yielding ears (Figure 2.6: h-m). This distinction is based on simply the haft area regardless of the blade shape. Variation in blade shape is probably related more to retipping and reworking. Using the drawings of Michie and Charles, Clovis

points were classified by the senior author as to either straight or incurved basal elements and whether they were made of Coastal Plain chert or metavolcanic material. In the Charles data, out of 51 points made of Coastal Plain chert, 25 were straight based and 26 were incurved. Of the 32 points made of metavolcanics, 24 were straight and 8 were incurved. A chi-square value of 5.492 for this distribution is significant ( $p < .02$ ). The ratio of straight to incurved is nearly equal among chert specimens but there are three times more straight based fluted points made from metavolcanic material than chert. The same distribution was calculated for the Michie survey data where basal elements were adequately preserved. Out of 27 Coastal Plain chert fluted points, 14 were straight based and 13 were incurved, nearly equal. Of the 16 metavolcanics, 12 were straight and 4 were incurved. This distribution owing to small sample size ( $N=43$ ) was not significant ( $.20 < p > .10$ ). However, the ratios between the two data sets are virtually identical, 1:1 and 3:1. It is obvious that among the metavolcanic specimens there is a strong tendency to produce straight bases with no ears. The meaning of this difference is unknown. However, it very likely has some cultural and or chronological significance. The production of incurved basal elements yielding ears is typical of Florida Suwannee and Simpson points (Bullen 1975:55-56) and Dalton points in the Carolinas, which may imply that the fluted points with ears are relatively late in time.

The other pattern within the Clovis type concerns the strong association of Clovis-variant and Piedmont-related raw materials. Data from the Charles survey (Table 2:2) reveals that all 14 of the specimens were made from metavolcanic rocks or Ridge and Valley-type cherts. Of the 14 Clovis-variant cases, all but two were found along the Fall Line, in the Piedmont or at the foot of the Blue Ridge Mountains.

In his original observations, Michie (1977:62), although his sample was small ( $n=5$ ), had difficulty in characterizing the Clovis-variant. To wit:

"... another type exists that shares certain Clovis attributes and it seems to resemble the projectile point types that are found at Bull Brook (Byers 1954), Shoop (Withoft 1952), and the Williamson site (McCary 1975). The attributes of these points suggest a relationship to many types, but as a representative type they are difficult to define. These points are either par-

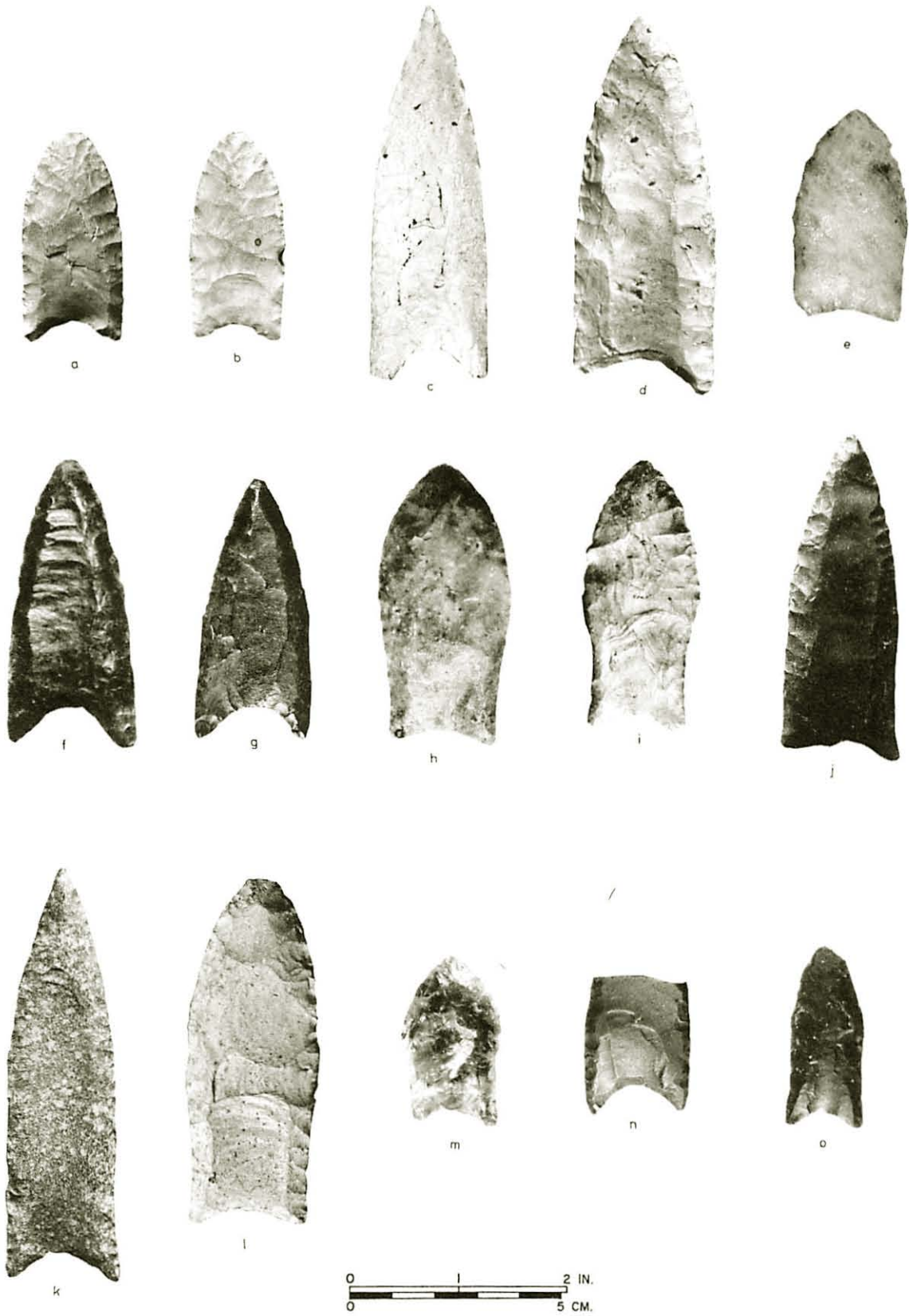


Figure 2.6: Varieties of fluted points from South Carolina.

## 2. The Earliest South Carolinians

allel, triangular, or pentagonal in outline, and for the most part they are poorly made. Many irregularities are seen along the edges, and apparently no attempt was made to correct them, and the removal of the channel flakes for fluting appears to be random and without design. Frequently a multiple removal of channel flakes is seen on both surfaces, and these flakes failed to extend up the point's surface before terminating " (Michie 1977:62).

The "Clovis-variant" category, because of its difficulty in definition, appears to be functioning as a residual type in classification. Any fluted or basally thinned lanceolate point that cannot comfortably be classed as Clovis, especially if it is not made of Coastal Plain chert, is categorized as a Clovis-variant. The high degree of irregularity in blade shape, fluting, and the comparatively small size (<50 mm) all suggest that this category may represent fluted points that have been intensively reworked from larger and probably more consistent designs. The pentagonal shape of the blades is evidence of an extreme form of re-tipping where there is little blade length left to work. Variability in fluting and basal thinning could be related to improvising in the field where a point is made from a damaged basal or blade portion or from a curated flake which do not allow the normal fluting preparations to be made. The strong association of the Clovis-variant and the Piedmont parallels the situation in Georgia where it has also been reported that Piedmont fluted points there tend to be small and heavily reworked (O'Steen *et al.* 1986; Anderson *et al.* 1987:48). Given the apparently poor cryptocrystalline lithic resources of the South Carolina Piedmont, one cannot help but wonder if the Clovis-variant represents attempts to conserve high-quality and usually imported curated projectile points. It is probable that some of the Clovis-variants represent these situations and not a culture-historical type. Given the technological dependence of fluted point groups on cryptocrystalline raw materials and the strong geographic association of these points with raw material sources (Gardner 1974), regions such as the western Piedmont of South Carolina which seem to be cryptocrystalline poor become interesting areas to study Paleoindian technological adaptations because tool replacement may have been difficult by local procurement. One prediction of the cryptocrystalline hypothesis (Goodyear 1979) is that greater efforts will be made to extend the lifespan of tools as groups become more spatially and temporally removed from cryptocrystalline quarries. Culture-historically, some of these

may also represent what are thought to be later smaller Paleoindian fluted points hypothesized to exist temporally between Clovis and Dalton in the Southeast (Gardner 1974:18; Anderson *et al.* 1986).

Although the fluted points recorded in the Michie and Charles surveys were not classed except as "Clovis" or a variant of Clovis, a casual inspection of that data reveals interesting differences and similarities between South Carolina fluted points and fluted points from the rest of the Southeast and Midwest. Based on over 20 years of recording and a sample of over 300 lanceolate specimens, no certain examples of the Cumberland fluted point have been found. The single Cumberland point recorded and illustrated by Charles (1981:77) is not thought to have been found in South Carolina. It was made of a gray exotic chert, and the owner was known to collect and trade heavily in Tennessee and Kentucky.

Fluted points described as Ross County in the mid-continent area (Prufer and Baby 1963:15-16) can be detected in the South Carolina specimens. Pronounced flutes not extending more than one third of the point length and slight basal constrictions are evident on some points (Figure 2.6: h,i,l), as well as the characteristic flat, expanding, lateral thinning flakes on the blade (Figure 2.6: l), all of which characterize the Ross County type. Elongated triangular or convergent-sided points with nearly full facial fluting (Figure 2.6: d,f,j,k) can also be noted which are similar to fluted points which have been called Redstone elsewhere in the Southeast (cf. Mason 1962: Figure 4).

**SUWANNEE** Lanceolate points with excurvate blade edges and a flaring base which did not possess a flute or a clear basal thinning flake were called Suwannee in both the Michie (1977:56-57) and Charles surveys (Figure 2.7: a-d). As Michie (1977:56) notes, "In the majority of the examples the bases of the points are thinned rather than fluted, and this trait usually reflects the removal of many small flakes that extend, occasionally, across the width of the base." The Suwannee point as found and defined in Florida (Bullen 1975:55) normally is not fluted or strongly basally thinned by flakes removed from the basal concavity. In fact, a strong trait that characterizes the Florida Suwannee is what has been called lateral thinning where flakes are removed from the sides of the haft area almost in the manner of parallel flaking (Goodyear *et al.* 1983:46). The lateral thinning method typical of the Florida Suwannees is rare in South Carolina. Examples of lateral basal thinning can be seen on a Simpson point



Figure 2.7: Suwanee, Simpson, and Dalton points and fluted preforms from South Carolina. Figure 2.7: n is a so-called eggstone.

(Figure 2.7: e) and a Hardaway-Dalton (Figure 2.7: g).

A factor complicating a clear-cut recognition of Suwannee points is the existence of the early stage, unresharpened Dalton point. Dalton points, as discussed below, definitely occur in the state and in their earliest stages of use might be difficult to distinguish from Suwannee points. This situation has been discussed by Brooks and Brooks (n.d.) with regards to the culture-historical and technological position of the Dalton point on the Coastal Plain *vis a vis* Suwannee and Simpson points. A detailed technological attribute study of Dalton bases is needed to isolate other technological characteristics of Dalton points besides blade resharpening in order to allow better typological definition.

Based on both the Michie and Charles surveys, projects, it is clear that Suwannee points as well as Simpson points occur primarily in the southern half of the state. The majority of them are made from Coastal Plain chert (Tables 2.1 and 2.2) and in that respect seem to share cultural and technological affinities with the Suwannee-Simpson concentrations known from the Coastal Plain of Georgia and Florida. Charles (Table 2.2) recorded some unfluted lanceolates as Suwannee and Simpson that were made of quartz and other Piedmont raw materials. Whether these are truly technologically equivalent to Suwannee-Simpson points as created on Coastal Plain chert or "Clovis" points that were not fluted is not known. More detailed work needs to be done to define what are called "Suwannee" points in South Carolina.

**SIMPSON** The last type used in both surveys is that of the Simpson. Simpson points were defined by Bullen (1975:56) for the state of Florida. They are similar to Suwannee points but have more excurvate blade margins and a drastically constricted or "waisted" haft area (Figure 2.7: e,f,i). Like Suwannee points, they are not fluted but basally thinned occasionally by lateral flaking (Figure 2.7: e). In the Michie and Charles surveys, if a lanceolate had the exaggerated waistedness of a Simpson point but had a pronounced flute, it was called a Clovis. Judging from both the Michie (Table 2.1) and the Charles (Table 2.2) survey data, Simpson points are relatively rare in South Carolina.

Distinguishing between a Suwannee and a Simpson point has been very subjective, complicated by the fact that the blades undergo considerable reworking causing the degree of constriction between the blade and haft areas to be more or less exaggerated. A

method of quantitatively differentiating Suwannee and Simpson points based on basal metrics has been offered by Goodyear *et al.* (1983). By plotting the ratio of the minimum width of the stem or haft area against the maximum width across the ears, quantitative separation of the two types can be achieved (Goodyear *et al.* 1983: Figure 7). This method plots true basal constriction independent of blade condition.

**DALTON** The Dalton culture or horizon of the southeastern United States has been defined and discussed by numerous authors (DeJarnette *et al.* 1962; Coe 1964; Morse 1971, Morse and Morse 1983; Goodyear 1974, 1982; Smith 1986). Although variations within the lithic tool kits can be noted from region to region, the characteristic serrated and resharpened Dalton lanceolate is the hallmark of the horizon (Goodyear 1982). While  $C^{14}$  dates securely associated with Dalton assemblages are rare at this stage of archaeological research in the Southeast,  $C^{14}$  dates from later Early Archaic notched point assemblages and circumstantial evidence would indicate that the Dalton horizon should date from about 9,900 to 10,500 B.P. at the latest and earliest respectively (Goodyear 1982). As discussed above, subsistence data gathered thus far would indicate that Dalton people were oriented toward the modern flora and fauna of the Holocene.

The Dalton point has been recognized and described in South Carolina by Michie (1973a, 1973b). An excavation specifically designed to recover buried Dalton remains was conducted by Michie at the Taylor site (1971; 1977) (Figure 2:1) with moderate success. Dalton points were found in situ, with horizontal distributions relatively segregated from later Early Archaic notched points, but not well separated vertically from the notched points (Michie n.d.). Apart from that work, Dalton assemblages in the sense of the Brand site (Goodyear 1974) or the Rodgers Shelter (McMillan 1971) have not been encountered in South Carolina excavations, although Dalton points have infrequently been found in the lower levels of stratified sites such as G.S. Lewis and Pen Point (Figure 1) (Hanson and Sassaman 1984; Hanson 1985; Sassaman 1985), Nipper Creek (Figure 1) (Wetmore and Goodyear 1986), the Theriault site (Brockington 1971), Taylor Hill (Elliott and Doyon 1981), and at Haw River (Cable 1982). Dalton points, though not specifically recorded in the Michie and Charles surveys of Paleo-Indian lanceolates, are relatively common compared to fluted points. Roughly speaking, Dalton points are from five to ten times more common than fluted points in large private

collections.

Technologically, the Dalton points of the Carolinas are resharpened in a manner similar to those classic forms of the Midwest (eg., Goodyear 1974; Morse and Morse 1983), but are rarely beveled in the process and only infrequently have the drill-like advanced form of resharpening. Daltons in the Carolinas are bifacially resharpened which also yields a shoulder effect (Figure 2.7: h). The Hardaway-Dalton (Coe 1964: Figure 57; Cable 1982: Plate 3), frequently possessing the exaggerated out-flaring ears (Figure 2.7:g), is rare throughout most of South Carolina but is more common in the north-central part of the state. Dalton points in South Carolina also show evidence of recycling such as end scrapers formed on the distal portion and possibly burins (Michie 1973a).

The cultural and adaptive significance of the Dalton culture or horizon has captured the attention of archaeologists for the past three decades (eg., DeJarnette *et al.* 1962; Morse 1973, Morse 1977; Schiffer 1975; Smith 1986). The technological similarity of the Dalton point and associated lithic tools with previous fluted point technologies is obvious. Conversely, the addition of pronounced serrations applied to the blade margin through repeated resharpenings and the addition of woodworking implements such as the Dalton adze, indicate that Archaic adaptations were underway. This coupled with the modern flora and fauna associated with Dalton assemblages all argue for an Early Archaic classification of Dalton (Goodyear 1982). In South Carolina, the dramatic increase in Dalton points compared to fluted points and their nearly uniform dispersal throughout the uplands or interfluvial zones, both indicate demographic-settlement changes had taken place over former Paleoindian systems.

In South Carolina there is also a raw material change present in Dalton points that complements these changes. On many points there is a noticeable decline in the selection of hard siliceous lithic materials. This can be seen on Daltons made of less chemically stable rhyolites and tuffs such that they appear very weathered giving almost a dissolved appearance (eg., Michie 1973b: Figure 1: b,d,h). While the interior material of these weathered points is usually dark colored and siliceous indicating a reasonably good raw material at the time of manufacture, nevertheless, these metavolcanics are not as physically resistant to weathering as earlier fluted point materials. Dalton people were also the first to intensively exploit the orthoquartzites of the Coastal Plain. Only one point of this material, a Suwannee, was recorded in the lanceolate surveys

(Table 2:2). Orthoquartzites are cemented or silicified sandstones (Novick 1978; Upchurch 1984), sources of which are known in the Santee (Anderson *et al.* 1982:120-122) and Savannah River valleys (Goodyear and Charles 1984). Like some of the metavolcanics, these sandstones tend to weather easily. Dalton points made from orthoquartzites are usually very grainy and friable whereas late prehistoric artifacts retain more silica and present a sharp conchoidal fracture. The use of orthoquartzites by Dalton people, a material almost completely ignored by earlier Paleoindian folk, initiated use of this material that continued throughout prehistory. Based on the use of softer, more easily weathered rhyolites and orthoquartzites, a relaxation of the former Paleoindian reliance on cryptocrystalline lithic raw material is present in Dalton points. This likely signals more local lithic raw material procurement, another prominent feature of the Archaic stage in eastern North America.

Another interesting feature of Dalton points in South Carolina is their decided decrease in manufacturing quality. Although many are well made, a fair number appear to be relatively crude. In this respect, they do not come up to the high technological standards of Dalton points made in the Midwest. This technological decline in manufacturing is all the more remarkable in that subsequent Early Archaic side and corner notched points are often better made and made from superior metavolcanic lithic raw materials. In particular, the side notched Taylor point (Michie 1966) is a finely crafted point and is resharpened on alternate margins yielding a pronounced left bevel. The care taken in manufacture and resharpening is highly reminiscent of the northeast Arkansas Dalton which has, however, a right bevel.

**PREFORMS** The foregoing discussion of lanceolate types has been hampered by a lack of excavated data from clear interpretable contexts. Further, criteria for classification have been relatively simple based on basal thinning treatment and to some extent the outline of the point. As discussed, there is a need to analyze the corpus of lanceolate points using several technofunctional attributes to search for variability which may have behavioral and temporal meaning not detectable with the previous typological categories.

One research strategy that could help differentiate hafted biface systems is that of technological or production analysis. Of course, the finished bifaces we call "Clovis", "Suwannee" etc., came into being through a series of reduction stages or a technological trajec-



tory. It is well known from flintknapping that the end points or final stages of reduction are conditioned by the parent blank or preform and the specific reduction techniques applied to achieve the final form. Because of extensive removal of lithic material, it is often difficult to discern the early stages by examining the final form. If a detailed understanding of the various production strategies of lanceolate points were developed, more information about Paleoindian technological adaptations would be available to relate to the broader cultural system. This is the case because past reduction strategies probably did not consist of one technique that took place at a single location. Rather, given the Paleoindian pattern of regional mobility, reliance on geographically limited lithic raw material sources, and a need to be anticipatory in terms of future technological needs (Goodyear 1979), biface, and other core reduction probably took place at a number of different locations. Thus, much of the reduction and core preparation done at the quarry should be in anticipation of future needs at locations substantially removed in time and space from the quarry source (Goodyear 1985).

To gather such technological data, fieldwork has been oriented toward quarries. Given the importance of Coastal Plain chert in South Carolina Paleoindian technologies, surveys and excavations have been conducted at quarries in Allendale County. Fieldwork has yielded definite Dalton and pre-Dalton components at three quarries, the Topper quarry (38AL23) and two quarries in Smiths Lake Creek (38AL135, 38AL143) (Goodyear and Charles 1984; Goodyear *et al.* 1985). These sites are located in the Savannah River floodplain (Figure 2.1) and are subject to alluvial burial. The quarries are also critical to the overall study of Paleoindian because of their relatively high density of artifacts which are a result of repeated visits by mobile groups to a spatially restricted resource, Allendale chert. It is well established in the East that Paleoindian points increase in geographic density according to their proximity to cryptocrystalline sources (Gardner 1974; Dunbar and Waller 1983; Futato 1982). The pattern exists in South Carolina as can be seen in the high density of points in Allendale and Hampton Counties (Figure 2.5). Apart from chert quarries, the probabilities are low that dense, lithic remains amenable to excavation will be found on the typical South Carolina Paleoindian site. In most cases, a "site" consists of a single lanceolate point from a plowed field. The finding of more than a single point in one field is rare (cf. Michie 1977:99; Charles 1983:5). This lack of dense, spatially discrete concentrations of Paleoindian

artifacts which lend themselves to excavation parallels the situation over much of the Southeast confounding the study of Paleoindian remains (cf. Meltzer 1988:11-14).

The analysis of lanceolate preforms has an indispensable place in Paleoindian studies as a means of reconstructing production strategies (Crabtree 1966; Callahan 1979). Preforms, whether found in an excavated context at a quarry or as isolated finds, retain critical information about manufacturing that can be extrapolated to the overall trajectory. It has been established through modern flintknapping experiments that the cross sectional morphology of the preform and surface flaking patterns are critical to the removal of the flute (Crabtree 1966). Particularly of interest is the stage in the reduction sequence at which the flute or flutes are removed (Flenniken 1978).

Figure 2.7 illustrates some Paleoindian biface preforms from South Carolina. One specimen (Figure 2.7: j) appears to have been strongly fluted unilaterally and subsequently used as a tool without completing the point. This piece may have been further flaked after fluting. This preform was found in Chester County, made from Allendale chert, and was transported probably over 100 miles from its source. The piece is 8 mm in thickness and could have been made into a projectile point without further thinning. If so, fluting would not have been the final treatment as is usually thought to be the case.

The specimen illustrated as Figure 2.7: k is bifacially fluted and was found at the Topper quarry in Allendale County. The flute depicted is 45 mm in length. The reverse side flute is 52.6 mm. Both flutes were detached from a scraper-like bevel. This biface is 12 mm in thickness and exhibits no secondary flaking. The remarkable thing about it is how carefully and completely fluted it is in the early stage of manufacture. Painter (1974) has argued that fluting in the Cattail Creek Fluting Tradition, as defined from the Williamson site in Virginia, was done in the early stages of manufacture and was done more than once to achieve the final fluted form. Callahan (1979:15) has debated this at length and believes that what Painter has identified as "fluting" in the early stage of a preform is in fact "end-thinning", a flute-like flake detached from the base in order to remove thick places which could not be removed by flakes struck from the lateral margins. The fluted preform illustrated in Figure 2.7: k is fluted with excellent skill and preparation, giving the impression that it was purposefully done rather than to

eliminate a thickness problem. End-thinning, as termed by Callahan (1979), has been observed on thick, aborted bifaces from 38AL135, a quarry on Smiths Lake Creek (Goodyear *et al.* 1985: Figure 1:g).

The preform depicted in Figure 2.7: m is from 38AL135. It is weakly fluted or strongly basally thinned and only on one face. It is 10 mm in thickness and somewhat crudely flaked indicating that it was not in its final stage of manufacture. This piece, like the examples of Figure 2.7: j and k, suggests that basal fluting was not necessarily the last point of manufacture.

The last example is a remarkably large and well made preform of Allendale chert (Figure 2.7: l). Although it cannot be ascertained without a doubt that it is a Clovis preform, the large size (over 117 mm), outline, weathering, and bifacially produced flute-like flakes (29 mm and 23.5 mm) all imply something on the order of Clovis. The piece was made by carefully executed bifacial percussion, yielding a uniformly flat biface which is less than 10 mm in thickness in most places. This preform could have been secondarily flaked and fluted for a final time if desired. It has also been finely retouched on the left lateral margin creating a sharp unifacial working edge. There is no other pressure retouch on the biface nor is there any grinding. This piece was found in West Columbia near the Saluda River by a family planting shrubbery. Like the preform found in Chester County (Figure 2.7: j), it has been transported several miles from its original source, probably in Allendale County. It is objects like this, full of utility and several miles from their original quarry source, that hold promise for understanding how groups organized and employed their chipped stone technologies over the South Carolina landscape.

**OTHER TOOLS** Beyond the problem of not having excavated Paleoindian sites with assemblage clarity, is the oft-noted fact that many of the chipped stone tools of fluted point groups continued to be made by subsequent Early Archaic peoples. Tools such as unifacial end and side scrapers, graters, true blades, and bipolar cores were made over about a three thousand year period. It is likely that some differences occurred in the tool kits of the various phases (Coe 1964), and certainly new tools were added during Early Archaic times such as the Dalton adze (Morse and Goodyear 1973), the Edgefield scraper (Michie 1972), and even a ground stone adze (Anderson and Hanson 1988:Figure 6).

True blades, associated with Clovis assemblages in the West and Dalton sites in northeast Arkansas (Goodyear 1974: Figure 19), occur infrequently in South Carolina surface collections but probably are not exclusively associated with Paleoindian. One retouched blade, likely referable to the Paleoindian or Early Archaic periods, merits mentioning. This piece (Figure 2.8) was found by a diver in the Combahee River in Colleton County at the site of Bluff Plantation (38CN7). The dorsal surface of the blade was carefully retouched with the scars terminating on the blade arris. The ventral face of the blade was only marginally retouched except for the distal end which is covered with fine flaking. Because the blade was struck from the notched or strangulated end, the retouched, slightly swollen area of the ventral face probably represents a thickened area from the blade plunging back through the core. The piece is water stained but appears to be made of Coastal Plain chert. True blades, especially modified hafted blades, are not known for later cultural periods in South Carolina. The bilaterally notched proximal end is reminiscent of notched or tanged flakes called Waller knives in Florida (Waller 1971; Purdy 1981:Figure 14), tools that are also found infrequently in South Carolina (Charles 1981:78; Anderson and Schuldenrein 1983:Figure 6:g). In Florida, there is a strong association of Waller knives with Suwannee and Bolen points and Edgefield scrapers in the early Holocene river sites (Purdy 1981).

Another possible early lithic tool either Paleoindian or associated with Early Archaic notched points, is the so-called eggstone (Figure 2.7: n). These are smoothed stones about the shape of a hen's egg which have a small indentation on the pointed end. The indentation is pecked and ground smooth. These implements, also called clubheads, bolas, and pitted stones, are found throughout the South Atlantic region including North Carolina (Peck 1983), Georgia (Snow 1976; Whatley 1986), and Florida (Neill 1971). No excavations have yet produced them in interpretable context, but in Florida they are found in the early river sites which produce Suwannee and Bolen points (Purdy 1981:30). In his examination of private collections throughout South Carolina, Charles has observed them frequently in the Piedmont and Coastal Plain. The eggstone depicted in Figure 2.7:n is from Hampton County.

It is likely that bone and ivory artifacts are present in the Coastal Plain rivers of the state. Unlike Florida with its clear water and rich Paleoindian finds in the rivers, sport divers in South Carolina have concen-

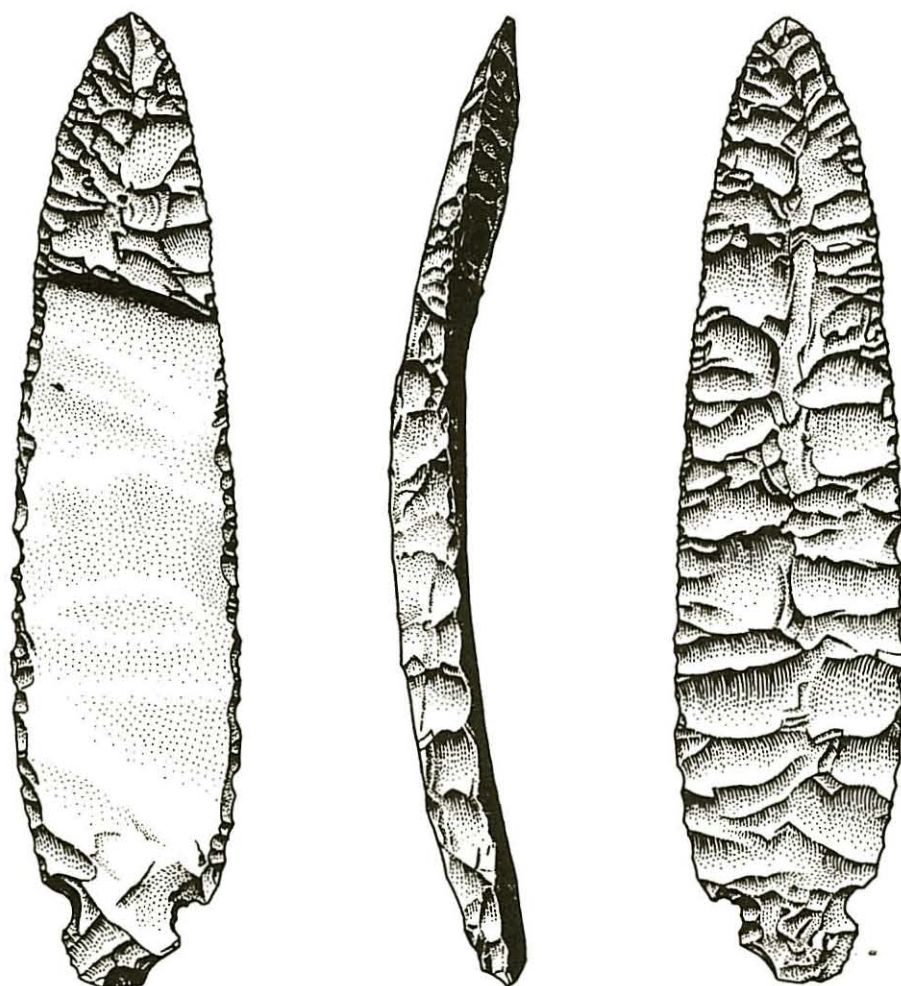


Figure 2.8: Bifacially retouched tanged blade found off Bluff Plantation in the Combahee River, 38CN-7-8-33, Colleton County, South Carolina. Drawing by Darby Erd. Actual size.

trated more on historic artifacts, probably because of their abundance and monetary value. Prehistoric artifacts have been found, including a few fluted points from the Cooper River. The dark, heavily stained waters of the low country may inhibit prehistoric artifact collecting compared to the high visibility of the Florida rivers and springs. In Florida, because of drastically reduced surface water from depressed sea levels, Paleoindian sites appear to have been originally located in the river beds and springs. It is unlikely that South Carolina rivers were as strongly affected by lowered sea levels as Florida. Judging from the widespread distribution of lanceolate points including inter-

fluvial zones (Figure 2.5), there was no shortage of surface water for these early populations.

#### SUMMARY AND CONCLUSIONS

During the period of the earliest known human occupation of what is now South Carolina, from about 11,500 to 10,000 B.P., the climate and biota were considerably different from that of today. Clovis-related populations entered a landscape covered by a now-extinct mesic, broad-leaved, temperate forest. The climate was strongly seasonal with winter temperatures harsher than today. This environment characterized most of the state. In the southern third of South

Carolina, below the 33rd latitude, the vegetation was more like that of today with a mixture of oak, hickory, sweetgum, and pine. Weather was warm-temperate and droughty in the summers. These strong environmental differences existed above and below the 33rd latitude due to the positions of two different weather systems, the Pacific Air mass dominating to the north and the Maritime Tropical Air mass to the south.

The rate and manner in which the cool mesic forest of the mid-latitudes broke up and was replaced by modern communities is not known in spatio-temporal detail. The one palynological index to the origin and decline of this forest for South Carolina, that of White Pond, suggests that its demise was rather abrupt, beginning around 10,000 B.P., as indicated by the increase of modern pine (Watts 1980:190). Except for the southern end of the state, it is significant that there was basically one forest and climatic regime implied by the mesic forest, spanning a length of time that contains several early phases of cultural life. These include Clovis, post-Clovis (Suwannee, Simpson), Dalton, Taylor side-notched, and Kirk corner-notched cluster (11,500-9,500 B.P.).

Within the span of the cool mesic forest's existence, about 13,000 to 9,550 B.P. (Watts 1980:190), substantial changes took place in animal populations. This period witnessed major extinctions of herbivores and grazers of known economic importance in the western United States during the time of the Clovis culture. Based on the terminal radiocarbon dates (Meltzer and Mead 1985) for these species, as well as geological and archaeological stratigraphy throughout North America (Haynes 1984), there is strong evidence that their extinctions were complete by 10,500 and perhaps even earlier. The Clovis culture of the western United States, radiocarbon dated from 11,200 to 10,900 B.P., was the last Paleoindian group known to exploit the now-extinct megafauna (Haynes *et al.* 1984). Accordingly, archaeologists may have to develop settlement-subsistence models which seek to explain fluted point and other basally thinned lanceolate lithic technologies and related strategies without the economic presence of Pleistocene megafauna.

The floristic zonation expressed in the reconstructions of forest types by Delcourt and Delcourt (1985) was also represented in the geographic distribution of animal populations. Webb's (1981) reconstruction of three fauna regions co-existing in what is now South Carolina would also indicate that significant environmental variability existed north to south, with the

middle Temperate zone functioning as a prominent ecotone. The area now called South Carolina would have contained extraordinary biotic variation by latitude within a relatively short space, as all three faunal regions would be encountered within a span of 100 miles. It is clear that the Savannah River valley as it runs northwest to southeast, would have contained the maximal environmental and biotic variation as it traversed significant portions of all three zones. Difficulties exist in dating the duration and demise of these Pleistocene faunal populations and correlating them in time with human groups who may have exploited them. Strong evidence from the rivers and springs of Florida in the form of mammoth, horse, and bison bones with butchering marks would suggest that Paleoindians in the South Carolina area were also likely exploiting now-extinct Pleistocene animals. The elephant rib with apparent cut marks from Edisto Island would lend empirical evidence to this proposition.

Archaeological fieldwork over the past 25 years has not produced a Paleoindian site with stratigraphic or contextual integrity of such quality to permit isolation of a lithic assemblage or dating by absolute or relative means. Individual fluted points have been excavated in the lower levels of sites but with later Early Archaic notched points always present. In South Carolina, vertical accretion on interfluvial and even fluvial landforms was not of a magnitude sufficient to bury and vertically separate succeeding cultural phases, except perhaps in the Piedmont floodplains. The Piedmont and Fall Line regions have produced Holocene fluvial sediment accumulations in excess of 3 m. Early Archaic artifacts, however, are the earliest occupations documented thus far (Tippitt and Marquardt 1984). In the major river valleys of the Coastal Plain, floods have deposited alluvium over Early Archaic and probable Paleoindian (Goodyear and Charles 1984) occupational surfaces, the maximum thickness of which is less than 1.3 m. Given the lack of high vertical development of Coastal Plain floodplain features, it might be more productive to search for a spatially isolated Paleoindian site, one that was cut off from the river and subsequent reoccupation by Early Archaic groups due to channel migration. Such a site may be represented by 38AL135 along Smiths Lake Creek (Figure 2:1), located in the floodplain of the Savannah River (see Goodyear *et al.* 1985; cf. Brooks and Sassaman 1988).

The most successful research strategy for the study of Paleoindian archaeology in South Carolina has been the lanceolate point recording surveys. The Michie and

Charles surveys together have produced over 300 points, including data on type, raw material, metric attributes, and location. This work has resulted in a large body of raw data suitable for attribute and typological analysis as well as distributional studies. It is clear that the classic western Clovis is present along with other varieties of fluted points. These include Redstone-like and Ross County fluted. The Cumberland fluted point has not been found. Small, pentagonal and triangular bladed fluted points have been noted, the Clovis-variant, which seem to have a strong Piedmont association. It was suggested that many of these may represent reworked fluted points of other designs. They may also represent a post-Clovis, pre-Dalton late Paleoindian point. Non-fluted, basally thinned lanceolates such as Suwannee and Simpson are present and usually made from the Allendale-type Coastal Plain chert. They occur more commonly in the southern and western portions of the state and express a geographic as well as raw material affinity with the Georgia-Florida area of the coastal plains in the use of Tertiary cherts.

The geographic distributions of the points by lithic raw material suggest the influence of high-quality cryptocrystalline sources, particularly the Coastal Plain chert known to have been quarried in Allendale County and in neighboring counties in Georgia. The highly dispersed distributions of metavolcanic points originating from the north in the Piedmont, and the Coastal Plain chert specimens known to have come from the Savannah River region to the south, all bespeak wide-ranging settlement systems. While many points have been found near major drainages, a surprising number have occurred away from streams in interfluvial zones. This suggests that there was no shortage of surface water, even on the Coastal Plain which was likely affected hydrologically by lowered sea levels during the late Pleistocene. The dense concentration of points along the Fall Line environs may have settlement-subsistence implications in two ways. First, the Fall Line represents a major physiographic ecotone between the Piedmont and Coastal Plain, making it strategic from a locational standpoint. Higher densities in this situation may reflect special base camps occupied for prolonged periods for exploiting the adjoining provinces, a strategy suggested for the Early Archaic period (Goodyear 1983). Second, the Fall Line locations may simply have been revisited more often, rather than longer or more intensively, due to the movement of groups back and forth from the Coastal Plain and the Piedmont. Only extensive excavations which can reveal the intrasite patterning, if any, of these Fall Line sites will resolve this question.

It is important that greater typological and chronological resolution be obtained for the various fluted and basally thinned lanceolate points. Without such controls, it will be impossible to identify changes in settlement and technological strategies no doubt present during the first 1,000 years of human life in this region of the Southeast. The period from 11,500 to 10,500 B.P. witnessed the changes related to the initial founding of Clovis-related populations, the demise of the Pleistocene megafauna, and the transition of lifeways and technologies from a formerly Paleoindian to an increasingly Archaic way of life. This same scenario occurred throughout North America during this time, and the area now called South Carolina has its story to tell too.

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## Chapter 3

### PATTERN AND PROCESS IN THE MIDDLE ARCHAIC PERIOD OF SOUTH CAROLINA<sup>1</sup>

Dennis B. Blanton and Kenneth E. Sassaman

#### INTRODUCTION

In South Carolina and neighboring states the Middle Archaic period has remained something of an enigma, and attainment of a satisfactory understanding of cultural pattern and process for this period has been elusive. The nature of the archaeological record has itself stood as the primary impediment to advancement of our knowledge as it concerns the Middle Archaic. More often than not, sites of this period are small, deflated, low-density scatters. Diagnostic artifacts are simple and usually aesthetically unappealing. Thus, the Middle Archaic has traditionally attracted little interest among archaeologists seeking research topics.

The earliest serious discussions of Middle Archaic material characteristic of the South Carolina area were not born of Middle Archaic-specific research projects. Instead, the discovery of Middle Archaic material was incidental to investigations of preceramic components present in certain major river basins of North Carolina, Georgia, and South Carolina.

Exemplary is the work of Joffre Coe (1964) and his students (cf. South 1959) in North Carolina. Through this work was formulated the first satisfactory working definition of the temporal range and material culture of the period. The three phases that we use to subdivide the Middle Archaic were defined and introduced primarily on the basis of changes in hafted biface morphology. From early to late these phases are Stanly, Morrow Mountain, and Guilford, and the hafted biface types that bear the names of these phases continue to serve as the mainstay of Middle Archaic research (Figures 3.1 – 3.3).

Joseph Caldwell also encountered Middle Archaic material in the course of stratigraphic excavations but in this case on the Savannah River at the Lake Spring site, Georgia (Caldwell 1954, 1958). Though less formal than Coe in his treatment of this Middle Archaic material, Caldwell was quick to note the significance of the likeness between his lowest Lake Spring collection and scatters of similar artifacts common on eroded Piedmont ridgetops. Combined with a parallel obser-

vation made by Coe (1952) we were provided with a first clue suggestive of the nature of Middle Archaic adaptive patterns.

A second period of significant contribution to Middle Archaic research was ushered in 15 to 20 years ago by a virtual explosion of CRM archaeology. In carrying out various mandated surveys across the state, many dozens of Middle Archaic sites were recorded. In fact, Middle Archaic components were more commonly recorded than any others (Canouts and Goodyear 1985). Consequently, serious consideration was given to Middle Archaic material as an important topic of research and significant contributions to the study of this period resulted.

Given the benefit of a vast storehouse of data and the results of earlier research, the time is right for bringing together this information into a comprehensive, working model of adaptive patterns characteristic of the Middle Archaic period. In what follows, our goal will be to define the hallmarks of this period, particularly in the realms of technology and settlement. The archaeological record is such that research in these areas is most fruitful.

The primary thesis guiding our work is that the Middle Archaic period was marked by highly successful modes of adaptation and that the success of these adaptive patterns hinged upon a strong element of flexibility. Our presentation consists of a summary description of patterns in the Middle Archaic archaeological record. We begin with a review of the chronological and environmental context for the formation of the Middle Archaic record, followed by detailed treatments of lithic technology and settlement. In the end, these ideas are brought together in a general discussion of Middle Archaic adaptation.

#### CHRONOLOGICAL CONTEXT

Figure 3.4 summarizes the inventory of absolute dates available for Middle Archaic phases pertinent to the Georgia-Carolina region. Generally speaking the Middle Archaic spans a 3000 year period from about

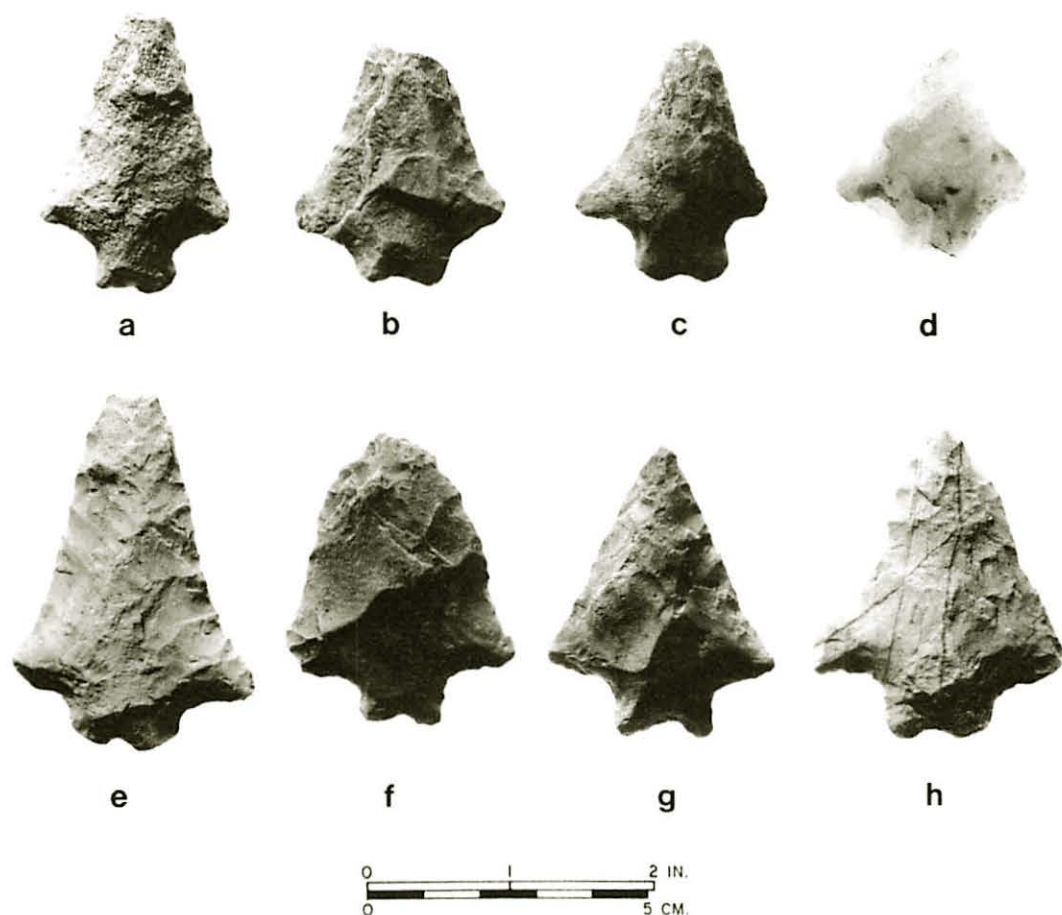


Figure 3.1: Stanly Points from the Babcock Collection, Chester County, South Carolina.

8000 to 5000 years B.P. Presently, there are no reported absolute dates for Guilford phase material, but a  $5440 \pm 350$  B.P. date from just above the Guilford level at the Gaston Site, North Carolina, suggests an early to mid-fourth millennium B.C. setting (Coe 1964).

Nearly all of the absolute dates cited come from sites in Tennessee and Alabama. The single radiocarbon date from South Carolina falls at the latter end of the Morrow Mountain phase ( $5477 \pm 170$  B.P.; Anderson 1979: 90).

It is noteworthy to point out the contrast in the range of dates for Stanly and Morrow Mountain components. The 1,800-year span of the Morrow Mountain phase is easily four times that of the Stanly phase (about 450 years) (Figure 3.4). While it is true that we have access to more Morrow Mountain dates, the contrasts are nonetheless striking. The relative scarcity of Guilford components and related dates as compared to the

Morrow Mountain phase speaks of a popularity span more equal to that of the Stanly than the Morrow Mountain phase.

Relative dates for Middle Archaic components across the Southeast substantiate the relationships indicated by the absolute dates. Nowhere have these temporal relationships been demonstrated more clearly than at sites excavated by Coe (1964) and his students in the Piedmont of North Carolina. Working with stratigraphic sequences and diagnostic hafted bifaces from three sites, Coe defined the start of the Middle Archaic as that point in the sequence when notched hafted bifaces were replaced by stemmed ones. Within Middle Archaic strata Coe recognized the three phases named earlier, each identified by morphologically distinct hafted biface types.

Generally speaking, Coe's Archaic sequence has been applicable in varied South Carolina contexts.



Figure 3.2: Morrow Mountain Points from the Babcock Collection, Chester County, South Carolina.





Figure 3.3: Guilford and Brier Creek Points from the Babcock Collection, Chester County, South Carolina.

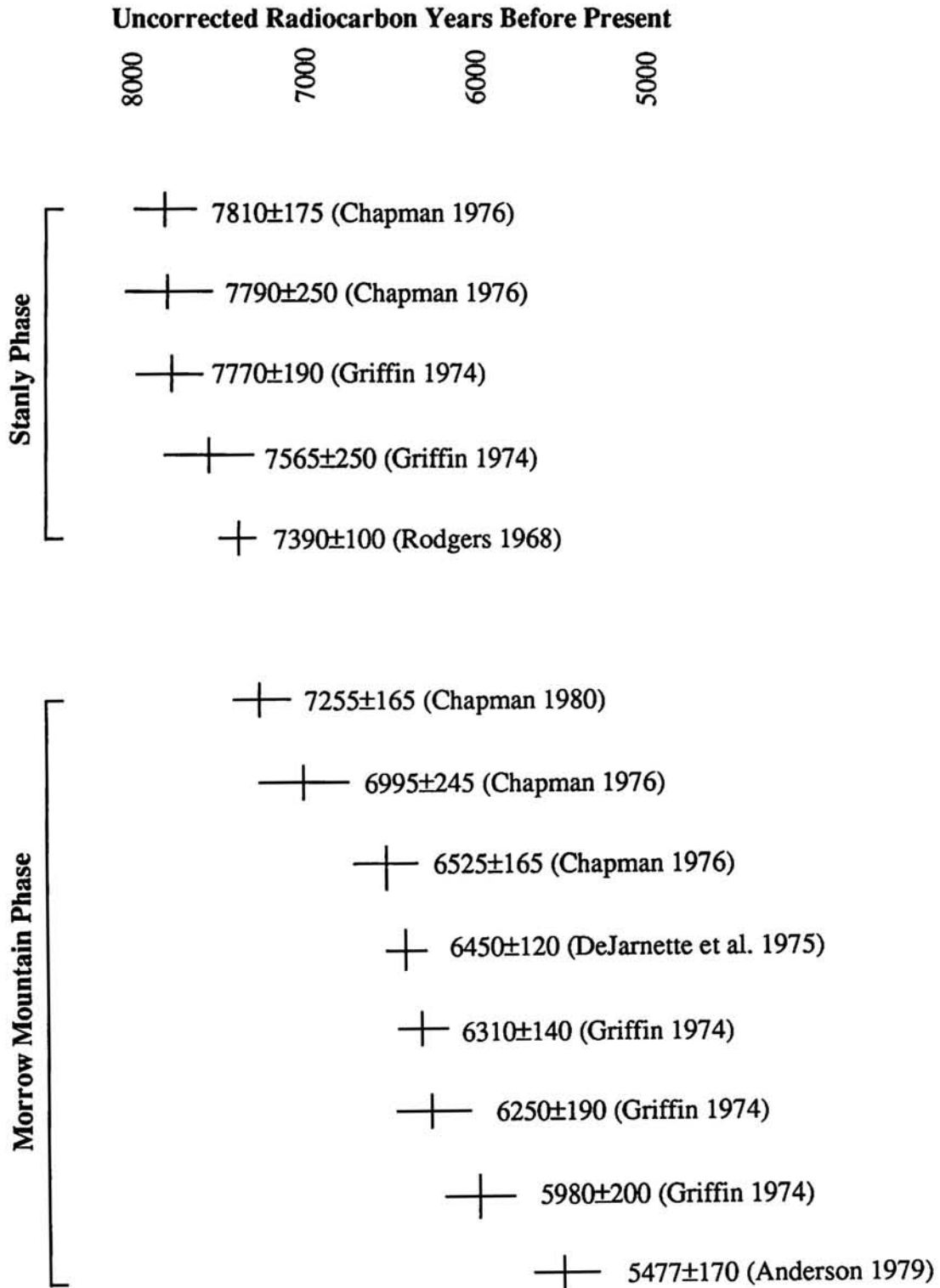


Figure 3.4: Radiocarbon dates from Middle Archaic sites in the vicinity of South Carolina.

However, exact replication of the North Carolina sequence has seldom, if ever, been realized. Particular discrepancies can be cited. Stratigraphic excavation along the Savannah River in the Piedmont has failed to produce diagnostic Guilford material. At both Lake Springs (Miller 1949) and Gregg Shoals (Tippitt and Marquardt 1982) there was a hiatus in the sequence where Guilford material should have been recovered. In fact, no Piedmont site in South Carolina has yielded a complete Middle Archaic sequence as described by Coe in stratigraphic context. On the other hand, a complete range of Middle Archaic hafted biface types can be identified in numerous surface collections from the Piedmont (Taylor and Smith 1978; Goodyear *et al.* 1979). In these surface collections, drawn from the western Piedmont, though, and even in excavated context, Stanly bifaces are notably rare, far exceeded in frequency by both Morrow Mountain and Guilford types.

As one moves into the Coastal Plain, a different picture emerges. Here one can no longer rely solely on Coe's sequence. There appear to be distinct Middle Archaic hafted biface types unique to this province (Anderson *et al.* 1982). Concomitantly, types common to the Piedmont and Fall Zone are greatly diminished in numbers. Stanly bifaces are unreported on western Coastal Plain sites and Guilford types are exceedingly rare in the southwestern sector of the province. Appearing to replace the Guilford biface in portions of the Coastal Plain is the Brier Creek Lanceolate, Figure 3.3 (Michie 1968; Brockington 1971). Another possible contemporary or late predecessor is an, as yet, unnamed stemmed biface type from the Savannah River Valley (Hanson and Sassaman 1984). Ongoing work in the Coastal Plain should eventually clarify the hafted biface sequence there.

#### THE ENVIRONMENTAL SETTING

As we propose to highlight adaptive patterns of Middle Archaic populations it naturally follows that we be thorough in our consideration of the environment. The character of the mid-Holocene environment can be viewed as a primary limiting factor influencing the patterns of human adaptation operating during this period. In this section we present our reconstruction of the mid-Holocene environment as it was in South Carolina, thus setting the stage for subsequent discussions of Middle Archaic culture responses.

Foremost among the many factors to be considered in this section is the effect of the period of maximum post-glacial warming known as the altithermal, hyp-

sithermal, xerothermal, or Climatic Optimum. It is generally agreed that the Middle Archaic corresponds to this period of climatic amelioration during which conditions were slightly warmer and drier than present (Wright 1976). Although the effects of this episode on Middle Archaic populations in the Midwest is well documented (McMillian 1976; Morse 1967), much less is known about its consequences for Southeastern populations. Reconstructions of conditions during this period in South Carolina and neighboring areas have met with limited success (Goodyear *et al.* 1979: 30). A major drawback in these efforts is a general lack of comprehensive pollen records statewide.

One stumbling block in many attempts to understand the effects of the period on human populations is the misconception that the altithermal was an uninterrupted, continuous episode of hot and dry weather. We suggest, instead, that the period was less uniform and stable as it was punctuated by periods of increased precipitation and perhaps cooler temperatures.

Rates of floodwater deposition inform on this problem, and evidence from around the Southeast denotes an oscillatory period. A key working assumption in this review of the evidence is that sediment deposition rates roughly parallel rates of precipitation and runoff. Sites in the Shenandoah, Potomac, and Savannah River valleys all document an overall trend toward subdued flooding during the mid-Holocene (Claggett and Cable 1982:202, 219; Anderson and Schuldenrein 1983: 195-196, 198). Important to this discussion is the fact that the evidence from the upper Savannah River suggests subdued, but at the same time, variable rates of sedimentation during the Middle Archaic (Carbone *et al.* 1982). Along the Savannah, Middle Archaic depositional rates were highest during the period from 7500 - 7100 B.P., very slight during the Morrow Mountain phase, and once again relatively high from 6200 - 5800 B.P. A similar conclusion is drawn from analyses of the Haw River sites in North Carolina. In that river valley, overbank flood deposition decreased between 9000 and 7000 B.P., increased over the next millennium, and finally returned to a moderate rate after about 4500 B.P. (Claggett and Cable 1982: 205). These data illustrate the possibility that the trend toward xeric conditions was periodically interrupted by wetter climatic episodes.

Palynological data from the Piedmont are insufficient to examine possible vegetational changes associated with these presumed wet intervals. However, sufficient data are available to suggest that the mid-Holocene environment was not floristically uni-

form across the state. Throughout the Southeast, an early post-glacial oak maximum is widely documented (Watts 1975: 290). But as early as 7000 B.P. at White Pond in the upper Coastal Plain of South Carolina, pine-dominated forests replaced the oak-dominated associations. Coastal Plain vegetation continued to change over the next thousand years as swamps and estuaries became established with the rising sea level (Watts 1971; Goodyear *et al.* 1979:26). In contrast, oak-hickory-southern pine forest persisted in the Piedmont throughout the Holocene (Delcourt and Delcourt 1981). Both the differential effects of sea level rise on drainage patterns and water tables (Taylor and Smith 1978: 30) and the topographical diversity of the Piedmont, affording resistance to large scale climatic change (Goodyear *et al.* 1979: 26), may have contributed to the disparity in patterns of succession between the Coastal Plain and Piedmont. Whatever the cause, it is apparent the Piedmont vegetation was stable throughout the Holocene, characterized by oaks dominating a forest mosaic of diverse species, while Coastal Plain vegetation underwent dramatic changes.

In concluding this section we reiterate that Middle Archaic populations appear to have been faced with coping with an unstable, generally non-uniform environment. Statewide, distinct and contrasting physiographic provinces were present. The Coastal Plain province was undergoing a transformation toward greater diversification while the Piedmont maintained a more homogeneous character overall. Wetter intervals interrupted the general trend of drier conditions. Undoubtedly, the nature of the environment required appropriate adaptations by local human populations.

#### PATTERNS OF SETTLEMENT

At this point we will begin to investigate the archaeological record of the Middle Archaic in South Carolina, and the first area to be considered is patterns of settlement. As we will demonstrate, the three overriding characteristics of Middle Archaic settlements, particularly during the Morrow Mountain phase in the Piedmont province, are 1) high intersite density, 2) small site size, and 3) overall assemblage redundancy. We maintain that these settlement characteristics evidence a particular adaptive trend.

It is appropriate to begin our discussion with patterns of settlement. The data base supportive of this element of the adaptive system is strong. Middle Archaic components are perhaps the most commonly recorded in the state (Canouts and Goodyear 1985). As mentioned earlier, both Coe and Caldwell noted the

similarity of Middle Archaic material they recovered in stratigraphic context to similar assemblages present on the ubiquitous, small lithic scatters common in the Piedmont. Each of these researchers attributed Middle Archaic settlement patterning to high mobility hunting and gathering, small co-resident group size, and lack of site re-occupation (Caldwell 1958: 9; Coe 1952: 30). Similar conclusions are reached in more recent interpretations based on site excavation (Tippitt and Marquardt 1983; Claggett and Cable 1982; Anderson and Schuldenrein 1985) and analysis of regional survey samples (Sassaman 1983). It is important to note, however, that our current understanding of Middle Archaic settlement is largely based on data from the Piedmont. Moreover, it is biased toward the Morrow Mountain phase manifestations, which are, without doubt, the most common archaeological entities of the Middle Archaic period.

In the Piedmont, Middle Archaic sites have a wide geographic distribution. Surveys in diverse portions of this province consistently turn up large numbers of small "little scatters" (Canouts and Goodyear 1985), as well as larger multi-component sites containing Middle Archaic artifacts. A sample of 223 Middle Archaic loci taken from five recent surveys in the Piedmont (House and Ballenger 1976; Cable *et al.* 1978; Taylor and Smith 1978; Rodeffer *et al.* 1979, Goodyear *et al.* 1979) documents the apparent undifferentiated distribution of these archaeological resources (Figure 3.5).

The distribution of sites by elevation shows no major lacunae in location with respect to topography (Figure 3.5a). This indicates that Middle Archaic sites are well-represented across the entire Piedmont elevation gradient – from the Fall Zone foothills to the mountains of the Appalachians. Most Piedmont sites are located within 200 meters of running water and site frequency tends to drop uniformly beyond this point. Nonetheless, substantial numbers of Middle Archaic loci are located 500 meters or more from water (Figure 3.5b). Mean stream rank within a one kilometer radius catchment of each site is generally low, the majority of cases having values of 2.0 or less (Figure 3.5d).

The significance of relationships between sites and drainage features lies in their apparent similarity to Piedmont physiography in general. For instance, a random vector experiment conducted by Goodyear *et al.* (1979: 45-58) to evaluate the sample representativeness of the Laurens-Anderson corridor produced a distribution of stream ranks nearly identical to that depicted in Figure 3.5c with the exception of high ranking streams that were absent in the Laurens-Anderson corridor.

3. Pattern and Process In The Middle Archaic Period Of South Carolina

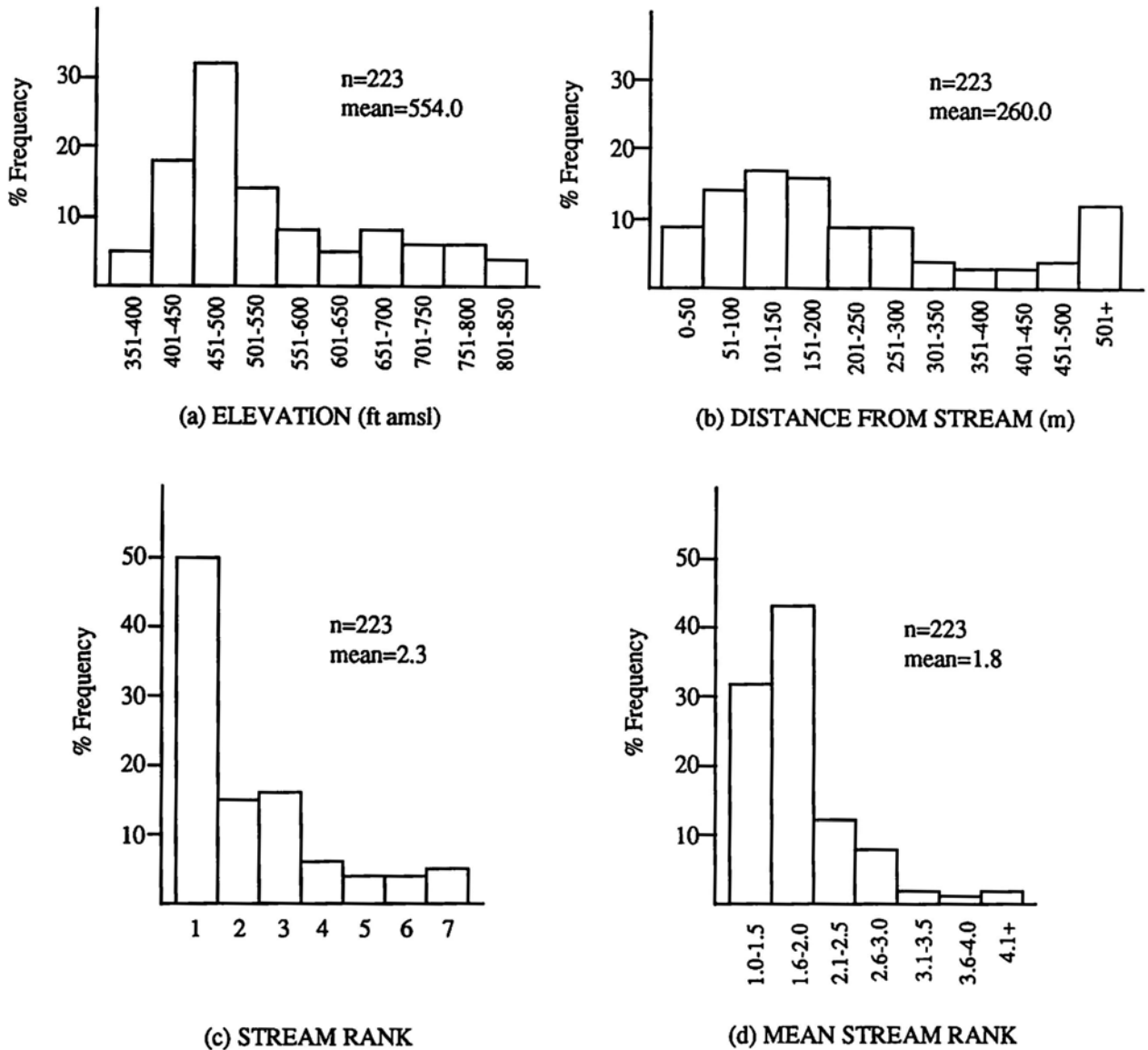


Figure 3.5. Percent frequency of Piedmont Middle Archaic sites by (a) elevation; (b) distance from stream; (c) rank of nearest stream; and (d) mean stream rank within one kilometer radius catchment around site.

This does not necessarily suggest that Middle Archaic sites are distributed entirely randomly in the Piedmont. What these patterns do indicate, however, is that preferences for slope, exposure to sun, and drainage notwithstanding, Middle Archaic land use was not restricted to specific microenvironments of the Piedmont. Similar patterning characterizes Middle Archaic site distributions in the Appalachian Highlands where one survey found an even distribution of Middle Archaic sites within upland and riverine zones (Bass 1977).

Middle Archaic settlement of Coastal Plain habitats appears to be more differentiated than in the Piedmont, although the presently limited sample precludes quantitative assessment of this. For a long time it was assumed that Early and Middle Archaic utilization of the Coastal Plain was negligible (cf. Stoltman 1974: 230-231). Recent work has changed this interpretation, but problems in the recognition of Middle Archaic artifacts hamper efforts to reconstruct settlement. Some have argued that Middle Archaic sites tended to develop along swamp margins, particularly on terraces

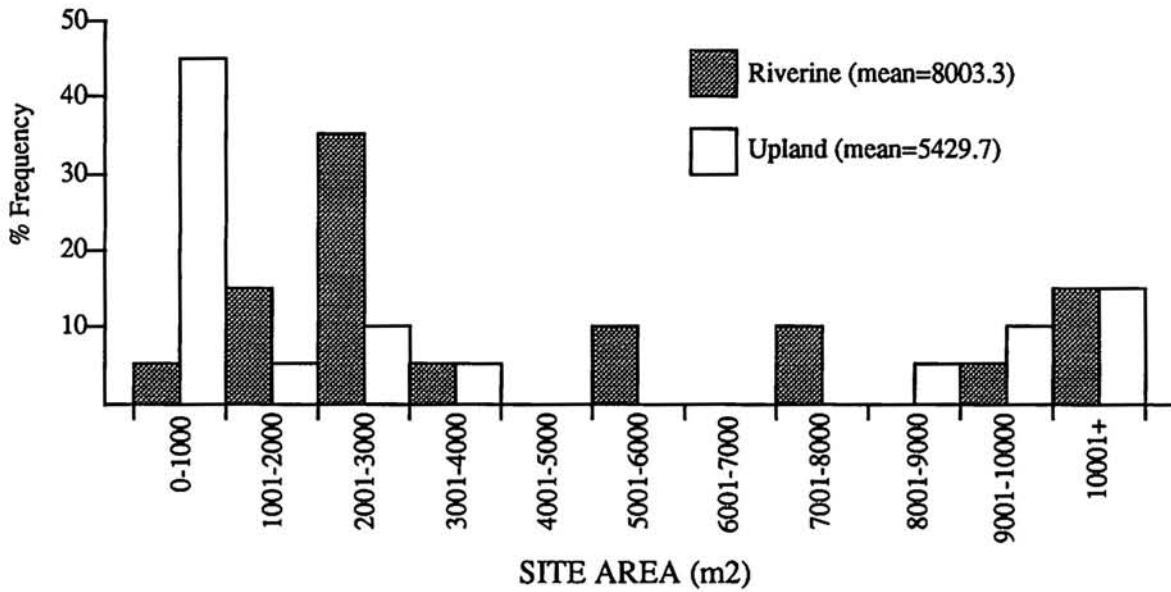


Figure 3.6: Frequency percentage of Piedmont riverine and upland single component sites by site area (m<sup>2</sup>).

overlooking floodplains (e.g. Anderson *et al.* 1979: 92). Use of interriverine habitats is recognized, but thought to represent limited and functionally specific use (Hanson *et al.* 1981: 42; Anderson *et al.* 1979: 92). Some evidence for intersite assemblage variability is available, and this tends to support hypotheses for functional variability that is geographically patterned.

Regarding site size, Middle Archaic sites often consist of small, diffuse lithic scatters, and, in the Piedmont at least, these are the rule rather than the exception. Many so-called lithic scatters are quite small in size and low in density, and many of these fail to produce diagnostic artifacts. Our tendency to attribute unidentifiable lithic scatters to the Middle Archaic period has its roots in the Old Quartz Tradition of Caldwell (1954, 1958) which posited a diagnostic link between ovate bifaces from the pre-Stallings horizon of the Lake Springs site and the use of quartz in the uplands of the Piedmont. Some of these unidentifiable lithic scatters belong to the Middle Archaic and others probably do not. Once we set aside the bias of lumping all small, diffuse sites into the Middle Archaic pigeon-hole, it becomes apparent that variability does exist in the size of Middle Archaic sites. However, duration of occupation and other factors such as reoccupation, co-resident or task group size, landform configuration, and postdepositional disturbance contribute to variability in site size.

As Figure 3.6 illustrates, riverine sites are larger on average than inter-riverine sites. This trend should not necessarily be taken as evidence for larger group size and/or more extensive settlement area at sites in the riverine areas. Two variables affecting site size were landform morphology and patterns of reoccupation. Worthy of note is the fact that lowland (i.e., floodplain, terrace) habitats contain more contiguous, level surface per unit area than do upland habitats. We also know that certain site areas were periodically reoccupied. Bearing these factors in mind, it is simple to understand how in these lowland areas extensive cultural deposits could accrete horizontally in a bottomland tract after even only a few episodes of reoccupation. Representative of this class of sites, extensive in area but only as a result of small group reoccupation, are the Manning site in Lexington County (38LX50) and the Ferry Landing site in Kershaw County (38KE18) (Goodyear and Anderson n.d.). Such settings, of course, are common in the Coastal Plain and data on sixteen sites at the Savannah River Site indicate that extensive sites prevail (Glen T. Hanson, 1984 personal communication).

Although Middle Archaic deposits are areally extensive on some sites, it appears that any given occupation of any site during this period was limited in extent, usually less than 4,000 m<sup>2</sup> (Figure 3.6). As an example,

Table 3.1

Site Density (sites/km<sup>2</sup>) from Selected Survey Samples.

	Total Coverage (km <sup>2</sup> )	COMPONENTS					
		STANLY		MORROW MTN.		GUILFORD	
		freq	den	freq.	den.	freq	den.
Laurens-Anderson <sup>1</sup>	3.86	-	-	57	14.7	20	5.2
I-77 <sup>2</sup>	2.45	2	0.8	7	2.8	7	2.8
Richard B. Russell <sup>3</sup>	44.97	3	0.06	85	1.9	32	0.7
Greenwood County <sup>4</sup>	19.05	4	0.2	103	5.4	12	0.6
Savannah R. Plant <sup>5</sup>	310.93	-	-	20	0.06	2	0.006
Cooper River <sup>6</sup>	2.94	-	-	2	0.6	3	1.0

1. Goodyear et al. 1979 (total area of survey tract = 7.72 km<sup>2</sup>; assumed 50% coverage).

2. House and Ballenger 1976 (total area of tract = 9.81 km<sup>2</sup>; assumed 25% coverage).

3. Taylor and Smith 1978

4. Rodeffer et al. 1979

5. Glen Hanson, personal communication (total SRP area = 777.32 km<sup>2</sup>; assumed ≈40% coverage).

6. Brockington 1980

the average occupation could be comfortably accommodated on a small, Piedmont knoll.

Middle Archaic sites are densest in the inter-riverine zone of the Piedmont. To illustrate, 14.7 Morrow Mountain sites and 5.1 Guilford loci were found per square kilometer in the Laurens-Anderson corridor (Table 3.1). Other surveys have recorded lower site densities. The lowest of those examined in the Piedmont is present in the R.B. Russell reservoir area (Table 3.1). Even lower site densities characterize available tallies of Coastal Plain sites. Despite coverage of over 300 km<sup>2</sup>, and the discovery of over 800 archaeological loci, Savannah River Site projects have located only 20 Morrow Mountain components and 2 Guilford components (Glen T. Hanson, 1984 personal communication). Similarly low densities are reported for Morrow Mountain loci in the tract of the Cooper River redirection project, although the density of Guilford components compares favorably with that of the Piedmont (Brockington 1980). The very low density of Middle Archaic sites in the Coastal Plain is one indication of land-use patterns in this province that are distinctly different than those of the Piedmont.

The most fruitful attempts at understanding Archaic period settlement have focused on assemblage composition and variability. Most current research has

been designed to examine properties of assemblage diversity as a means of reconstructing site function, and to determine locational tendencies of functional types. A guiding principle of this work is that habitation (maintenance) sites are characterized by diverse, dense assemblages and features, and that limited activity (extraction) loci contain specific, low diversity assemblages (Binford and Binford 1966). Early work at large riverine sites like Stallings Island and Lake Spring set extreme standards for assemblage diversity and density at habitation loci. These sites contrasted starkly with numerous low density and low diversity lithic sites described by Coe and Caldwell as common to upland landforms. The resultant model of Archaic settlement posited a dichotomy between riverine zones as locations of habitation and upland zones as locations of limited activity loci.

Over the last decade studies of Archaic settlement in various areas of the Piedmont have sought to test this long-held hypothesis of upland versus riverine settlement (House and Ballenger 1976; House and Wogman 1978; Goodyear *et al.* 1979). These studies employed a "biface reduction model" whereby various stages in biface manufacture could be detected using debitage. Having identified the stage(s) of reduction carried out on any given site, the nature of the site occupation (habitation or maintenance) could be inferred. Though

the patterns were not always strong, analysis of data from the I-77, Windy Ridge and Laurens-Anderson surveys indicated that interriverine site occupations were usually transient. Larger, more permanent habitation sites were expected to be found in riverine areas.

The opportunity to examine Middle Archaic utilization of riverine habitats came with the excavation of stratified sites situated within the R.B. Russell reservoir basin. Surprisingly, none of these sites produced Middle Archaic assemblages with the level of density and diversity expected for habitation sites of the Savannah River Valley. Middle Archaic strata at Gregg Shoals (9EB259) yielded a diffuse and low diversity assemblage not unlike many interriverine collections (Tippitt and Marquardt 1984). Artifact diversity of the Middle Archaic components at Rucker's Bottom (9EB91) was slightly greater than at Gregg Shoals, but no indication of intensive habitation (features, dense

artifact clusters, etc.) was found. Instead, the areally extensive and diffuse nature of the Middle Archaic deposits suggested to Anderson and Schuldenrein that the site was reoccupied for short periods of time, probably by small groups (Anderson and Schuldenrein 1985).

The persistent lack of habitation loci coupled with apparent pan-regional redundancy in site content and structure suggests that the House and Ballenger settlement model does not adequately account for Middle Archaic settlement patterning. Analysis of surface collections from the various highway surveys were unable to control for time, making impossible the evaluation of changes in settlement through time, a problem noted by House and Ballenger (1976: 117). However, the combined data sets of all the major Piedmont projects provide an opportunity to maintain minimal temporal control over a large sample of

**Table 3.2**  
Pearson's R Correlation Coefficients for Quartz Assemblage Variables  
of Single Component Middle Archaic Sites

	CHU	OFL	TFL	FT	UF	FC	PF	OB	TPTFR
Mean	33.0	55.1	27.0	0.9	0.6	1.1	1.5	3.3	2.9
S.D.	43.5	89.2	41.1	1.6	1.1	1.9	4.9	3.4	2.6
CHU	—	.852	.761	.376	.159	.598	.810	.318	.795
OFL		—	.493	.398	.389	.430	.882	.299	.641
TFL			—	.142	-.057	.396	.415	.430	.749
FT				—	.385	.216	.473	.054	.426
UF					—	-.060	.253	.267	.067
FC						—	.465	-.056	.485
PF							—	.104	.641
OB								—	.371
TPTFR									—

n = 49

r ≥ .34 significant at .01 level

CHU - Chunks

OFL - Other Flakes

TFL - Biface Thinning Flakes

FT - Flake Tools

UF - Unifaces

FC - Flake Cores

PF - Preforms

OB - Other Bifaces

TPTFR - Points/Point Fragments

(From Sassaman 1983: Table 14)



probable single component sites.

Focusing on differences between Middle and Late Archaic patterns of settlement, Sassaman (1983) re-analyzed a large sample of sites from the Piedmont surveys to evaluate implications for site composition and location drawn from Binford's (1980) models of hunter-gatherer mobility strategies. With minor exceptions, all classes of lithic artifacts were found to positively covary across sites containing Middle Archaic components (Sassaman 1983: Table 13). Single component Middle Archaic sites, on the other hand, reflected more marked tendencies for positive correlations between classes associated with hafted biface manufacture and discard (chunk, other flakes, preforms, hafted bifaces), and weaker or no correlation among other core and tool classes (unifaces, flake tools, flake cores, other bifaces) (Table 3.2). This indicated that although there may be substantial functional variability among Piedmont sites with regard to the use of various tool classes, the relationship between hafted biface manufacture and discard is spatially isomorphic. This shows that either 1) Middle Archaic hafted bifaces (particularly Morrow Mountain points) had use-lives that were shorter than the occupation span of the sites or 2) regardless of tool life-span, these sites were reoccupied over long periods of time for varied purposes of short duration, causing the outputs of different activities to be combined, thereby prohibiting clear-cut resolution of functional variation (cf. Binford 1982).

In sum, evidence regarding Middle Archaic patterns of settlement reveals, at least in the Piedmont, a system in which a great number of areally small, short-term occupations were made with no preference for particular topographical features, in seemingly random fashion. Inter-assembly variability is low at these sites and can be characterized as redundant.

#### TECHNOLOGICAL PATTERNS

The overriding trend evident in lithic technology during this period is increasing simplification. Simplification refers in this case to a minimization of elaboration and formalization among tool types designed for use in specific, planned tasks. The record of this trend is most apparent among the tools of the Stanly, Morrow Mountain, and Guilford phases common to the Piedmont.

Compared to Early Archaic lithic toolkits, the

number of recognizable formal tool types present in Middle Archaic toolkits is few. Middle Archaic assemblages from excavated sites throughout the Southeast have yielded a reduced array of formal tools (Griffin 1974; DeJarnette *et al.* 1962; Coe 1964; Chapman 1977, 1979; Claggett and Cable 1982). In particular, the unifacial, teardrop endscrapers so common in earlier assemblages are rarer. The assemblages from such sites attest to the fact that a higher frequency of tools was produced *ad hoc* at the expense of more formal tools. Beyond hafted bifaces, scraping and cutting tools of this period are not highly refined and usually only a minimum of retouch was required to produce them (Chapman 1979: 81; Claggett and Cable 1982: 686-687; Coe 1964).

This trend is apparently no less true in South Carolina where formal tools other than hafted bifaces are rarely found in clear association with Middle Archaic material. Where other tools are identified they are usually simple in form. For example, at Gregg Shoals in the Morrow Mountain zone the only recognizable tools in association with Morrow Mountain hafted bifaces were four utilized flakes (Tippitt and Marquardt 1984). A similar situation has been described at Rucker's Bottom (Anderson and Schuldenrein 1985).

In Binford's terminology these simple tools would have filled the roles of "situational gear" (Binford 1979: 262-264). Such tools are expedient in nature, produced and used on an immediate-need basis and only curated minimally in most instances. Through the Middle Archaic, situational gear was produced in greater proportions while formalized tools of "personal gear" were produced less often (cf. Claggett and Cable 1982).

Hafted bifaces and the lithic by-products of their manufacture are the most commonly recognized components of Middle Archaic technologies in South Carolina. At present, these are the only artifacts that can be assigned temporal context from the hundreds of surface scatters recorded across the state. We must be content with this data set simply because no large and complete assemblages are available for study from well-excavated South Carolina sites. Despite this bias, certain patterns offer some insight.

The transition from the Early to the Middle Archaic as it is known in the local sequence is not marked by dramatic modifications in hafted biface morphology. The earliest Middle Archaic type, the Stanly (Coe 1964: 35), appears as no more morphologically than a modified version of the Kirk Serrated type (Coe 1964:

70). The distinguishing features of the Stanly types are a square stem and wider blade with less pronounced serrations. Notching and beveling are absent.

Hafted bifaces of the Stanly type are rather rare in South Carolina. Judging from the literature, they comprise only one percent of all Middle Archaic types reported thus far (Table 3.3). Tommy Charles (1981) reports that the type is particularly rare in the western Piedmont and Coastal Plain and more prevalent in the eastern areas of these provinces. The rarity of this type may be explained in part by the relative brevity of this phase (Figure 3.4).

Other than in the dimension of maximum length and blade length, hafted bifaces of this type in South Carolina do not differ appreciably from others of the same type in neighboring areas. In general, examples of this type from the Doerschuk (Coe 1964) and Icehouse Bottom (Chapman 1977) sites represent the larger and smaller extremes, respectively, of the type, placing local examples well within the range described.

Where noted, Stanly hafted bifaces are consistently described as being manufactured first by percussion flaking into a preform which was later modified into the final form by pressure flaking and thinning the margins (Coe 1964: 35; Tippitt and Marquardt 1984: 63; Chapman 1979: 223). Coe (1964: 50-51) points out that "type I and type II quarry blades" were associated with the Stanly occupation. These preforms were apparently transported to the site from the quarry.

A large percentage of the Stanly hafted bifaces illustrated in reports exhibit evidence of resharpening. This maintenance is uniform and is evidenced by a notable narrowing of the blade just above the shoulders (cf. Figure 3.1c,d,e). A feature resulting from this maintenance is a small spur on the shoulder that is likely a remnant of the original blade margin possibly protected by the haft lashing. Some of these tools were resharpened to the point that they resemble and were used as drills (Coe 1964; Claggett and Cable 1982). The regular and continued maintenance of these tools suggests that they were curated and often used as knife blades.

Procurement of raw materials from which Stanly hafted bifaces were manufactured was quite specific. In 85% of the cases cited in South Carolina, non-local, Slate Belt materials were selected (Table 3.3). This tendency indicates, along with regular maintenance, continuities with this phase and Early Archaic technologies.

In time, Morrow Mountain hafted bifaces replaced the Stanly type. The principle distinguishing feature of the Morrow Mountain type is a contracting stem (Figure 3.2). In general, blade form remains constant, but a slight reduction in width is apparent. Again, examples of this type from South Carolina fall between the range of sizes recorded at the Doerschuk and Icehouse Bottom sites (Coe 1964; Chapman 1977). The incidence of serrations is less on the Morrow Mountain than on the Stanly type and, by and large, continued simplification is evidenced.

The original definition of the Morrow Mountain type included two varieties, Morrow Mountain I and II (Coe 1964: 37,43). In short, the generally broader blades and shorter stems of the Morrow Mountain I variety were contrasted with the longer, narrow blade and longer stems of the Morrow Mountain II variety. Coe (1964) suggested that variety II was temporally later, but on the basis of only suggestive stratigraphic relationships.

Subsequent stratigraphic excavations have failed to substantiate this temporal distinction (Claggett and Cable 1982: 487; Chapman 1977: 33). An opinion forwarded by later researchers regarding the distinction is that the differences between Morrow Mountain I and II varieties have technological significance (Claggett and Cable 1982: 486-488). Specifically, life history stages may be accountable for the differences. The usually broader, excurvate blades of variety I may mark an earlier stage than variety II blades which are usually narrower and have straighter margins and more frequent serrations indicative of resharpening maintenance. If such is, indeed, the case, the distinction between two varieties in this type may be unwarranted (Goodyear *et al.* 1979).

Differences in haft element morphology that also distinguish these two varieties may be indicative of variable hafting techniques. The narrower, more tapered stems of variety II are well-suited to insertion into a socket haft, perhaps a drilled wood or antler handle. The variety I haft, on the other hand, would be better suited for a slotted haft.

In South Carolina collections, especially from the Piedmont and Fall Zone, blade maintenance appears not to have been as regular and patterned on Morrow Mountain hafted bifaces as with the Stanly type. As a case in point, Goodyear *et al.* (1979: 206) point out the myriad forms that Morrow Mountain blades could take. Variations ranged from short, bipointed varieties to asymmetrical to nicely symmetrical forms. Such

### 3. Pattern and Process In The Middle Archaic Period Of South Carolina

Table 3.3

Absolute and Relative Frequencies of Middle Archaic Hafted Bifaces by Raw Material Type, Cultural-Historical Phase and Physiographic Province<sup>1</sup>.

	PIEDMONT		FALL ZONE		COASTAL PLAIN	
	n	%	n	%	n	%
<b>STANLY</b>						
Coastal Plain Chert	2	9.1				
Quartz	3	13.6				
Rhyolite	17	77.3				
Total	22	100.0				
<b>MORROW MOUNTAIN</b>						
Quartz	954	92.2	353	95.9	41	21.8
Rhyolite	54	5.2	14	3.8	8	4.3
Quartzite	19	1.8				
Silicate	4	0.4				
Ridge and Valley Chert	1	0.1			8	4.3
Coastal Plain Chert	3	0.3	1	0.3	117	62.2
Orthoquartzite					14	7.4
Total	1035	100.0	368	100.0	188	100.0
<b>GUILFORD</b>						
Quartz	274	90.1	26	76.4	2	50.0
Rhyolite	22	7.2	7	20.6		
Quartzite	7	2.3				
Coastal Plain Chert	1	0.4	1	3.0	2	50.0
Total	304	100.0	34	100.0	4	100.0

<sup>1</sup> The following sources were used to compile data for the table:

Anderson 1979	Goodyear <i>et al.</i> 1979	Robert Parler 1982, personal communication
Anderson <i>et al.</i> 1979	Glen T. Hanson 1984, personal communication	Rodeffer <i>et al.</i> 1979
Anderson <i>et al.</i> 1982	Hemmings 1970	Taylor and Smith 1978
Blanton 1983	House and Ballenger 1976	Tippitt and Marquardt 1982
Brooks and Scurry 1980	House and Wogaman 1978	Wood and Gresham 1981
Cable <i>et al.</i> 1978	Kelly 1972	
Canouts 1981		

variability in maintenance patterns might well reflect regular variability in the tasks that these tools were called upon to perform.

Toward gaining further insight into Morrow Mountain lithic technology, Feature 6 excavated at 38LX5 is instructive (Anderson 1979: 89-95). This feature consisted of a cluster of 13 Morrow Mountain bifaces and one undiagnostic biface. Of special interest is the apparent standardization of edge angle and haft element morphology despite moderate variation in overall size and weight. The mean edge angle for the set of 13 hafted bifaces is 60 degrees with a range of 50-80 degrees. Anderson (1979) points out that edge angles of that range indicate multifunctional use. Slight variation in the proximal haft element and shoulder widths suggests a standardized hafting arrangement.

The standardization evident among the haft elements of this and perhaps other sets of Morrow Mountain hafted bifaces is not likely the result of chance. It is possible and seemingly testable through replication that this consistency at the haft represents an effort on the part of the knapper to ready several tools for mating with a single haft. A socketed or slotted handle of antler, bone, or wood might have been curated more so than the blades, thus encouraging standardization of stone tool haft elements to conform to the handle dimensions.

As with the Stanly type, the steps of manufacture to produce a Morrow Mountain hafted biface began with percussion thinning followed, if necessary, by pressure retouch along the margins. The lack of embellishment in the way of notches and serrations made fine pressure

retouch unnecessary in many instances. Coe (1964: 50) identified ovate preforms in the Morrow Mountain zones at the Doerschuk site. Compared with earlier and later zones in the same sequence, the incidence of preforms in the Morrow Mountain zones was low, suggesting a lessened concern with maintaining supplies of raw material on-site.

Of all Middle Archaic hafted biface types recognized in the Piedmont and Fall Zone provinces, those of the Morrow Mountain type are far and away the most common (Table 3.3). The relative scarcity of these hafted bifaces in the Coastal Plain province raises important questions. Without a doubt they are present as numerous collections demonstrate (Anderson *et al.* 1979; Brockington 1971; Anderson *et al.* 1982), but their identification is made less easy in the Coastal Plain simply because other types of Late Archaic/Woodland age also exhibit contracting stems. Goodyear *et al.* (1979) note that the often barbed appearance of the shoulders of Gary points, along with more squared stems and larger size, make them rather easy to distinguish. The Mack type is generally much larger than typical Morrow Mountain examples and also has a squarer shoulder (Robert Parler, 1982 personal communication). The basic question to ask at this point is whether or not the scarcity is real. It may be that contemporaneous types will be found to occur just as frequently. Only more work will tell, but for the present we should avoid the wholesale application of Coe's typology in the Coastal Plain.

A striking behavior associated with Morrow Mountain hafted bifaces is highly localized procurement and use of lithic raw materials (Blanton 1983). Table 3.3 illustrates how locally specific procurement and use is across the state. By and large, it appears that expediency in procurement and use was the rule. Such behavior during the Middle Archaic is not restricted to South Carolina, as similar observations have been made in Virginia and Tennessee (Gardner 1974; Chapman 1977). A high incidence of heat treatment of cherts indigenous to the Coastal Plain has been noted as well (Anderson *et al.* 1979; Goodyear 1982 personal communication).

Gaining prominence at the end of the Middle Archaic were hafted bifaces of the Guilford type (Coe 1964: 43-44). The general lanceolate form of this type embodies the extreme in simplification of hafted biface form (Figure 3.3). Unlike the Morrow Mountain and Stanly types, Guilford hafted bifaces are not known from collections beyond the Atlantic Slope. Examples of this type from South Carolina collections are gener-

ally smaller than the average size cited by Coe for the Doerschuk site. But as at that site, concave, straight, and rounded base forms are found in South Carolina. The classic, almond shaped cross-section is not always present, however. The variability in Guilford cross-section in the Highway 151 collection from the Fall Zone prompted Cable and Cantley (1979) to distinguish between biconvex and planoconvex subtypes.

There is currently justified concern over the potential difficulty involved in distinguishing resharpened Morrow Mountain bifaces from Guilford forms (Goodyear *et al.* 1979: 204). In fact, four bifaces in Feature 6 excavated at 38LX5 could have been mistaken for Guilford types in surface context (Anderson 1979: 89-95). This is injected as a word of caution as there is probably no reliable discriminating trait outside of reliable context.

It has been suggested that Guilford hafted bifaces served as knives (Goodyear *et al.* 1979: 206), based on work with Middle Archaic material from Windy Ridge (House and Wogaman 1978: 100-103), where breakage patterns on both Morrow Mountain and Guilford bifaces indicated a possible forceful cutting and prying function. Coe (1964: 43) notes that grinding is evident on a high percentage of the Guilford hafted bifaces at Doerschuk, often extending from the bases up one third of the lateral edges. This suggests a rather sturdy haft arrangement such as might be necessary for a knife.

Guilford hafted bifaces appear to occur in two basic forms. The first is the classic form described by Coe with an almond cross-section and pronounced lanceolate outline. A second variety, the one that appears most often in South Carolina, is the very simple, often poorly finished ovate biface that can either have a biconvex or planoconvex cross-section. The striking differences in form and execution of these varieties may be indicative of contrasting functional roles. Perhaps the classic form was intended more for use as a projectile while the other served more commonly as a hafted, all-purpose cutting tool.

The manufacture of a Guilford hafted biface was largely an exercise in percussion reduction. Coe (1964: 43-44) reconstructed a reduction sequence for this type. From large, linear flakes struck from a prepared core a long, narrow, preform was flaked by percussion. Pressure flaking was employed to achieve final form whereby the outline was refined without reducing thickness, thus producing the almond cross-section. The less formal variety seems to have been reduced solely by percussion.

In South Carolina, Guilford hafted bifaces are less common than Morrow Mountain but more common than Stanly types. The Guilford type is uncommon in the Coastal Plain, especially closer to the Savannah River (Charles 1981). Possible contemporaries of this type in the low country are the Brier Creek Lanceolate (Michie 1968) and an as yet unnamed type encountered at Pen Point site (38BR383) at the Savannah River Site (Hanson and Sassaman 1984). All are basically stemmed forms often with concave bases.

The pattern of localized procurement and use of lithic raw materials is continued into the Guilford phase (Table 3.3). This tendency was curbed in the succeeding Late Archaic period when greater selectivity of lithic raw material was practiced for the production of bifaces.

#### CONCLUDING DISCUSSION

In the preceding sections, specific patterns identifiable in the archaeological and environmental records were described and can be outlined as follows.

1) The environment was generally warmer and drier than present but this pattern was periodically interrupted by episodes of increased precipitation. Piedmont forests were diverse but homogeneous, having a favorable mix of hardwoods and pine. The Piedmont may have experienced little change. In contrast, the Coastal Plain became increasingly dominated by pines and, as estuaries and wetlands developed, the environment in the province became more diversified. In essence, the homogeneous Piedmont habitat yielded a resource base that was rich but not always spatially predictable (Claggett and Cable 1982). Increasing diversification or "patchiness" in the Coastal Plain presented, in time, a more predictable resource base.

2) In the Piedmont where the data are more comprehensive, Middle Archaic settlements are typically small and diffuse. These sites yield simple and redundant assemblages. Site density is high and no particular topographic features appear to have been favored. Judging from the data at hand, Coastal Plain settlements are much less densely spaced and are more extensive areally. Overall, there is low intersite variability with regard to assemblage composition and occupation area size.

3) Middle Archaic technologies are marked by increasing simplification. "Situational" gear is produced more frequently, at the expense of formalized, "personal" gear. Procurement and use of local lithic

raw materials is the rule. In essence, Middle Archaic technologies appear to be generalized and designed with the maximization of expediency in mind.

The mid-Holocene environment was marked by perturbations introduced by variable precipitation, sea level rise, and differential vegetational succession. These factors produced a lack of spatial and temporal uniformity in the environment and thus an array of somewhat unpredictable resources, especially in the Piedmont. The data at hand suggest that Middle Archaic populations resorted to a pattern of adaptive flexibility as a response to these conditions.

Among the particular behaviors entailed by this response was the exploitation of a broad resource base with the aid of a generalized foraging strategy (Claggett and Cable 1982). Archaeologically this is evidenced by a seemingly random distribution of sites and a simple situational technology.

Another behavioral element in this pattern of adaptation is high residential mobility. This is supported in the archaeological record by evidence for a portable technology, small site size, low artifact density on individual sites and high intersite density, at least in the Piedmont.

A generalized, situational technology was important to this adaptive response in order to facilitate exploitation of resources on an encounter basis. Archaeological indicators of this technology include expedient, situationally produced tools; a low degree of formalization and specialization in the tool kit; localized, expedient procurement of lithic raw material; and less evidence for careful caching of raw material in the preform stage.

Finally, some remarks regarding social organization can be offered. Provided the system we describe was functioning, it does not seem unreasonable to think that social fluidity characterized the organization of local populations. An open social system based on generalized reciprocity characterizes groups operating under the same general system. Although this is less easily supported archaeologically, we offer it as a possibility to consider.

Our discussion is necessarily slanted toward the Piedmont and Fall Zone areas, and this illustrates the need for continued research in the Coastal Plain. It is at least clear that populations in that province adapted to the locally unique condition and this probably explains the contrasting settlement and technological

patterns we can observe there. Although our basic model may be generally applicable in the Coastal Plain, modifications are sure to be necessary to account for province-specific patterns that are likely to be identified.

ENDNOTE

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## Chapter 4

### AN ARCHAEOLOGICAL OVERVIEW OF THE SOUTH CAROLINA WOODLAND PERIOD: IT'S THE SAME OLD RIDDLE

Michael B. Trinkley

#### INTRODUCTION

When, in 1970, Charles Fairbanks presented his paper entitled, "What Do We Know Now That We Did Not Know in 1938?" he remarked that, "South Carolina for long was more interested in ancestors than in artifacts, and not too much is readily available" (Fairbanks 1971:41). He went on to note that, "local chronologies are available for every southern state, with the possible exception of South Carolina" (Fairbanks 1971:42). Today, 15 years later, there is no dearth of archaeological publications as South Carolina becomes more interested in her prehistoric ancestors. In addition, a number of chronologies have been established for the various regions in the state, although many are "borrowed" from either the north (specifically from Coe 1964 and Phelps 1983), or the southwest (from researchers such as Waring in Williams 1968). While the purpose of this paper is both to offer Woodland Period chronologies and to provide some modicum of flesh on the bones of Woodland Period settlement and subsistence systems (all of which in earlier days were referred to as culture history reconstruction), I will also reiterate some of the questions posed by Fairbanks in 1970.

Within the scope of this volume, there is no clear division between the cultural manifestations of the Late Archaic and those of the Early Woodland. Recent research suggests that while the changes which have typically characterized the Woodland Period (such as pottery and larger populations) are quite significant, there is simply a continuum of change, and pottery is added to the preexisting Late Archaic lifeway. If some convenient beginning point is necessary, then it is appropriate to maintain the traditional definition that the Woodland begins with the introduction of pottery (see Sears 1948:124).

#### EARLY WOODLAND

The earliest phase of the Woodland Period is called Stalling's, after the type site excavated by the Cosgroves in 1929 (Claflin 1931). These "Stalling's Island people" produced a rich cultural assemblage of bone and antler work, polished stone items, grooved and

perforated "net sinkers" or steatite disks, stone tools (Figure 4.1) (including projectile points, knives, scrapers, and cruciform drills), and fiber tempered pottery (see also Williams 1968). It was over a decade before the typological significance of the Stalling's ware was recognized and a formal type description was offered (Fairbanks 1942; Griffin 1943). The definitive feature of the pottery is its large quantities of fiber, now identified as Spanish moss (Simpkins and Scoville 1981), originally included in the paste. During the firing process, the Spanish moss fiber was carbonized, producing a "hole tempered" pottery of high porosity. Vessel forms include simple, shallow bowls and large, wide mouthed bowls, as well as deeper jar forms. The pottery is generally molded, although coiling fractures are occasionally present, particularly later in the period. Firing was poorly controlled, and the pottery was incompletely oxidized. The pottery was decorated with punctations (using periwinkle shells, reeds, and sticks), finger pinching, and incising (Figure 4.2). Trinkley and Zierden (1983:20-22) have recently suggested that these decorations may be temporally significant.

Stalling's phase sites are found clustered in the Savannah River drainage (Claflin 1931; Hanson 1982) and in the coastal zone south of Charleston (Anderson 1975). Recent studies have also identified the pottery north to the Tar drainage in North Carolina (Phelps 1983:27-28), which suggests either the culture's remarkable adaptive capability or the widespread initial acceptance of pottery manufacture. Stoltman (1966, 1974) obtained an early radiocarbon date of 2515 ± 95 B.C. (GXO-345) from Rabbit Mount in the Savannah drainage. This area has produced a number of large Stalling's sites, such as Stalling's Island (Bullen and Greene 1970; Claflin 1931), Fennel Hill (38AL2 notes on file, South Carolina Institute of Archaeology and Anthropology, University of South Carolina), Rabbit Mount (Stoltman 1974), and Bilbo (Williams 1968:152-197; Dye 1976), with elaborate material assemblages. As a result, the Savannah drainage is generally accepted as the birthplace of the Stalling's culture. The stimulus for this elaboration on the preexisting Late Archaic culture may be related to a complex process of popula-

tion increase and disequilibrium with the environment (see Hanson 1982:21 and Smith 1974:306-311). Such a situation is similar to Binford's (1968) hypothesis regarding population stress as a factor in new forms of food procurement. Hanson (1982:13) also notes that by 2500 B.C. mussel availability had increased through changes in sea level, river gradient, and channel location.

The elaborate Savannah River drainage sites such as Stalling's Island, Fennel Hill, Rabbit Mount, and Bilbo, are all characterized by large quantities of either fresh water mussels or tidal oysters, large quantities of artifacts, and abundant features. Stoltman (1974:51-56) further suggests the possibility of a structure at Rabbit Mount. These middens, however, represent only one aspect of the Stalling's settlement system. Another portion of that system is represented by Stalling's sites which evidence little shell. While many of these are sparse scatters, such as Clear Mount (Stoltman 1974) and Pinckney Island (Trinkley 1981b), some evidence intensive occupation with features and a rich cultural assemblage, such as the Love (Trinkley 1974) and Fish Haul sites (Trinkley and Zierden 1983). The function of these non-shell midden sites is poorly understood at present, although shellfish seasonality studies by Dr. Cheryl Claassen at Appalachian State University document that the clams present in pits were collected in the late winter through spring. These may represent early sites when the subsistence base was diffuse, prior to intensive riverine and estuarine exploitation. Alternately, they may represent a seasonal round in the Stalling's settlement system; perhaps the "Stalling's Island people" gathered shellfish during the fall when the Savannah River and its tributaries were low and clear and exploited other resources away from the river during the period of high discharge, which would be the late winter and spring (Anderson and Schuldenrein 1985:13). Additional work within the Savannah drainage is necessary to understand more fully the relationship between large shell middens, dense non-shell upland and coastal sites, and sparse upland and coastal "scatters."

Stalling's pottery was produced as late as 1060 ± 80 B.C. (UGA-1686), based on the Cunningham Mound C in Liberty County, Georgia, although Milanich and Fairbanks (1980:78) suggest that fiber tempering on the Georgia coast is found as late as A.D.1. While Stalling's pottery is usually considered older than, and often the progenitor of, Thom's Creek pottery, recent radiocarbon dates leave little doubt that the two pottery styles are largely contemporaneous. Hanson (1982:14),

however, notes that where both Stalling's and Thom's Creek sherds are found stratigraphically separated on the same site, the Stalling's ware is the earlier of the two. Such a situation may indicate that "the agent of tempering changed earlier on the coast than in the riverine setting" (Hanson 1982:14).

The succeeding Thom's Creek phase dates as early as 2220 ± 350 B.C. (UGA-584) from Spanish Mount in Charleston County (Sutherland 1974) and continues to at least 935 ± 175 B.C. (UGA-2904), based on a date from Lighthouse Point Shell Ring, Charleston County (Trinkley 1980a:191-192). The Thom's Creek phase is characterized by an artifact assemblage almost identical to that of Stalling's sites. The only major differences include the replacement of fiber temper with sand, or a clay not requiring temper, and the gradual reduction of projectile point size.

The Thom's Creek pottery (Figure 4.2:d-f), first typed by Griffin (1945), consists of sandy paste pottery decorated with the motifs common to the Stalling's series, including punctations (reed and shell), finger pinching, simple stamping, and incising (Trinkley 1980b). Recent investigations at Lighthouse Point and Stratton Place Shell Rings, stratigraphic studies at Spanish Mount and Fig Island (Figure 4.3), radiocarbon dates from Lighthouse Point and Venning Creek, and the study of surface collections from a variety of sites have suggested a temporal ordering of the Thom's Creek series. Reed punctated pottery appears to be the oldest, followed by the shell punctated and finger pinched motifs. Late in the Thom's Creek phase, perhaps by 1000 B.C., there is the addition of Thom's Creek Finger Smoothed (Trinkley 1983:44, Figure 1B). Vessel forms include deep, straight sided jars and shallow conoidal bowls. Lip treatments are simple, and coiling fractures are common. Firing of the Thom's Creek vessels is certainly better than that evidenced for Stalling's, but there continues to be abundant incompletely oxidized specimens.

The projectile points, which are typically Savannah River Stemmed (Coe 1964) during the Stalling's phase, are reduced in size during the Thom's Creek phase and may be classified as Small Savannah River Stemmed points (Oliver 1981; see Trinkley 1980a: Plate 14). Raw materials used in their production include coastal plain chert, quartz, quartzite, orthoquartzite, and rhyolitic stones. Bone pins illustrated by Williams (1968:152-197) and Trinkley (1980a: Plate 17) may have functioned as weaving or netting tools (shuttles or needles). Common to Thom's Creek sites are whelk

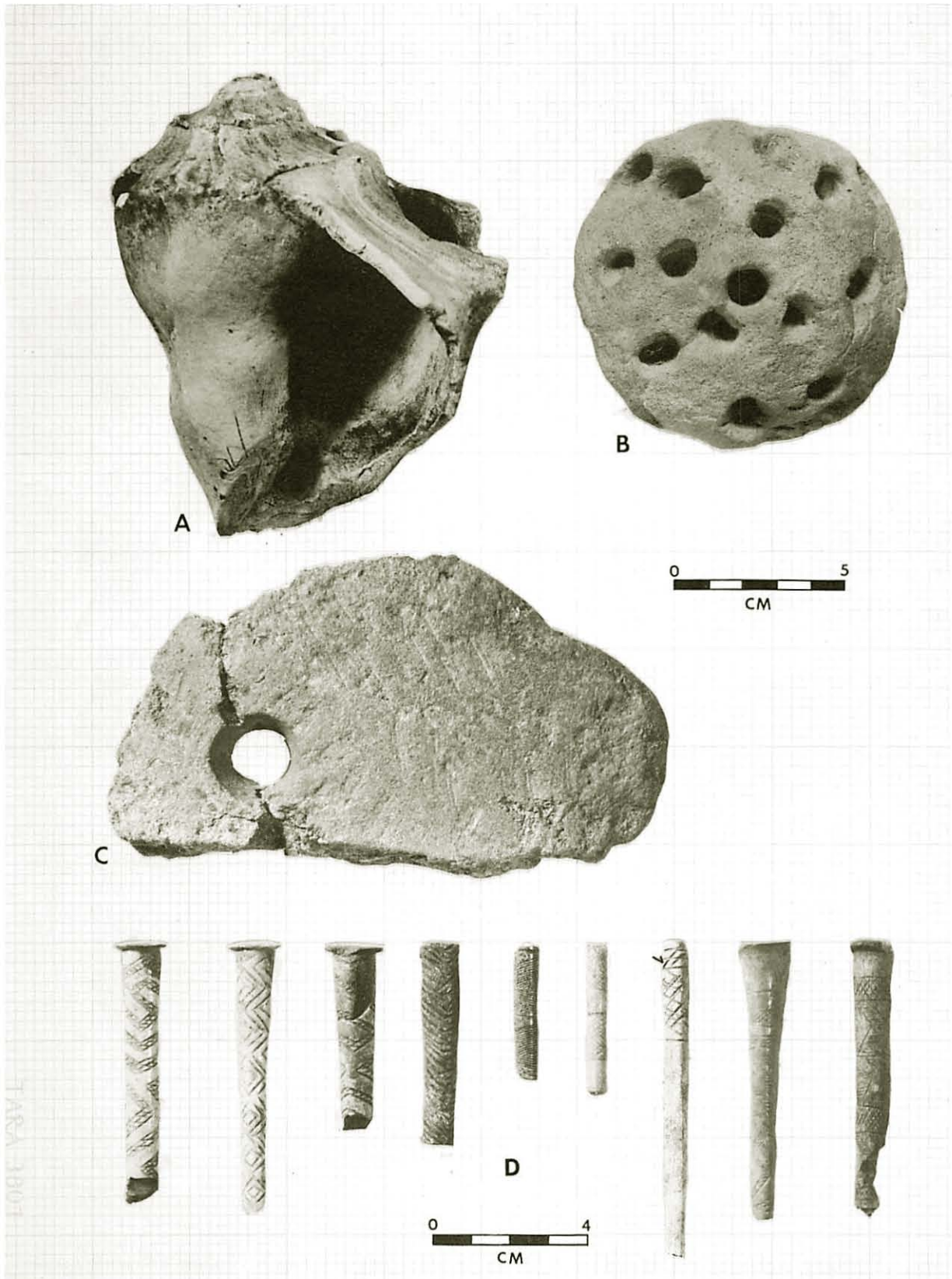


Figure 4.1: Artifacts of the Early Woodland Stalling's and Thom's Creek phases. A, worked whelk shell; B, baked clay object or heating ball; C, worked soapstone disk; D, engraved bone pins.

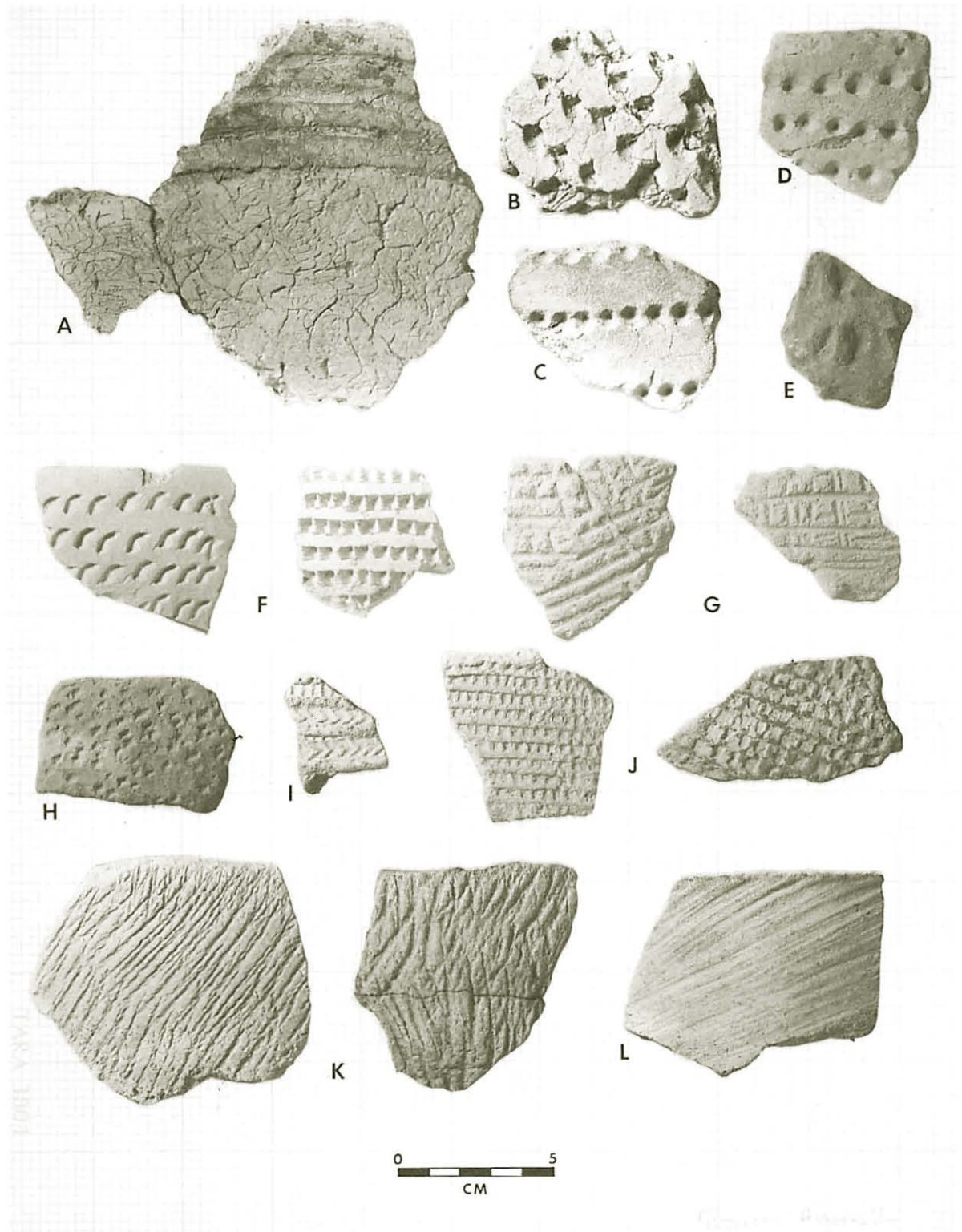


Figure 4.2: Early Woodland Period pottery. A, Stalling's Reed Drag and Jab; B, Stalling's Reed Punctate; C, Stalling's Shell Punctate; D, Thom's Creek Shell Punctate; E, Thom's Creek Finger Pinched; F, Thom's Creek Reed Punctate; G, Refuge Simple Stamped; H, Refuge Dentate Stamped; I, Deptford Linear Check Stamped; J, Deptford Check Stamped; K, Deptford Cord Marked; L, Deptford Simple Stamped.

shells (*Busycon carica*) with a carefully executed and well-smoothed hole in the shoulder of the body whorl close to the aperture and a heavily worn or smoothed columella and outer whorl. Some whelk tools evidence a heavily battered columella which has resulted in a blunted tip. Those tools with a smoothed columella may have served as scrapers (see Trinkley 1980a:209-214).

Like the preceding Stalling's settlement pattern, Thom's Creek sites are found in a variety of environmental zones and take on several forms. Thom's Creek sites are found throughout South Carolina coastal plains and into North Carolina, although there appears to be a strong concentration of sites in the Santee River drainage and the central South Carolina coast (see Anderson 1975:184).

In the upper coastal plain drainage of the Savannah River there is a change of settlement, and probably subsistence, away from the riverine focus found in the Stalling's phase (Hanson 1982:13; Stoltman 1974:235-236). Thom's Creek sites are more commonly found in the upland areas and lack evidence of intensive shellfish collection. On the South Carolina coast

large, irregular shell middens; small, sparse sites; and "shell rings" are found in the Thom's Creek settlement system.

By far the most work has been conducted at shell rings (see Trinkley 1980a). These sites are circular middens about 40 to 92 m in diameter, .6 to 3.0 m in height, and 12 m in width at their bases, with clear interiors. These doughnut-shaped accumulations were formed as small mounds, arranged around an open ground area, and gradually blended together. The ring itself is composed of varying proportions of shell, animal bone, pottery, soil, and other artifacts. The midden soils are silts, and the shell is lensed and crushed. Post holes are abundant, although no structures have been clearly identified. Pits are evident throughout the midden, but under the midden, large shellfish steaming pits, several feet in diameter and .6 to 1.0 m in depth, are more clearly evident. Their use and the consequent disposal of the shells actually formed the midden.

These shell rings were apparently mundane occupation sites for fairly large social units which lived on



Figure 4.3: An aerial view of the Fig Island Shell Ring near Edisto Island, South Carolina.

the ring, disposed of garbage underfoot, and used the clear interior as areas for communal activities. The sites further suggest relatively permanent, stable village life as early as 1600 B.C., with a subsistence base oriented toward large and small mammals, fish, shellfish, and hickory nut resources (Trinkley 1985).

Following Stalling's and Thom's Creek are the Refuge and Deptford phases, both strongly associated with the Georgia sequence and the Savannah drainage (DePratter 1979; Lepionka 1983; Williams 1968). The Refuge phase, dated from 1070±115 B.C. (QC-784) to 510±100 B.C. (QC-785), is found primarily along the South Carolina coast from the Savannah drainage as far north as the Santee River (Williams 1968:208). Anderson (1975:184) further notes an apparent concentration of Refuge sites in the Inner Coastal Plain, particularly along the Santee River. The pottery is found inland along the Savannah River (Peterson 1971:151-168), although it does not extend above the Fall Line (see Anderson and Schuldenrein 1985:719; Garrow 1975:18-21).

The Refuge series pottery is similar in many ways to the preceding Thom's Creek wares. The paste is compact and sandy or gritty, while surface treatments include sloppy simple stamped, dentate stamped, and random punctated decorations (see DePratter 1979:115-123; Williams 1968:198-208). Peterson (1971:153) characterizes Refuge as both a degeneration of the preceding Thom's Creek series and also as a bridge to the succeeding Deptford series. There is a small stemmed biface associated with the Savannah drainage Refuge sites. Peterson suggests that, "a change from the 'Savannah River' to the small stemmed points, a diminution basically, could occur during Refuge" (Peterson 1971:159), although points similar to the Small Savannah River Stemmed continue to occur.

A significant change in the Refuge settlement pattern and subsistence base is clearly evidenced. At the end of the Thom's Creek phase a number of small, non-shell midden sites are found. This pattern of small sites, situated away from potential shellfish sources, continues in the Refuge phase (see, for example, Peterson 1971:164-168). Refuge ceramics are common on coastal sites south of the Santee River, but are usually found in sandy buried soils with few features or organic remains (see, for example, Trinkley 1982). It is difficult to reconstruct the subsistence base, although the sites suggest small, seasonal camps for small groups. The settlement fragmentation, which began at the end of the Thom's Creek phase, around 1000 B.C., probably

relates to the increase in sea level, from a Thom's Creek phase low of about 3.0 m below the current high marsh surface at 1200 B.C. to a high of about 1.0 m below the current high marsh surface at 950 B.C. (Colquhoun *et al.* 1980). This increasing sea level drowned the tidal marshes (and sites) on which the Thom's Creek people relied. The succeeding Refuge phase evidences the fragmentation necessary when the environment which gave rise to large sedentary populations disappeared. Hanson (1982:21-23), based on Department of Energy Savannah River Site data, suggests that subsistence stress present during the Thom's Creek phase may have resulted in an expansion of the settlement system into diverse environmental settings. This same "splintering" is observed on the Carolina coast.

Peterson, based on his study of the Savannah River Groton Plantation sites, suggests that "the best antecedent for Deptford anywhere in the southeast is the Refuge Phase of the Savannah Delta and the Groton localities" (Peterson 1971:328). More recently, Milanich (1971) has investigated the coastal Deptford culture and suggested that while the Deptford phase is part of a "coastal tradition," its origin was influenced by increased cultural contact with other groups, such as the Tchefuncte, Adena-Hopewell, and Savannah River traditions.

The Deptford culture takes its name from the type site located east of Savannah, Georgia, which was excavated in the mid-1930s (Caldwell 1943:12-16). Deptford phase sites are best recognized by the presence of fine to coarse sandy paste pottery with a check stamped surface treatment. This pottery is typically in the form of a cylindrical vessel with a conoidal base. The flat bottomed bowl with tetrapodal supports found at Deptford sites along the Florida Gulf coast is very rare in South Carolina. Other Deptford phase pottery styles include cord marking, simple stamping, a complicated stamping which resembles early Swift Creek, and a geometric stamping which consists of a series of carved triangles or diamonds with interior dots.

The Deptford technology is little better known than that of the preceding Refuge phase. Shell tools are uncommon, bone tools are "extremely rare" (Milanich and Fairbanks 1980:77), and stone tools are rare on the Atlantic coast sites. All of this indicates to some researchers that "wood must have been worked into a variety of tool types" (Milanich and Fairbanks 1980:75). One type of stone tool associated with South Carolina Deptford sites is a very small, stemmed projectile point tentatively described as "Deptford Stemmed" (Trin-

kley 1980c:20-23). This point is the culmination of the Savannah River Stemmed reduction seen in the Thom's Creek and Refuge phases. Similar points have been found at a variety of Deptford sites (see Milanich 1971:175-176; Stoltman 1974:115-116, Figure 20i-j, 40h-j). Also found at Deptford sites are "medium-sized triangular points: probably similar to the Yadkin Triangular point" (Coe 1964:45, 47, 49; Milanich and Fairbanks 1980:75-76).

Milanich (1971:Figure 12) illustrates a generalized distribution of this series, which is divided into the Gulf and Atlantic subregions. This distribution, however, should extend to the South Carolina Fall Line and probably as far north as the Neuse River in North Carolina. Anderson (1975:186) has found a light distribution of Deptford pottery along the South Carolina coast with major sites only at the mouths of the Santee and Savannah Rivers. The earliest date for Deptford pottery,  $1045 \pm 110$  B.C. (UGA-3515), has been obtained from 38LX5 in Lexington County, South Carolina (Trinkley 1980c:11). The most recent date comes from St. Simons Island, Georgia, where a date of A.D.  $935 \pm 70$  (UM-673) was obtained. Milanich and Fairbanks (1980:60) suggest a tighter range of about 500 B.C. to A.D. 600.

Deptford sites on the South Carolina coast are usually small, especially when compared to the earlier Thom's Creek middens, and they are usually multi-component. Deptford coastal sites, while containing shell, do not represent massive mounds, but rather thin middens formed as series of small shell heaps which were deposited adjacent to the marsh and gradually formed continuous masses. These heaps were the result of short periods of site use, perhaps as a base camp for shellfish collecting (see Milanich and Fairbanks 1980:72-73; Trinkley 1981b). Soil chemicals from the Pinckney Island midden (Trinkley 1981b:53-54) suggest less than intensive occupation. The chemical studies support Milanich's assessment that occupation was not on the shell piles, but adjacent to them (Milanich and Fairbanks 1980:72-73; Trinkley 1981b:53-54).

Milanich (1971:192-198; Milanich and Fairbanks 1980:70-73) suggests that the Deptford phase settlement pattern involves both coastal and inland sites. The coastal sites, which are always situated adjacent to tidal creek marshes, evidence a diffuse subsistence system. The inland sites are also small, lack shell, and are situated on the edge of swamp terraces. This situation is identical to that found in South Carolina. Sites such as Pinckney Island (Trinkley 1981b) and Minim Island

(Drucker and Jackson 1984) evidence coastal occupation. At Pinckney Island the bulk of the calories came from shellfish while mammals played a relatively insignificant role (Trinkley 1981b:57-60). A similar situation occurs at Minim Island, although the faunal remains clearly indicate the importance of fish (Drucker and Jackson 1984). Inland, sites such as 38LX5 indicate the presence of an extensive Deptford occupation up the Fall Line, although sandy, acidic soils preclude statements on the subsistence base (Anderson 1979). These interior Deptford sites, however, are strongly associated with the swamp terrace edge, and this environment is productive not only in nut masts, but also in large mammals such as deer.

Milanich observes that "(t)his dual distribution ... suggests a transhumant subsistence pattern", with inland sites occupied in the fall for the collection of floral resources and the hunting of deer (Milanich 1971:194; Milanich and Fairbanks 1980:72). While such a subsistence round may have been practiced, it cannot be documented from the available evidence. Some sites, such as Pinckney Island, were clearly occupied in the late winter (Trinkley 1981b:60). Minim Island, however, was apparently occupied in the summer (Drucker and Jackson 1984), although a fall or winter occupation cannot be precluded.

A similar situation is observed along the Savannah drainage, where Stoltman (1974:237) observed both floodplain and upland Deptford sites. This duality, according to Stoltman, is "indicative of a gradually increasing dependence upon upland wild plant food" (Stoltman 1974:237) and eventually horticulture, although no archaeological evidence supports this speculation. Hanson (1982:21-23) sees settlement locations becoming more diverse as population pressures require that new food sources be identified and exploited. While this is similar to the explanation offered by Stoltman, Hanson does not imply or suggest that the alternate food source must be horticulture.

Throughout much of the South Carolina Coastal Plain north of Charleston, a somewhat different cultural manifestation is observed, related to the "Northern Tradition." This recently identified assemblage has been termed Deep Creek and was first identified from northern North Carolina sites (Phelps 1983). This Deep Creek assemblage is characterized by pottery with medium to coarse sand inclusions and surface treatments of cord marking, fabric marking, simple stamping, and net impressing. Much of this material has been previously designated as the Middle Woodland Cape



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Fear Pottery (South 1960). The ware dates from about 1000 B.C. to A.D. 1 in North Carolina, but may date later in South Carolina, based on two radiocarbon dates of  $120 \pm 130$  B.C. (QC-1358) and A.D.  $210 \pm 110$  (QC-1357). The Deep Creek settlement and subsistence systems are poorly known, but appear to be very similar to those identified with the Deptford phase.

This Deep Creek assemblage strongly resembles Deptford both typologically and temporally. It appears this northern tradition of cord and fabric pottery impressions was introduced and gradually accepted by indigenous South Carolina populations during which time some groups continued making only the older carved paddle-stamped pottery, others mixed the two styles, and still others (and later all) made exclusively cord and fabric stamped pottery.

As Goodyear *et al.* (1979:116) note, "Early Woodland data from South Carolina [Piedmont sites] are yet rather meagre." In Georgia the Early Woodland is recognized, through the work of Caldwell (1958), as a period of transition away from the Archaic Period lifeway, with considerable influence provided by the "Northern Tradition," most clearly observed in the spread of fabric marked wares.

In Georgia, the Early Woodland is characterized by the Kellog focus (Caldwell 1958), which consists of Dunlap Fabric Marked pottery, small circular houses, medium-sized isosceles triangular projectile points similar to those defined by Coe (1964:45, 49) as Yadkin Triangular, and flexed burials. Garrow (1975:20) suggests a date range of about 1000 to 300 B.C. for the Kellog focus. Garrow (1975:20) sees the Cartersville focus as an Early Woodland continuation of the Kellog focus, which lasts into the Middle Woodland. Anderson and Schuldenrein (1985:719-720) offer a similar assessment and suggest Cartersville may be found as late as A.D. 1000. The presence of Dunlap and Cartersville ceramics in South Carolina has not been well documented, although no sites have been excavated which resemble those reported by Caldwell or Wauchope for northern Georgia. A few of the more northwestern counties in South Carolina evidence pottery which may be a local variation of the Swannanoa series (Rodeffer *et al.* 1979:50), and these sites usually cluster along the riverine zone, adjacent to major drainages. In general, however, most of the interriverine zone of the South Carolina Piedmont appears to be devoid of Early Woodland settlement. The few sites found in the riverine zones have contributed little toward a better understanding of Early Woodland lifeways or the cultural

diversity present at the sites.

#### MIDDLE WOODLAND

Although I have discussed the Deptford phase as part of the Early Woodland, many authors place the phase intermediate between the Early and Middle Woodland (see, for example, Anderson *et al.* 1982:28, 250). Such an approach is not unreasonable, because Deptford exhibits considerable temporal range and cultural adaptations which are more characteristically Middle Woodland. The Deptford phase, however, is still part of the early carved paddle stamped tradition which is replaced by the posited northern intrusion of wrapped paddle stamping during the Middle Woodland. Clearly the Deep Creek pottery, at the same time period as Deptford, is part of this "Northern Tradition," yet the Deep Creek, on temporal grounds, is considered Early Woodland by Phelps (1983:17, 29). This is meant simply to indicate that the transition from Early to Middle Woodland is not as clear as one might wish.

The Middle Woodland in South Carolina is characterized by a pattern of settlement mobility and short-term occupation. On the southern coast it is associated with the Wilmington phase, while on the northern coast it is recognized by the presence of Hanover, McClellanville or Santee, and Mount Pleasant assemblages. Wilmington and Hanover may be viewed as regional varieties of the same ceramic tradition. The pottery is characterized almost solely by its crushed sherd temper which makes up 30 to 40% of the paste and which ranges in size from three to 10 mm. Wilmington was first described by Caldwell and Waring (Williams 1968:113-116) from coastal Georgia work, while the Hanover description was offered by South (1960), based on a survey of the Southeastern coast of North Carolina (with incursions into South Carolina). The Wilmington phase was seen by Waring (Williams 1968:221) as intrusive from the Carolina coast, but there is considerable evidence for the inclusion of Deptford traits in the Wilmington series. For example, Caldwell and McCann (1940:np) noted that, "[t]he Wilmington complex proper contains all of the main kinds of decoration which occur in the Deptford complex with the probable exception of Deptford Linear Checkstamped" (see also, Anderson *et al.* 1982:275). Consequently, surface treatments of cord marking, check stamping, simple stamping, and fabric impressing may be found with sherd tempered paste.

Sherd tempered Wilmington and Hanover wares are found from at least the Chowan River in North Carolina southward onto the Georgia coast. Anderson

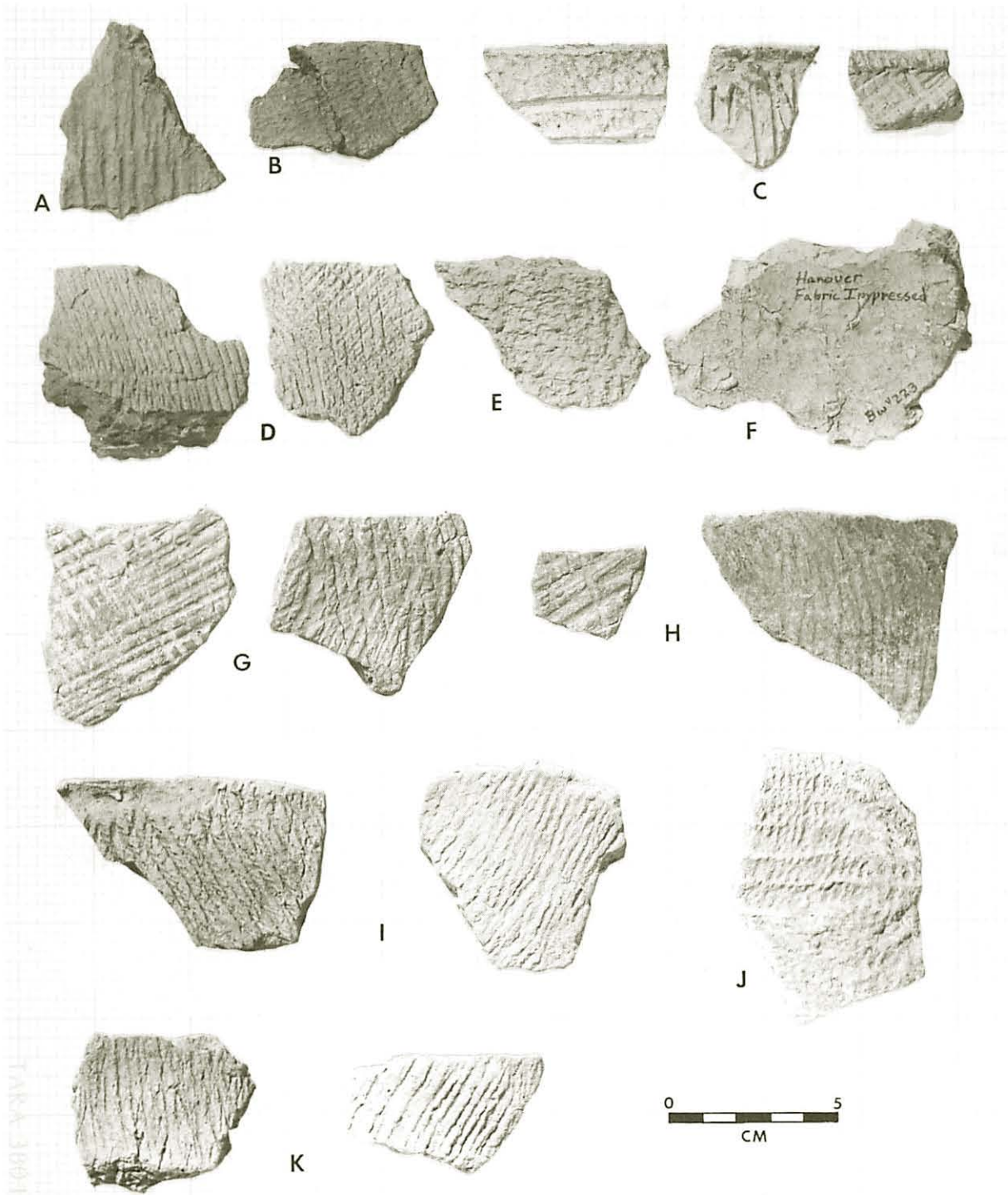


Figure 4.4: Middle and Late Woodland Period pottery. A, Yadkin Cord Marked; B, Yadkin Fabric Impressed; C, Camden Series lip decoration; D, Hanover Cord Marked; E, Hanover Fabric Impressed; F, interior view of a Hanover sherd showing the large sherd inclusions in the paste; G, Santee Simple Stamped; H, McClellanville Simple Stamped; I, Mount Pleasant Cord Marked; J, Mount Pleasant Fabric Impressed; K, St. Catherines Cord Marked.

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(1975:187) has found the Hanover series evenly distributed over the coastal plain of South Carolina, although it appears slightly more abundant north of the Edisto River. The heartland may be along the inner coastal plain north of the Cape Fear River in North Carolina. Radiocarbon dates for Wilmington and Hanover range from 135  $\pm$ 85 B.C. (UM-1916) from site 38BK134 to A.D. 1120  $\pm$ 100 (GX-2284) from a "Wilmington House" at the Charles Towne Landing site, 38CH1. Most dates, however, cluster from A.D. 400 to 900; some researchers prefer a date range of about 200 B.C. to A.D. 500 (Anderson *et al.* 1982:276).

Largely contemporaneous with the sherd tempered wares are the Mount Pleasant, McClellanville, and Santee series (Figure 4.4). The Mount Pleasant series has been developed by Phelps from work along the northeastern North Carolina coast (Phelps 1983:32-35, 1984:41-44) and is a Middle Woodland refinement of South's (1960) previous Cape Fear series. The pottery is characterized by a sandy paste either with or without quantities of rounded pebbles. Surface treatments include fabric impressed, cord marked, and net impressed. Vessels are usually conoidal, although simple,

hemispherical, and globular bowls are also present. The Mount Pleasant series is found from North Carolina southward to the Savannah River (being evidenced by the "Untyped Series" in Trinkley 1981b). North Carolina dates for the series range from A.D. 265  $\pm$ 65 (UGA-1088) to A.D. 890  $\pm$ 80 (UGA-3849). The several dates currently available from South Carolina (such as UGA-3512 of A.D. 565  $\pm$ 70 from Pinckney Island) fall into this range of about A.D. 200 to 900.

The McClellanville (Trinkley 1981a) and Santee (Anderson *et al.* 1982:302-308) series are found primarily on the north central coast of South Carolina and are characterized by a fine to medium sandy paste ceramic with surface treatment of primarily v-shaped simple stamping. While the two pottery types are quite similar, it appears that the Santee series may have later features, such as excurvate rims and interior rim stamping, not observed in the McClellanville series. The Santee series is placed at A.D. 800 to 1300 by Anderson *et al.* (1982:303), while the McClellanville ware may be slightly earlier, perhaps A.D. 500 to 800. There is little doubt, however, that these two wares are closely related, both typologically and culturally. Also proba-



Figure 4.5: View of the partially excavated Buck Hall sand burial mound, Charleston County, South Carolina.

bly related is the little known Camden Series (Stuart 1975) found in the Inner Coastal Plain of South Carolina.

Our best knowledge concerning Middle Woodland coastal assemblages comes from Phelps's (1983:32-33) work in North Carolina. Associated items include a small variety of the Roanoke Large Triangular points (Coe 1964:110-110), sandstone abraders, shell pendants, polished stone gorgets, celts, and woven marsh mats. Significantly, both primary inhumations and cremations are known from the Mount Pleasant phase. Phelps notes that,

*[a] distinctive cultural feature of Middle Woodland age in the South Coastal region is the rather extensive distribution of low, sand burial mounds ... The high frequency of secondary cremation, platform pipes, and other objects in the mounds, and the fact that at least some of them seem to be placed away from their contemporaneous habitation sites, points to southern influence during this period (Phelps 1983:35).*

Phelps went on to note that, "[t]heir spatial extent is limited ..., and no comparable structures have been reported from ... South Carolina ... Further research ... is needed to determine relationship [of the North Carolina mounds] with ... those on the Georgia coast" (Phelps 1983:35).

Sand burial mounds have been known from the Georgia and southern South Carolina coastal area since C.B. Moore's investigations in 1898. Recent studies include those by the American Museum of Natural History on St. Catherine's Island, Georgia, which document the Early to Late Woodland use of sand burial mounds (Larsen and Thomas 1982; Thomas and Larsen 1979), as well as the re-investigation of the Callawassie Island burial mound in Beaufort County, South Carolina (Brooks *et al.* 1982). The presumed burial mound gap between southern coastal South Carolina and southeastern coastal North Carolina has been filled by the 1983 investigations of the Buck Hall site (Figure 4.5) in Charleston County where Trinkley and Zierden were able to determine that the low sand mounds were covering poorly preserved secondary burials. Rathbun has identified an ossuary from Horry County, South Carolina (Ted Rathbun, personal communication 1984). Consequently, it appears that both ossuaries and sand mounds are found along the entire South Carolina coast, although precise dating and a thorough understanding of their cultural significance has yet to be achieved. As Wilson notes, "the sand burial mounds ...

cannot be associated with any one prehistoric physical type or aboriginal group," for in North Carolina they are found in the context of probable Iroquoian, Siouan, and Algonquin populations (Wilson 1982:172). The available information, however, suggests a relatively egalitarian society.

On the Inner Coastal Plain of South Carolina, researchers are finding evidence of a Middle Woodland Yadkin assemblage, best known from Coe's work at the Doerschuk site in North Carolina (Coe 1964:25-26). Yadkin pottery is characterized by a crushed quartz temper and cord marked, fabric impressed, and linear check stamped surface treatments. The Yadkin ceramics are associated with medium-sized triangular points, although Oliver (1981) suggests that a continuation of the Piedmont Stemmed Tradition to at least A.D. 300 coexisted with this Triangular Tradition. The Yadkin series in South Carolina was first observed by Ward (1978, 1983) from the Whites Creek drainage in Marlboro County, South Carolina. Since then a large Yadkin village has been identified by DePratter at the Dunlap site in Darlington County, South Carolina (Chester DePratter, personal communication 1985).

These Middle Woodland coastal plain phases continue the late Early Woodland Deptford pattern of mobility. While sites are found all along the coast and inland to the fall line, shell midden sites evidence sparse shell and artifacts. Gone are the abundant shell tools, worked bone items, and clay balls.

In terms of settlement patterns, several researchers have offered some conclusions based on localized data. Michie (1980:80), for example, correlates rising sea levels with the extension of Middle Woodland shell middens further up the Port Royal estuary. Scurry and Brooks (1980:75-78) find the Middle Woodland site patterning in the Wando River area affected not only by the sea level fluctuations, but also by soil types (see also Trinkley 1980a: 445-446). They suggest that the strong soil correlation is the result of upland sites having functioned as extraction areas, principally for exploitation of acorns, hickory nuts, and deer. Shell midden sites, they suggest, also represent seasonal camps and therefore exhibit small size, low artifact density, and infrequent re-occupation. Ward's (1978) work in Marlboro County suggests that interior site patterning changed little from the Early to Middle Woodland. Sites continue to be found on the low, sandy ridges overlooking hardwood swamp floodplains, which suggests that while pottery styles changed, site locations, and presumably subsistence, did not. DePratter's work at the Dunlap site, however, suggests that a few,

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relatively stable villages were present in the Middle Woodland.

The Piedmont Middle Woodland Period includes the extensive development of Cartersville ceramics in Georgia (Caldwell 1958). It has been suggested that during this Middle Woodland Cartersville focus there was a shift away from nut resources, as part of the "primary forest efficiency" development (Caldwell 1958:46). The older Cartersville fabric marked and check stamped wares continue to be used, but the newly introduced Cartersville Simple Stamped style characterizes the period. Garrow (1975:22-23) notes that it was during the Cartersville focus that the Hopewell tradition spread into Georgia. These Hopewell influences, however, do not appear to spread into South Carolina, and Cartersville ceramics themselves are confined to the Savannah drainage in South Carolina.

The presence of Pigeon and Connestee ceramics, originally identified from western North Carolina by Holden (1966) and Keel (1976), has been documented in South Carolina. The Pigeon series, similar to the Cartersville focus of Georgia, dates from about 300 B.C. to A.D. 100, while the following Connestee wares are dated from A.D. 100 to at least A.D. 600 and consist of brushed, simple stamped, cord marked, and check stamped surface finishes on a fine sandy paste pottery. These wares are found sparsely scattered through the South Carolina Piedmont (Goodyear *et al.* 1979; Rodeffer *et al.* 1979:51-52). Unfortunately none of these sites has been excavated. It is not yet clear whether the Middle Woodland Piedmont occupations continued the Early Woodland orientation toward riverine sites, or whether inter-riverine occupation became more common (cf. Goodyear *et al.* 1979:229-230, 251; Rodeffer *et al.* 1979:52). Coe (1983:176) seems to suggest that, at least in North Carolina, Middle Woodland sites are evenly distributed in the Appalachian area. In any event, it is clear that the cultural conservatism of the coastal plain groups is mirrored in the Piedmont.

#### LATE WOODLAND

In many respects the South Carolina Late Woodland may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the past 500 to 700 years. This situation would remain unchanged until the development of the South Appalachian Mississippian complex.

The Late Woodland on the extreme southern South Carolina coast is characterized by the St. Catherines phase, first defined by Caldwell (1971) based on his St. Catherines Island work. St. Catherines ceramics are characterized by fine clay tempering (obviously finer than the preceding Wilmington sherd temper) and by carefully smoothed or burnished interiors. Surface treatments include fine cord marked, burnished plain, and net marked (DePratter 1979:119, 131-132), although sparse quantities of fabric impressed pottery are also observed from South Carolina (Trinkley 1981b:82) and Georgia (Larsen and Thomas 1982:304-305). Caldwell viewed the St. Catherines pottery as a refinement of the Wilmington tradition of sherd tempering (Caldwell 1971:91), and sand burial mounds continue to be a significant aspect of the assemblage (Brooks *et al.* 1982; Caldwell 1971; Larsen and Thomas 1982; Trinkley 1981b:90-92).

While a number of St. Catherines burial mounds have been studied, only one midden area, Victoria Bluff, in Beaufort County, has been even briefly tested (Trinkley 1981b:73-88). At this site the economy was based on shellfish collection and there is substantial evidence of a winter-early spring occupation. The subsistence base at the Victoria Bluff middens is more focal than preceding Middle Woodland midden sites. There is no evidence to document a seasonal round or to suggest the presence of large St. Catherines phase villages.

The St. Catherines pottery, previously given a terminal date of about A.D. 1150 by DePratter (1979:111), clearly dates into the late fourteenth century based on the Pinckney Island work (Trinkley 1981b). The tenacity of this simple lifestyle suggests that the Gaule intrusion was relatively minor in many areas, or at least co-existed with the native inhabitants whose lives were generally unchanged.

Farther north along the Carolina coast, Anderson *et al.* (1982:303-304) suggest a continuation of the Santee series into the Late Woodland. The Hanover and Mount Pleasant wares may also be found as late as A.D. 1000. Along the southeastern North Carolina coast, South (1960) has defined the Oak Island complex, which is best known for its shell tempered ceramics with cord marked, fabric impressed, simple stamped, and net impressed surface finishes. The phase is briefly discussed by Phelps (1983:48-49), but curiously this manifestation is almost unknown south of the Little River in South Carolina. Very little is known about the northern coastal South Carolina Late Woodland complexes.

While the Late Woodland in Georgia is represented by the Swift Creek and Napier pottery styles (Garrow 1975:24), these ceramics are so rare in the South Carolina Piedmont that Anderson and Schuldenrein note, "using them to infer later Woodland components almost automatically leads to the further inference that the whole region was largely depopulated (Anderson and Schuldenrein 1985:719-720). Anderson and Schuldenrein (1985:720) argue that the Cartersville wares, traditionally accepted as Middle Woodland, continued well into the Late Woodland period. They suggest that it is during this Late Woodland period when, "the first conclusive evidence for extended occupation of the floodplain appears, in the form of pits, hearths, posts, and scatters of shell. Interestingly, no evidence for agriculture or the use of domesticates of any kind was found during that period" (Anderson and Schuldenrein 1985:720).

In spite of the possible extension of Cartersville into the Late Woodland, Piedmont surveys have failed to identify any appreciable amount of Cartersville pottery. While this apparent absence of Late Woodland pottery over much of the South Carolina Piedmont may be a result of incomplete fieldwork, an alternative explanation is that the historic aboriginal population areas and distributions may have time depth not presently recognized (see Goff 1974:8-10; Goodyear *et al.* 1979:231; Royce 1888). Much of the South Carolina Piedmont may be within a buffer zone or hunting territory claimed by both the Cherokee to the northwest and the Catawba to the northeast, but largely uninhabited by either group. Only additional surveys in the South Carolina riverine Piedmont will provide the data necessary to assess Late Woodland occupation.

#### CONCLUSIONS

During the 15 years since Fairbanks's (1971) paper, we have accumulated a considerable quantity of information on the coastal Woodland cultures. We have excavated a variety of sites, which has allowed us to establish local sequences, accumulate a variety of radiocarbon dates, and reconstruct settlement and subsistence patterns. On the coast we are beginning to understand the broad based trends during the Woodland Period, such as the establishment of relatively permanent village life during the Thom's Creek phase, and the fragmentation of sites and the seasonal rounds of the Middle and Late Woodland.

Moving inland, however, we quickly run into an absence of data not much changed since 1970. Woodland period sites excavated in the inner coastal plain or

on the fall line number less than 10, and several of these have not been adequately published. The little work conducted suggests that the coastal sequences may be applied up to the fall line, although Ward (1983) documents the extension of the Piedmont Yadkin series into Marlboro County.

Crossing over the fall line we face a highly eroded, dissected Piedmont, composed of riverine and inter-riverine zones. Most of the work conducted in the South Carolina Piedmont has been in the inter-riverine zone and has not been directed toward Woodland Period sites. As a result, very few Woodland Period sites are recorded and almost none have been tested or excavated, either in the riverine or inter-riverine zones, in the past 15 years. Unfortunately, many of the Woodland sites excavated from North Carolina have been reported only incompletely. Work from Georgia, especially from the Richard B. Russell project on the upper Savannah River, will provide useful comparative data, but additional work at South Carolina Piedmont sites is still essential.

In retrospect, then, we have partially fulfilled Dr. Fairbanks's expectations concerning the development of local sequences and publication. We have fared less well on understanding the complex relationships between the coast and the interior, although we are beginning better to see areal relationships to the north and south. Perhaps, if we approach the riddle from the beginning, with a commitment to scientific reasoning, we will be able to present a clearer picture in 1996.

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## Chapter 5

# SEA LEVEL CHANGE, ESTUARINE DEVELOPMENT AND TEMPORAL VARIABILITY IN WOODLAND PERIOD SUBSISTENCE-SETTLEMENT PATTERNING ON THE LOWER COASTAL PLAIN OF SOUTH CAROLINA<sup>1</sup>

Mark J. Brooks, Peter A. Stone, Donald J. Colquhoun, and Janice G. Brown

### INTRODUCTION

From 1978 through the present<sup>2</sup>, a series of small cultural resource management projects, accompanied by research sponsored by the U.S. Geological Survey to document Holocene sea level changes on the South Carolina Coast, provided an opportunity to examine Woodland period subsistence-settlement variability in select estuarine and associated upland, interriverine areas. This research indicates that specific changes observed in Woodland period subsistence-settlement patterning can be linked most directly to temporal-spatial variability in the structure of the subsistence resource base. This variability is attributed largely to sea level changes as they directly affected estuarine development and, indirectly, adjacent upland areas. Therefore, at a subsistence-settlement level of analyses for estuarine areas in the Lower Coastal Plain of South Carolina, sea level change is here viewed as a critical component of a broader pattern of Middle to Late Holocene environmental change in the Southeastern United States that strongly conditioned the general Woodland period biocultural processes that have traditionally been assumed to be operative.

Within an economic-ecological theoretical framework, general Southeastern United States environmental data deemed pertinent to a subsistence-settlement level of analysis are briefly considered, with an emphasis on geoarchaeological sea level data compiled for the South Carolina Coast. Observed Woodland period subsistence-settlement data from estuarine and adjacent upland, interriverine areas are then summarized and evaluated in light of their temporal-spatial variability. Finally, some of the broader implications of this research for modelling Woodland period subsistence-settlement change in the estuarine areas of South Carolina are considered.

### CORRELATION BETWEEN SEA LEVEL AND CLIMATIC CHANGE DURING THE MIDDLE TO LATE HOLOCENE IN THE SOUTHEASTERN UNITED STATES

The principles, techniques, and problems in establishing a Holocene sea level curve for the South Carolina Coast using geological and archaeological data sets have been treated at length in Colquhoun *et al.* (1980). Our sea level rise curve for South Carolina indicates a series of minor fluctuations in sea level since 6,000 radiocarbon years before present (uncorrected), with a major rise occurring at 4800 B.P. (Figure 5.1). Maximum elevation of the high marsh surface was 3.5 m or more below its present elevation prior to 5000 B.P. and since then up to +1.5 m. The existing high marsh surface is the datum used for monitoring relative sea level changes on an estuary-by-estuary basis. Sea level changes after about 5000 B.P. are correlated with wetland-estuarine development and biotic change in climax forest communities indicating change from drier to wetter conditions (e.g., Watts 1971; Whitehead 1965, 1973).

Existing fresh water wetlands are abundant, with many covering extensive areas of the Lower Coastal Plain of the Southeastern United States. Well-known examples include the Everglades and Big Cypress Swamp in Florida, Okefenokee Swamp in Georgia, and Dismal Swamp in Virginia. Shallow lakes and Carolina Bays are also abundant.

Autochthonous deposits of peat, calcitic marsh muds in Florida, and lakes containing stratified muds record the developmental history of these wetlands. The radiocarbon dating by ourselves and others of basal aquatic sediments from wetlands and lakes indicates that prior to the Middle to Early Holocene, most of these present wetlands and many lake sites were dry. The Glacial-age eustatic lowering of sea level, the ultimate local hydrologic base level for both surface and ground waters, along with climatic differences, exerted a great influence on the freshwater hydrologic regime of the region. These were manifested by the near absence of sediment-depositing wetlands and lakes on the presently emergent Coastal Plain, south of the Carolina Bay lakes (Watts 1980).

Some indication of seasonally wetter conditions exists for the Early Holocene period (organic rich clays in the Dismal and Okefenokee Swamps, and calcitic muds in several areas of southern Florida). The presence of these sediments indicates a climatic shift because sea level was still very depressed at the beginning of sedimentation in these wetlands, in some places as early as the Pleistocene-Holocene transition (ca. 13,000-10,000 B.P.) (Stone and Gleason 1983).

The ages of basal aquatic sediments from many geological sites suggest a tremendous increase in both the number and area of peat depositing wetlands in the Lower Coastal Plain around 5000 B.P. Among the larger examples are the Everglades, where low moor (marsh or swamp) peat formation, indicating long seasonal hydroperiods, succeeded calcitic-mud formation over wide areas, and the Okefenokee Swamp where such peat deposition replaced that of peaty clays. This surpassing of the hydrologic threshold for low-moor peat formation at ca. 5000 B.P. at many locales over large areas of the Lower Coastal Plain is contemporaneous with the local rise of relative sea level to within several meters of its present position. Thus, the direct influence of sea level as a base-level control acting upon the freshwater hydrologic regime in lowland, coastal areas appears to be considerable. In the higher areas, however (e.g., Okefenokee Swamp, ca. 35 m amsl), it appears that associated climatic change is the major factor.

The pollen stratigraphy of marsh peats at Little Salt Spring, near the southwest coast of Florida, is an example of wetland change in coastal areas. A pronounced increase in pine pollen relative to oak and a peak abundance of water lily pollen, indicating a deeper marsh vegetation than earlier, appear to correlate with a date of approximately 5000 B.P. (Brown 1981).

Studies by others (e.g., Watts 1971) for non-wetland upland areas in the region have shown that pine pollen rose sharply in abundance (and oak declined) at ca. 5000 B.P. and that pine became the regionally dominant tree, continuing to the present. Other mesic trees and hydric swamp taxa also rose to significance at this time or somewhat later (to ca. 2500 B.P.) and established the modern vegetational environment and associated ecosystem. A shift to wetter environmental conditions is indicated by pollen evidence from various locales throughout the region (Stone and Brown 1983).

It is concluded, therefore, from the combined data presented above, that sea level and regional climatic

change are interrelated, even as late as the Middle Holocene, in areas distant from boreal regions. It is further suggested that much of the observed variability in Woodland period subsistence-settlement patterns on the South Carolina coast can be linked to sea level-environmental changes that began at about 5000 B.P.

#### WOODLAND PERIOD SUBSISTENCE-SETTLEMENT CHANGE IN ESTUARINE AREAS ON THE SOUTH CAROLINA COAST

Archaeological data systematically collected from estuarine and associated upland, interriverine areas along the Lower Coastal Plain of South Carolina are in general agreement with the sea level geological, wetland stratigraphical, and pollen spectral data. These data indicate, in contrast with the Early Holocene, comparative sea level/environmental stability since about 5000 B.P. (Colquhoun *et al.* 1981); comparative stability meaning much slower and lower magnitude changes or long-term shifts compared to Early Holocene times, not static conditions. Specific manifestations of this relative sea level and climatic stability are the existence today of barrier islands, estuaries, river floodplains, and interior coastal swamps that were initiated and developed over the last 5,000-6,000 years. It is suggested that the tremendous increase in the number, size, and diversity of archaeological sites observed during this period is, in part, causally related to comparative sea level stability and estuarine development.

#### *Estuarine Archaeological Data*

Sea level was about 9 m lower than present at 10,000 B.P. and presumably lower still at 12,000 B.P. It rose rapidly and by 4200 B.P. or slightly earlier, was within 3-4 meters of present sea level position (Colquhoun *et al.* 1981). Known archaeological sites within this broad temporal range (12,000-4200 B.P.) located within existing estuarine areas represent non-shell riverine or interriverine sites established prior to estuarine development. Those relatively few known remaining sites of this period that are within estuarine areas and that have not been destroyed and/or drowned by sea level rise are located in the more erosion-resistant areas, usually at a considerable distance up river valleys (Figure 5.2, after Michie 1980).

From 4200-800 B.P. there was a more gradual rise of sea level in a series of 1-2 m fluctuations at 400-600 year intervals (Colquhoun *et al.* 1981; Figure 5.1). There are some tentative archaeological data (Colquhoun and Brooks, unpublished data) suggesting that sea level may actually have been slightly higher

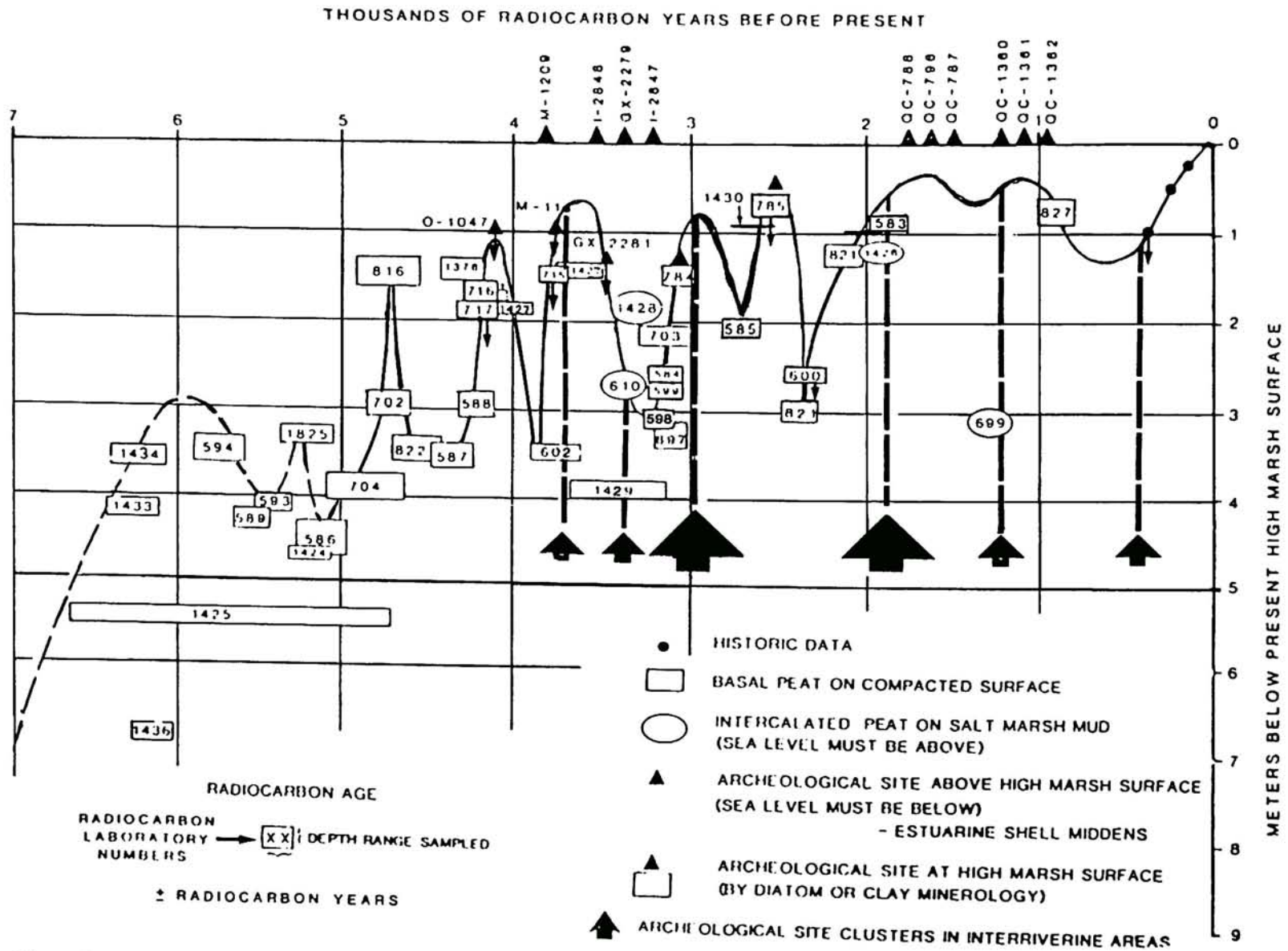


Figure 5.1: Sea level change curve for South Carolina.

### 5. Sea Level Change, Estuarine Development and Temporal Variability in Woodland Period

than present during certain intervals (i.e., 1750 B.P.).

There is firm archaeological evidence for the initial development of existing estuarine systems by at least 4200 B.P. The earliest known marine shell midden deposits on the South Carolina Coast date to this time (Williams 1968; Sutherland 1974). Large shell middens dating between ca. 4200 and 3000 B.P. (Stalling's and Thom's Creek phases—e.g., Calmes 1967; Hemmings 1970; Combs 1975; Michie 1973, 1974, 1976, 1979; Trinkley 1976, 1980) are generally located in the seaward areas of estuaries, usually adjacent to major channels (e.g., Figure 5.2). Many of these deposits have been heavily eroded by subsequent sea level rise, and it is possible that some of those established during a 3800 B.P. regressive interval may have been completely submerged and/or buried under more recent deposits. Within salt marsh areas the bases of these middens are as much as 0.80-1.20 m below the existing high marsh surface (Colquhoun *et al.* 1981; Colquhoun and Brooks, unpublished data). The contents of many of these sites represent a broad range of estuarine and terrestrial subsistence resources which, in conjunction with considerable artifact assemblage diversity, may indicate rather intensive multiseasonal habitation (e.g., Calmes 1967; Hemmings 1970; Combs 1975; Michie 1973, 1974, 1976, 1979; Sutherland 1974; Trinkley

1976, 1980).

Between ca. 3000 and 800 B.P. there was a general trend for shell middens to occur further inland and to be more widespread, laterally, within the estuaries, correlating with sea level rise and associated estuarine expansion (Figure 5.2). However, based on work on the North Georgia Coast (DePratter 1977; DePratter and Howard 1977, 1981), it may be that many sites established on the South Carolina Coast during regressive sea level intervals in the 3100-2100 B.P. range are actually submerged or buried seaward of the present shoreline, if not destroyed by subsequent sea level rise. By about 2000 B.P. shell midden sites tend to become noticeably smaller, more numerous, and more dispersed. Shell middens in the 2000-800 B.P. range are usually located adjacent to existing small tidal creeks (their bases are above or just slightly below the present high marsh surface) and/or on relatively higher ground along existing estuarine and island margins (e.g., Scurry and Brooks 1980; Michie 1980; Colquhoun *et al.* 1981; Colquhoun and Brooks, unpublished data). These settlement data suggest that estuarine systems on the South Carolina Coast have changed relatively little, either areally or in general configuration, in response to sea level over the last 2,000 years. This conclusion is further supported by the inter-tidal oyster often being

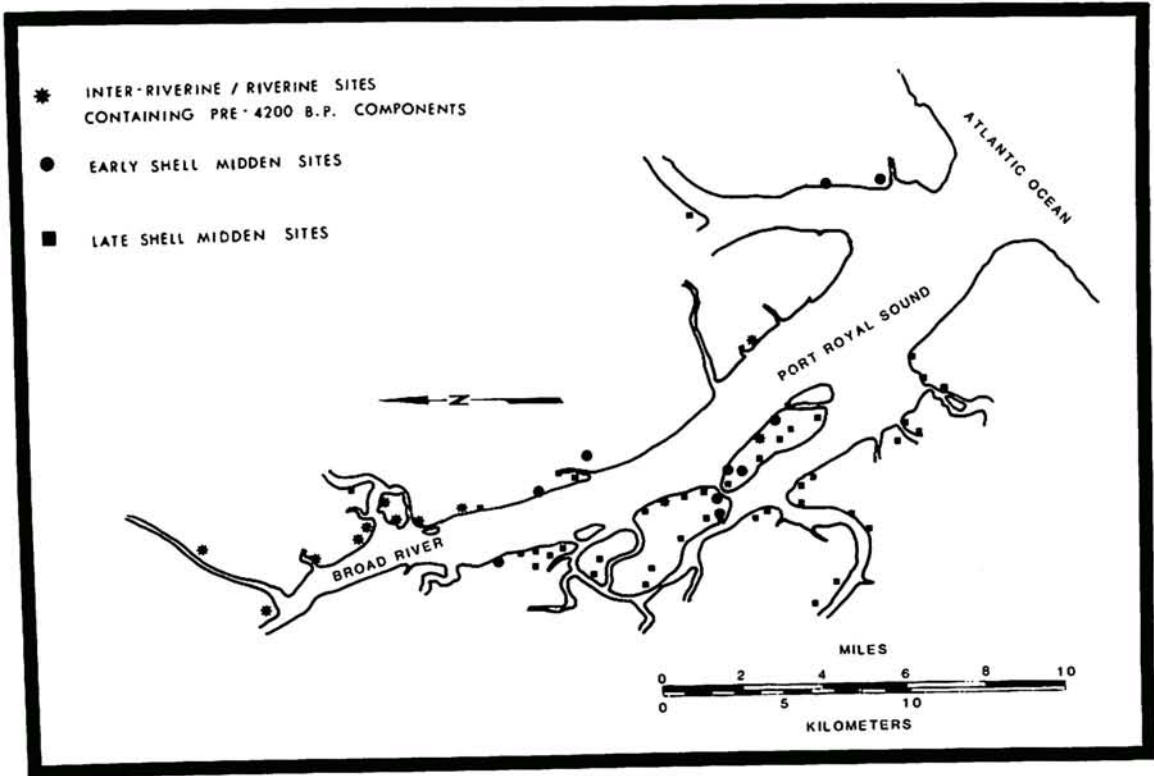


Figure 5.2. Location of archaeological sites in the Broad River estuary, after Michie 1980.

the primary molluscan species represented both in these shell middens and in the existing, associated tidal creeks. As indicated by careful screening and flotation, at least some of these small, nearly pure oyster shell middens contain little else, including artifacts (e.g., Scurry and Brooks 1980), possibly suggesting that each such oyster shell midden represents a one-time oyster shucking station. While it has not been quantified, it has been observed by the authors (MJB and DJC) that these small oyster shell middens and the small inter-tidal oyster beds that exist today in the tidal creeks appear to be within the same volumetric range of variability. If this is so, it may be that entire oyster beds were being "mined" in an "intensive harvest" manner with no regard to resource conservation or overexploitation. The other molluscan species minimally represented in these small oyster shell middens are usually those that are naturally occurring in the oyster beds.

Though apparently less frequent than the oyster shell middens, small, nearly pure clam shell (*Merccenaria mercenaria*) middens are also present, primarily along the north coast of South Carolina (Colquhoun and Brooks, unpublished data). These sites also tend to contain a low density and diversity of artifactual and subsistence remains and to date to the 2000 to 800 B.P. interval. An exploitive pattern generally similar to the small oyster shell middens is indicated. However, based on site contents, radiocarbon dates, and stratigraphic correlations with associated estuarine marsh sediments, these clam shell middens tend to correlate with transgressive sea level intervals and to have been established in areas of sand/mud tidal flat formation as opposed to the more inland and laterally expanding areas of estuaries with associated tidal creek development (Colquhoun and Brooks, unpublished data).

While there are site-specific exceptions, this general pattern of shell midden locational and subsistence resource variability observed in the major estuaries of South Carolina (e.g., Brooks and Scurry 1978; Scurry and Brooks 1980; Michie 1980; Colquhoun *et al.* 1981; Colquhoun and Brooks, unpublished data) implies a generally rising sea level, necessitating movement up and laterally within the estuaries through time due, in part, to a reduction in the availability of certain aquatic resources near the estuary mouths. It is apparent that a generally rising sea level, and corresponding estuarine expansion, caused an increased dispersion of some resources (e.g., small inter-tidal oyster beds in the expanding tidal creek network—this can be related to a shifting inland of the inter-tidal zone with associated

increases in salinity; see Bahr and Lanier 1981). This hypothesized change in the structure of the subsistence resource base may partially explain why these sites tend to become correspondingly smaller, more numerous, and more dispersed through time (Jochim 1976; Earle and Christenson 1980). It should be stressed, however, that at least some Middle-Late Woodland period sites in estuarine areas do apparently represent seasonal or multiseasonal utilization (e.g., Trinkley 1981; Drucker and Jackson 1984).

#### *Upland, Interriverine Archaeological Data*

Upland interriverine sites probably represent primarily the exploitation of acorns, hickory nuts, and deer. These non-shell sites tend to occur on well- to moderately well-drained soils (Brooks and Scurry 1978; Brooks *et al.* 1979) which produce the highest densities of oak and hickory trees (Quarterman and Keever 1962). Nuts and deer may be efficiently procured in the fall when the nuts ripen and the deer aggregate to feed on them (Smith 1975).

The sites are numerous, typically small, widely dispersed, and contain monotonously similar artifact categories of low density and diversity, further suggesting that the sites represent short-term, seasonal utilization involving a narrow range of procurement activities. More specific archaeological, ecological, and ethnohistoric supportive data for the inferred function(s) of these sites may be found in Brooks and Scurry (1978), Brooks *et al.* (1979), Brooks (1980), Brooks and Canouts (1981, 1984), and Anderson, Cantley and Novick (1982).

Archaeological survey data from upland interriverine locales adjacent to estuaries indicate a pattern similar to that of the estuarine areas in terms of relative frequency of sites before and after 4200 B.P. Sites after 4200 B.P. consistently account for 75% to, in some instances, 100% of the components discovered, most of which date to after 2,000 B.P. (e.g., Brooks and Scurry 1978; Scurry and Brooks 1980; Anderson, Cantley, and Novick 1982; Colquhoun and Brooks, unpublished data). Data and arguments have been presented elsewhere relating the relative site frequency and locational variability of these sites through time to, in part, hydrologic changes indirectly related to sea level changes accompanying estuarine development and expansion (Brooks *et al.* 1979; Brooks 1980; Colquhoun *et al.* 1980; Colquhoun *et al.* 1981; Brooks and Canouts 1980, 1981, 1984).

Briefly, it has been observed (Brooks and Scurry

1978; Brooks *et al.* 1979; Brooks 1980; Brooks and Canouts 1981, 1984; Colquhoun and Brooks, unpublished data) that these sites tend to cluster in time during relatively higher, as compared with lower, sea level stands (i.e., transgressive vs. regressive intervals—see Figure 5-1). It has been argued that during higher sea level stands, the generally wetter conditions that prevailed resulted in a reduction in the amounts of well- to moderately well-drained soils and their associated mesic-adapted floral and faunal communities (i.e., nuts and deer; see Brooks and Scurry 1978; Brooks *et al.* 1979; Brooks 1980). These relatively fewer, smaller, more dispersed, mesic locales were more intensively utilized, resulting in the greater archaeological visibility and increased site dispersion observed. Thus, as with the estuarine areas, the trend in upland inter-riverine locales in the Lower Coastal Plain toward smaller, more numerous, and more dispersed sites is attributed largely to hydrologic changes that resulted in increased dispersion of locales containing high-density, relatively lower-cost subsistence resources.

#### CONCLUSIONS

It is suggested that the general change observed in Woodland period subsistence-settlement in estuarine and associated upland, inter-riverine areas in the Lower Coastal Plain of South Carolina represent least-cost solutions to the dynamic, interactive effects of certain environmental and biocultural variables. Initially, the leveling-off of sea level (slowing of sea level rise) just prior to 4200 B.P. is seen as resulting in estuarine development and the relatively stable conditions necessary for the establishment of fish and shellfish communities in sufficient densities for efficient procurement by Late Archaic-Early Woodland populations. During the subsequent Middle and Late Woodland periods, the observed changes in subsistence-settlement patterning are related to changes in the structure of the subsistence resource base (e.g., Jochim 1976; Rapport and Turner 1977) due to estuarine expansion and generally wetter conditions associated with a gradually rising sea level in a series of 1-2 m fluctuations.

Concomitantly, an assumed general trend in human population growth (e.g., Boserup 1965; Cohen 1977; Earle 1980; Christensen 1980), accompanied by a reduction in land mass associated with sea level rise and most probably by a reduction in the size of individual band territories, likely produced a "packing effect" on human populations, necessitating more labor-intensive economies (e.g., Binford 1968; Birdsell 1968; Earle 1980; Christensen 1980). While it is recognized that the general trend toward smaller, more numerous,

and more dispersed, limited activity sites could be attributed to purely biocultural processes, only sea level change and generally wetter conditions account adequately for the timing of the *specific* subsistence-settlement patterns and changes observed for the Middle-Late Woodland period in the Lower Coastal Plain.

Thus, the observed Middle-Late Woodland period subsistence-settlement patterning is seen as representing a least-cost solution to increasingly labor-intensive economies necessitated by biocultural and environmental factors. The solution seems to have involved the seasonal or multiseasonal dispersion of human populations into small economic units as a means of most efficiently exploiting a relatively narrow range of highly productive, low-risk seasonal resources occurring in widely dispersed locales.

While a relatively narrow range of resources were emphasized, the "optimal mix" (Schneider 1974) apparently included a wide variety of resources commensurate with diffuse or broad-spectrum subsistence economies (Flannery 1965; Cleland 1976; Earle and Christenson 1980). It has been argued by others that in order to meet increasing production needs, resources are seldom deleted from the mix; rather, production is expanded through intensifying existing strategies, followed by the addition of other (new) strategies (Earle 1980; Christenson 1980). The Middle-Late Woodland pattern observed was one of more intensively utilizing existing high-yield resources. It is suggested, however, that the increasing social and economic costs of expanding the production of high-yield resources occurring in dispersed locales led to a more focal Mississippian subsistence economy, as indicated by multiseasonal or year-round habitation in interior Lower Coastal Plain areas associated with those river valleys containing broad floodplains and river swamps (e.g., Anderson 1975; Brooks and Scurry 1978; Brooks 1980; Ferguson 1971; Ferguson and Green 1984). While the available data indicate the addition of cultigens (e.g., maize) by the Mississippian period, and possibly earlier, in order to expand production, highly productive swamp-terrace edge resources were apparently emphasized. Data and arguments have been presented elsewhere relating river swamp and floodplain development, and a corresponding increase in productivity of certain high-yield subsistence resources, to "ponding" also associated with sea level and hydrologic changes (e.g., Brooks and Canouts 1980, 1981, 1984).

Finally, through a refinement of our understanding of sea level and hydrologic change on the South Caro-



lina Coast, it is now possible with some degree of accuracy to predict the locations, contents (subsistence and artifactual), and dates of archaeological sites. Conversely, these archaeological data and others have been useful in refining our sea level curve. That an understanding of sea level-hydrologic variability has been demonstrated to have value as a predictor of subsistence-settlement patterning is testimony to the important impact of this environmental variable on the temporal-spatial structure of the subsistence resource base on the Lower Coastal Plain of South Carolina and, almost certainly, coastal areas worldwide.

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#### ENDNOTES

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2. The present is November, 1983. The interested reader is referred to Colquhoun and Brooks (1986) and Brooks *et al.* (1986) for more recent syntheses of our geoarchaeological research on the South Carolina Coast.

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*S. Sea Level Change, Estuarine Development and Temporal Variability in Woodland Period*

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## Chapter 6

### THE MISSISSIPPIAN IN SOUTH CAROLINA<sup>1</sup>

David G. Anderson

#### INTRODUCTION

In this paper archaeological and ethnohistorical data on the final millennium of the Indian occupation of South Carolina are briefly summarized. As we have seen from the preceding papers, human occupation of the state dates back at least 11,500 years and encompasses a range of increasingly complex adaptations. It is only in the last few hundred years of this span, however, that conclusive evidence appears for the emergence of (more or less) sedentary village life, agricultural food production, and regionally integrated and hierarchically organized social, political, and ceremonial systems. The seven and a half centuries prior to European contact (from ca. A.D. 800 - A.D. 1520), saw the emergence of complex chiefdoms in the area, while the ensuing two and a half centuries saw their rapid decline. By the end of the 18th century the effective extinction of South Carolina's native population had occurred, with only remnants of the Catawba and other groups left, existing largely by sufferance, in the Piedmont.

Unlike many other areas in the eastern United States, the late prehistoric and protohistoric native inhabitants of South Carolina had, until very recently, remained almost completely unexamined. Prior to the late 1960s only a handful of archaeological or ethnohistoric archaeological studies had been conducted in the state. This situation has improved dramatically in recent years, largely due to the development of long-range research programs within the state (notably at the South Carolina Institute of Archaeology and Anthropology, and within the Department of Anthropology at the University of South Carolina, Columbia), and to the rise of federally mandated cultural resource management (CRM) work. Several major studies have appeared, and a great deal of research has been initiated, although much of the more recent activity remains unpublished. A number of basic observations about the nature of local Mississippian occupations have been recognized as a result of this activity, including: (1) increasing evidence that what are regionally accepted as "Mississippian" adaptations did not appear until fairly late in this portion of the southeast, possibly not until after A.D. 1100 - 1200; (2) recognition of close

similarities in many of the Mississippian assemblages found from eastern Georgia to southeastern North Carolina, and the use of this fact to develop temporally sensitive chronologies with phase resolution in many areas on the order of 100- to 150- year intervals; (3) evidence that site locations throughout the region were constrained by a range of specific ecological and organizational (i.e., political) factors; and (4) the identification and examination of both native and European sites dating to the early contact era, permitting increasingly refined chronological control, and the direct use of ethnohistoric accounts in the examination and reconstruction of native lifeways. In this paper Mississippian investigations in South Carolina are reviewed and directions for future research are suggested.

#### THE RECORD OF INVESTIGATIONS

Archaeological research in South Carolina has a lengthy, if somewhat sparse, history dating back to the early 18th century. Dr. Robert L. Stephenson (1975), South Carolina's state archaeologist from 1967 to 1984, prepared a detailed summary of this work through 1975, providing an invaluable guide to an otherwise obscure body of literature. Stephenson's synthesis encompasses both published and unpublished information on the archaeology of South Carolina and is thus a useful general reference. For the study of the late prehistoric and protohistoric Indian occupation of the South Carolina area, a primary reference continues to be Leland G. Ferguson's doctoral synthesis on the South Appalachian Mississippian, which was completed in 1971. In his review of the South Carolina Mississippian literature, however, Ferguson noted:

*There is little to say concerning the archaeological record of the central region of South Carolina for the simple reason that a published archaeological record simply does not exist (1971:125).*

That is, while there were prior to 1970 a number of references in the literature to what were almost certainly late prehistoric sites, this information had never been synthesized or even tied in to frameworks developed in adjoining states. Over the next few pages an

attempt will be made to review the record of archaeological research into the Mississippian in the South Carolina area, both before 1971 and after, to supplement and update the syntheses provided by Stephenson and Ferguson.

#### 19TH CENTURY INVESTIGATIONS AT MISSISSIPPIAN SITES IN SOUTH CAROLINA

The earliest description of an archaeological site in South Carolina is by William Bartram (1791/1928 edition:258-259), who visited and described the (then abandoned) Silver Bluff mound group on the upper Savannah River near Aiken in the mid 1770s (Figure 6.1). Bartram's descriptions, and those of C.C. Jones (1873:152-154) almost 100 years later, are of particular interest since this mound group which apparently no longer exists (e.g., Scurry *et al.* 1980), was thought by Swanton (1939:180-183; 1946:45) to be the location of Cofitachequi, a major political center visited by DeSoto in May 1540. This center has been recently shown to be near Camden, South Carolina, on the upper Wateree (e.g., see Baker 1974, DePratter *et al.* 1983; Hudson *et al.* 1984, 1985, 1987; Anderson *et al.* 1986 for detailed commentary on this question).

The first detailed descriptions of late prehistoric archaeological remains from the South Carolina area appeared in 1848, in Squier and Davis's classic report "Ancient Monuments in the Mississippi Valley" (1848:104-108). In a paper entitled "Remains on the Wateree River, Kershaw District, South Carolina," Dr. William Blanding provided descriptions, approximate measurements, and sketch maps of Indian mounds, earthworks, and other features in and near Camden, South Carolina. His descriptions are invaluable since many of these sites, which he noted were rapidly disappearing even in his day, are now gone. One of the sites Blanding described was the Mulberry Mound Group, which has since become the most extensively examined late prehistoric site in the state, with the possible exception of the ceremonial center at Charles Towne Landing. Since its initial description, Mulberry has been the subject of excavations in 1891, 1952, 1973, and as the object of the University of South Carolina's Department of Anthropology field school, from 1979 to 1982 and again in 1985 (e.g., Thomas 1894; Ferguson 1974; Merry 1982; Sassaman 1981, 1984; Grimes 1986).

Following Blanding, brief reports on artifacts and sites now known to date to the late prehistoric era appeared sporadically throughout the remainder of the 18th century, including additional descriptions of

materials from Camden and other localities (e.g., Schoolcraft 1851-1857, Jones 1873). In 1891, Thomas's (1891) "Catalog of the Prehistoric Works East of the Rocky Mountains" listed 36 mound sites in the state. In spite of this record, only three seasons of what can be considered scientific excavation were conducted in South Carolina during the entire 19th century, a level of effort virtually unique in the eastern United States.

To place this statement in perspective, it must be remembered that from 1881 to 1891 the Mound Division of the Bureau of Ethnology explored over 2000 mounds in the eastern United States (Powell 1894: xlv). Of this figure, only three mounds were examined in South Carolina. In 1884, Dr. Edward Palmer (n.d.) conducted trenching operations at the McCollum Mound in Chester County, a site later re-examined by Ryan (1971a:96-97; 1971b:104-107), while in 1891 Henry L. Reynolds conducted excavations at the two primary mounds at the Mulberry site. Reynolds, whose work at the Hollywood Mound near Augusta, Georgia, was of unrivaled competence for the period (e.g., Waring 1968a:293), unfortunately became ill and died while in the field. Notes and artifacts from both of these excavations are present at the Smithsonian, however, and an abstract of Reynolds's Mulberry work appeared in 1894, in the 12th Annual Report of the Bureau of Ethnology (Thomas 1894:326-327).

The only other formal excavations conducted in South Carolina during the 19th century were by C.B. Moore, who tested a number of sites along the coast and up the Savannah River in 1897-1898. Moore was not enthusiastic about the area's archaeological potential, although he did examine a few late prehistoric sites before leaving. The results of this work were published, extensively illustrated, in the *Journal of the Philadelphia Academy of Natural Sciences* (Moore 1898a, 1898b). Although these reports were brief, they set a high standard for the period. They are valuable references today since many of these sites no longer exist, and since it is possible to estimate the approximate ages of some of the sites from the materials illustrated. Along the Savannah, Moore confined his attention almost exclusively to the Georgia side of the river, although he did open a 45x4x5 foot trench at the Lawton Mounds in Allendale County, South Carolina. Moore had little luck at Lawton and at the other Savannah River sites he examined, however, something that prompted him to note:

*The few mounds found back from the river were small ... therefore, we did not pursue*



Figure 6.1: Mississippian sites in the South Carolina area.

*usual custom, totally to demolish each mound discovered, as we had done, as a rule, in Florida and on the Georgia coast (Moore 1898b:167).*

Given this excavation strategy, it is probably fortunate for South Carolina archaeology that Moore's investigations were (by his standards) unsuccessful, and that he missed most of the major mound groups now known to be in the state.

#### RESEARCH IN THE EARLY TWENTIETH CENTURY

After Moore's departure, no major excavations were conducted at late prehistoric sites in South Carolina for over 50 years. The investigations of Moore and Reynolds, however, coupled with those of other investigators, enabled William Henry Holmes (1903) to appraise the ceramics from South Carolina with those recovered from elsewhere in the region. Throughout the 1880s and 1890s Holmes had examined the artifacts recovered from the excavations of the Mound Division. In 1903 his monumental synthesis "Aboriginal Pottery of the Eastern United States" appeared as the 20th Annual Report of the Bureau of American Ethnology. Holmes's major contribution to the archaeology of South Carolina was his recognition that the ceramics of the state and nearby contiguous areas were characterized by a distinctive, stamped exterior finish:

*A culture of somewhat greater marked characteristics comprises the states of Georgia, South Carolina, and contiguous portions of Alabama, Florida, North Carolina, and Tennessee. ... the ceramic phenomena of this province include one great group of products to which has been given the name South Appalachian stamped ware. ... this stamped pottery is obtained from mounds, graves of several classes, village sites, and shell heaps. ... the remarkable style of decoration, more than other features, characterizes this pottery. Elaborately figured stamps were rarely used elsewhere ... (Holmes 1903:130-133).*

Holmes's recognition of a South Appalachian province characterized by a distinctive ceramic tradition stands to this day as a major step in the synthesis and understanding of the later prehistory of the region. His concept has been widely adopted, notably by Griffin (1967) and Ferguson (1971), as a means by which local late prehistoric adaptations can be differentiated from those occurring in other parts of the southeastern and

eastern United States.

Although a basis for synthesis had been advanced early in the century, little beyond idiosyncratic testing and description occurred in the state for a number of years. In 1917 local citizens opened a shaft into the top of the Lindsey Mound near Greenville, documenting superimposed occupation floors or construction episodes (Bragg 1918). The site has since been tentatively identified as Pisgah (Dickens 1976:92), although its precise age and extent remain unknown. Minor test excavations were conducted at a number of coastal sites in the 1920s and 30s, producing what are now known to be late prehistoric materials (e.g., Gregorie 1925, Bragg 1925, Lunz 1933, Flannery 1943), although little was known about their age and context at the time. Some of these tests, most notably those at the protohistoric Wachesaw Landing site (where a number of burials and associated artifacts were excavated by Charleston Museum personnel in 1930) and at the Awendaw or Andersonville Mound, have prompted additional investigation and reporting in recent years (e.g., Trinkley 1980; Trinkley and Hogue 1979; Trinkley *et al.* 1983; Anderson and Claggett 1979:60-63; Michie 1984).

Early in the century the Wateree Reservoir was constructed north of Camden, flooding some of the sites previously described by Blanding. The only record of archaeological investigation was the description of a complicated stamped vessel and a few associated artifacts by G.H. Pepper (1924). Unfortunately, Lake Wateree was only one of a number of major reservoirs that were constructed in South Carolina during the first half of the 20th century, and none of these projects, creating Lakes Marion, Moultrie, and Murray, among others, saw prior archaeological investigation.

#### THE ESTABLISHMENT OF CULTURAL SEQUENCES IN AREAS ADJACENT TO SOUTH CAROLINA

During the late 1930s and early 1940s extensive archaeological investigations were conducted in the states of North Carolina and Georgia, mostly as a part of federally funded Works Progress Administration relief activity. This work has had a profound and continuing effect on our understanding of the late prehistoric sequence and occupation of South Carolina. Cultural sequences were established in three areas – in northwest Georgia, at the mouth of the Savannah, and in central North Carolina – that to this day guide the dating and interpretation of prehistoric archaeological sites in these states. The lower Savannah River se-



quence (e.g., Caldwell and Waring 1939a, 1939b; Waring 1968b; DePratter 1979) was based on a series of large excavations and has been appraised by Williams (1968:101) as "one of the finest local sequences based on stratigraphic evidence that exists in Southeastern archaeology." For the later prehistoric/ protohistoric era, the mouth-of-the-Savannah sequence, in its present form (DePratter 1979), provides chronological control on the order of 150-200 year intervals for the period from roughly A.D. 800 to A.D. 1700. The Wilmington - St. Catherine's - Savannah - Irene - Altamaha ceramic and cultural succession developed from this work has been used, with varying degrees of success, throughout the Coastal Plain and into the Piedmont of South Carolina and adjacent areas of Georgia. Local variants of this sequence have since been developed elsewhere in the Savannah drainage, accommodating assemblages in the inner coastal plain (Anderson 1988a) and in the central piedmont (Rudolph and Hally 1985; Anderson and Schuldenrein 1985; Anderson *et al.* 1986).

Extensive archaeological survey and testing activity also occurred in northern Georgia during the WPA era, as summarized by Wauchope (1966), work that produced the classic northwest Georgia Etowah - Savannah/Wilbanks - Lamar Mississippian ceramic and cultural sequence (Wauchope 1948, 1950; Fairbanks 1950). The northwest Georgia sequence, as modified through the years (e.g., Caldwell 1950, n.d.; Sears 1958; Wauchope 1966; Hally and Rudolph 1986) with the inclusion of series such as Cartersville, Swift-Creek, Napier, and Woodstock, continues to be the basic reference for dating later Woodland and Mississippian assemblages in both the Georgia and South Carolina Piedmont.

The third major extralocal sequence used to date late prehistoric sites and assemblages in the South Carolina area comes from south-central North Carolina. Under the direction of Joffre Coe and his colleagues at the Research Laboratories of Anthropology at the University of North Carolina, Chapel Hill, archaeological investigations have been conducted across North Carolina since the mid-1930s (e.g., Coe 1952, 1964, 1983). In particular, excavations have been carried out since 1937 at the Town Creek site, located on a tributary of the Pee Dee River. The mound and associated stockaded village area (an enclosure encompassing approximately two hectares) have been almost completely excavated. The site assemblage was used to define the Pee Dee focus by Coe (1952:308-309) in 1952, and the associated ceramics, formally

described by Reid in 1967 as the Pee Dee series, have since been recognized at sites across South Carolina (e.g., Reid 1965, 1967; Ferguson 1971; Anderson 1975a, 1982). Pee Dee series material, which has been dated to the 13th - 14th centuries (Dickens 1976:198), thus provides a temporal benchmark for local early Mississippian remains where it is found. Considerable refinement of this Mississippian sequence, including within materials classified as Pee Dee, has occurred in recent years (DePratter and Judge 1986; DePratter, this volume).

Post-WPA work in the Appalachian Summit area of western North Carolina, conducted primarily in the 1960s and early 1970s, produced yet another extralocal sequence that has been used with fair effect in South Carolina, particularly in the Piedmont and Blue Ridge areas of the state (e.g., Egloff 1967; Dickens 1970, 1976; Keel 1972, 1976; Moore 1981; Purrington 1983). Although the later Woodland period remains poorly understood, the general outline for the later prehistoric and protohistoric portions of the Appalachian Summit sequence, encompassing the Connestee, Pisgah, and Qualla phases, accommodates at least some of the materials found on sites in northern and northwestern South Carolina.

#### MISSISSIPPIAN RESEARCH IN SOUTH CAROLINA: 1940 - 1967

The years just before and just after the middle of the 20th century saw a moderate amount of archaeological research in South Carolina, at least compared to what went on before. In 1945 James B. Griffin published a description of some ceramics recovered in surface collections from the Cut-Off Island site near Camden. In that paper he noted a general similarity between the complicated stamped sherds in the collection and those in the Irene and Lamar complexes in Georgia. Somewhat presciently, he also suggested that a simple stamped, cord marked, and check stamped complex might be present in the area, succeeding the early Woodland Thom's Creek and Deptford types, yet prior to the appearance of the complicated stamped Mississippian wares (Griffin 1945:474-475). It was not until 1975, however, that formal type descriptions were offered for such a ceramic complex, Stuart's (1975:85) Camden Series of Incised, Check, and Simple Stamped pottery (Figure 6.2). Confirmation of the temporal placement of these wares as immediately pre-Mississippian did not come until even later, in 1982, when a related simple stamped ware was dated to between ca. A.D. 800 and 1350 at the Mattassee Lake sites on the lower Santee (Anderson 1982:302-308).



Figure 6.2: Late Woodland and Mississippian design motifs from the South Carolina area: a, concentric circles; b, snowshoe; c, cross incised; d, simple stamped; e ladder; f, check stamped; g, nested diamond with three line horizontal and vertical bisectors; h, zig-zag multiline strands with parallel filler; i, herring bone; j, nested diamond with two bisecting lines; k- l, fine incised; m, nested frets/rectangles; n-q bold incised: a, e, Pisgah series; b, Swift Creek series; c, Camden series; d, Santee series; f, Qualla series; g, j Etowah series; h, Napier series; i, Lamar series; k, unknown affiliation; l, Ocmulgee Fields series; n-q, late Irene/Lamar series.

a,e,k 38MC497-1; b 38OC7-7; c 38GE46-1-178; d 38BK226-91D-5; f 38PI22-623; g 38CR41-1-DM-115; h 9PM201; i 38CR11-DM-1-87; j 38CR41-1-DM-99; l 9MG28; m 3800-DM-1-334; n 38OC47-14; o 9EB94; p 9GE5; q 38CR11-DM-1-607.

The first detailed report on a post-contact, protohistoric period Indian site in South Carolina appeared in 1948, when Caldwell described a number of artifacts found in association with burials at the early Creek town of Palachacolas, located on the Savannah River in Hampton County. The site, which had been abandoned during the Yamassee War of 1715, produced glass trade beads, kaolin pipe fragments, European ceramics, and other historic artifacts. These were intermingled with Indian shell beads and Ocmulgee and Kasita-like pottery that Caldwell (1948; 1952:321) equated with late protohistoric assemblages in central Georgia.

The year 1952 saw the publication of the Faye-Cooper Cole festschrift, *Archaeology of Eastern United States*, edited by James B. Griffin. This volume included articles on the archaeology of Georgia (Fairbanks 1952), North Carolina (Coe 1952), and eastern Georgia and South Carolina (Caldwell 1952), that provided the first widely available syntheses of the archaeological remains in these areas since the work of Thomas and Holmes 50 years before. Reviews of fieldwork and findings, and ideas on the cultural sequences in each area were presented, including detailed descriptions of the later prehistoric Mississippian period remains that had been found up to that time. While considerable refinement of chronological detail has occurred since the publication of these articles (which were written in the earliest days of radiocarbon dating), the basic sequences that were presented have remained largely unchanged. For some of the referenced sites, parenthetically, these articles remain virtually the only record of publication, description, or evaluation. Caldwell's (1952) article, which focused on South Carolina, contained a number of perceptive observations on the later prehistoric occupations, including that: the late Woodland Wilmington "manifestation" seemed restricted to the coast; the later mouth-of-the-Savannah sequence wares were found well into South Carolina; the Wateree River Valley near Camden had perhaps the highest density of Mississippian sites in the state; and Siouan/Muskogean interaction had occurred widely over the area (Caldwell 1952:317-320). When read in conjunction with other 1930s and 1940s papers by Caldwell and his colleagues (e.g., Caldwell and Waring 1939a, 1939b; Caldwell and McCann 1941; Williams 1968), this article emerges as the primary reference for mid-20th century thoughts on the late prehistoric human occupation of the South Carolina area.

In the summer of 1952 A. R. Kelly and Joseph R. Caldwell of the University of Georgia, and George

Stuart, a native of Camden, South Carolina, conducted intensive excavations at the Mulberry Mound site (38KE12) on the upper Wateree River (summarized in Ferguson, ed. 1974). At the major mound (Mound A), which was eroding into the river, a 150 foot long profile was exposed and cleaned, encompassing the width of the mound, from the summit to approximately 3 feet below the base. Four construction stages were recognized, and pottery from pre-mound midden deposits was found that was identical to Pee Dee series material recovered from the Town Creek site (Reid 1967), suggesting a probable date for initial mound construction some time in the 13th or 14th century. Recent support for such an inference has been obtained by Ferguson (1983:6), who obtained a date of A.D. 1520  $\pm$ 100 from charcoal in the pre-mound deposits. Although the mid-point for this date is probably about 200 years too recent, it does tend to support a fairly late starting date for the mound, probably sometime after ca. A.D. 1200-1300.

A 2,500 square foot block unit was also opened at Mulberry in 1952 into what were interpreted as village deposits to the southeast of the mound, in an area immediately adjacent to the river. Fifteen distinct burials were removed from this area; unfortunately no architectural features were found. Brief descriptions of the 1952 fieldwork were published in 1974 (Caldwell 1974a; Kelly 1974; Stuart 1974) in a synthetic report on the site prepared by Leland G. Ferguson (1974). George Stuart, who was a high school crew member during the 1952 excavations, later did his MA and Ph.D. work on upper Wateree River Valley site collections. Stuart (1970, 1975) has argued that the Mulberry occupation can be divided into earlier and later phases (McDowell I and II), roughly corresponding to the late prehistoric and protohistoric periods. The earlier ceramic assemblage resembled Pee Dee, while the later assemblage was characterized by bold incising like that seen on Lamar materials from central Georgia. Stuart (1975) also recognized the presence of a pre-Mississippian simple stamped and incised series in the locality, which he classified as the Camden series.

In 1948, the area of the Clarks Hill (now Strom Thurmond) Reservoir above Augusta on the Savannah River was surveyed by Caldwell and Miller (Miller 1974). During the fieldwork a series of test pits were excavated at the Rembert Mound Group (9EB1) on the west side of the river in Georgia (Caldwell 1953). The ceramic collections from this testing were used by Hally (Rudolph and Hally 1985:456-459; Anderson *et al.* 1986:41-42) to help define the Rembert Phase, a late

prehistoric (ca. A.D. 1350-1450) Mississippian occupation along the upper Savannah and immediately adjacent portions of South Carolina and Georgia. Further to the north, the area of the Hartwell Reservoir was surveyed by Caldwell in 1953 (Caldwell 1974b), and three mound sites were examined, at Chauga, Tugalo, and Estatoe (Caldwell 1954; Kelly and DeBaillou 1960; Kelly and Neitzel 1961).

Along the lower Savannah River later prehistoric components were identified in Allendale County, South Carolina, by James B. Stoltman during his work on Groton Plantation in 1964. Stoltman (1974:30-31, 91) noted the general contemporaneity of Etowah-like and Savannah Complicated Stamped ceramics along the drainage, something Hally has subsequently formalized as a primary characteristic of the Early Mississippian Beaverdam Phase (ca. A.D. 1200-1300) in the central Piedmont portion of the drainage (Rudolph and Hally 1985:448, 462-470; Anderson *et al.* 1986:38-40). Stoltman (1974:241-243), importantly, also suggested that a switch from upland horticulture to floodplain intensive agriculture occurred with the appearance of Mississippian ceramics, with a corresponding marked change in settlement. This observation, although in need of more evaluation and testing, marked one of the first serious attempts to explore Mississippian settlement and subsistence systems in the South Carolina area.

In 1965 Clemons de Baillou (1965) conducted test excavations at the Hollywood Mound site (9RI1) in Richmond County, Georgia, where Reynolds had worked in the early 1890s (Thomas 1894:317-326). Two mound stages were identified (something also documented by Reynolds), and Savannah and Pee Dee-like pottery were recovered. Reid (1965:25), in a comparison of ceramics from Hollywood, the Fort Watson/Scott's Lake mound in central South Carolina, and the Town Creek site, noted "striking similarities" between these assemblages. Hally has since suggested the creation of a Hollywood Phase to accommodate this and related early/middle Mississippian assemblages along the central Savannah (Hally and Rudolph 1986:62-63; Anderson *et al.* 1986:40-41).

Evidence accumulated by the mid-1960s thus suggested that the Mississippian occupation along much of the Savannah River was predominantly early, and that it exhibited similarities with areas both to the east (Etowah) and west (Pee Dee). Recent ethnohistoric and archaeological research indicates that much of the central portion of the Savannah drainage was depopulated by the mid-16th century (e.g., Anderson and

Schuldenrein 1983:115; Hudson *et al.* 1984:72), an observation supported by the apparent ages of the sites and ceramics found during this earlier work.

#### MISSISSIPPIAN RESEARCH IN SOUTH CAROLINA: 1967-1988

The founding of the Institute of Archaeology and Anthropology at the University of South Carolina in 1967, and its subsequent growth under the direction of Dr. Robert L. Stephenson, has led to considerable research on the later prehistoric occupation of the state. In 1967 and 1968 excavations were undertaken at a number of late prehistoric and protohistoric sites in Pickens and Oconee counties, as part of the Keowee-Toxaway Reservoir project sponsored by Duke Power Company. Late Woodland through protohistoric Conestee, Pisgah, and Qualla components were examined within the project area, although to date only a general summary of the investigations (Beuschel 1976) and a detailed report on the late prehistoric components at the I. C. Few site (Grange 1972) have been prepared.

In 1969 the most extensive excavations at a Mississippian site in South Carolina to date were conducted by Stanley A. South at Charles Towne Landing (South 1970, 1988). The excavations were undertaken in conjunction with the South Carolina Tricentennial Commission's efforts to develop the landing site area for tourism. During the construction, extensive Indian components were found, prompting a major salvage operation (Stephenson 1969). Two stockaded, squared Mississippian enclosures, one 208 by 200 feet in extent, and the other roughly half this size were found and mapped, as well as the outline of an earlier, Wilmington period house. The presence of numerous burials and several unusual structures inside the enclosures provided clear evidence that the compound was used for non-domestic, mortuary-ceremonial activities. This "moundless ceremonial center" was characterized by Charles Towne series ceramics, a variant of Pee Dee (South 1973, 1988), suggesting use in the 15th and early 16th centuries. Two radiocarbon dates from features in the enclosures support such a dating (South 1973). The site at Charles Towne Landing remains the only completely excavated Mississippian center in the state, and one of only a very few examined in such detail from across the southeast. The site additionally produced the only complete, securely documented Wilmington Phase structure that has been found in the coastal South Carolina area. A radiocarbon date of A.D. 1105 ± 90 (GX-2284; South 1973) was obtained from associated charcoal, providing a temporal referent for local, pre-Mississippian Wilmington occupa-

tions.

The Charles Towne work helped South (1973) posit a Savannah - Pee Dee - Ashley Mississippian sequence as part of a more inclusive "Indian Pottery Taxonomy for the South Carolina Coast." This formulation was used for almost a decade to classify aboriginal ceramics throughout the coastal South Carolina area. Only in the early 1980s did commentary and refinement appear (Anderson and Logan 1981; Anderson 1982:314-317; Trinkley 1981a, 1983a). South's (1988) manuscript on the Charles Towne Landing work, prepared from 1970 to 1972, thoroughly documents the later prehistoric and protohistoric assemblages, and should serve as a basic reference for coastal researchers.

South, with Leland Ferguson, developed the Chicora concept during this same period, in the early 1970s, to refer to a ceramic horizon encompassing Mississippian ceremonial centers in the Carolinas and eastern Georgia, including Town Creek, Charles Town Landing, Fort Watson, Hollywood, Mulberry, Irene, and other sites. Key ceramic attributes defining this horizon included complicated stamping, typically in conjunction with reed punctation and/or nodes, pellets, or narrow rim strips below the vessel lip (Figure 6.3). These attributes are characteristic of classic Pee Dee material (Reid 1967). Caldwell (1974a:88), in his discussion of the Mulberry ceramics, had previously gone so far as to state, "the Lamaroid sequence in South Carolina is sufficiently different from the various Lamar sequences of Georgia to be considered a separate ceramic tradition." South and Ferguson, following Caldwell, compared the presence and absence of ceramic attributes at ceremonial centers across the South Appalachian area, and noted that Chicora material from the South Carolina area differed somewhat from roughly contemporaneous Lamar materials in central Georgia, which were characterized by, among things, folded rims (South 1988). These stylistic differences, in retrospect, may reflect the extent or influence of complex, province-wide polities comparable to those observed in the region in the 16th century - such as Coosa, Ocute, and Cofitachequi (Hudson *et al.* 1985, 1987) - although detailed evaluation and testing of such an inference is clearly necessary.

The state of knowledge on later prehistoric occupations in the South Appalachian Summit area was extensively detailed for the first time in the early 1970s with the appearance of dissertations by Dickens (1970, published 1976), Ferguson (1971), and Keel (1972, published 1976). Ferguson's (1971) dissertation provided a comprehensive review of research and ideas on

the Mississippian period across the South Appalachian area through the late 1960s and, although unfortunately never published, serves as the best synthesis to date for this work. Ferguson (1971:245-247) noted that the locations of ceremonial centers in the region were along major drainages and at macro-ecotones, at or near the junction of major physiographic provinces. Sites were typically located in areas suited to the exploitation of several different environmental zones. Centers were almost invariably found in areas of hardwood vegetation and on or near highly fertile soils, potentially rich agricultural and game/nut mast zones. This work, and subsequent papers (e.g., Ferguson 1975a, Ferguson and Green 1984a) represented the first major effort since Holmes (1903) to examine Mississippian occupations over the entire region.

Dickens's work, based primarily on materials collected from western North Carolina, formally defined the Pisgah Phase as the immediate precursor of the historic Cherokee. Site and artifact descriptions were presented, permitting the effective recognition and dating of these late prehistoric and early historic occupations. The sequence was pushed back in time, through the Woodland and into the preceramic Late Archaic by Keel, who addressed the earlier materials from the same sites and from the same general area that Dickens had examined. Together Keel and Dickens's work provides a basic outline of the last 4000 years of human occupation in the Appalachian Summit area. A comprehensive evaluation of the utility of this sequence in northern South Carolina remains to be conducted, although there are suggestions that it works fairly well in some areas, notably along the upper Savannah River in the northwestern piedmont (e.g., Beuschel 1976; Taylor and Smith 1978; Goodyear *et al.* 1979; Anderson and Joseph 1988).

In 1971 Thomas M. Ryan opened over 500 square feet in village midden deposits at the McCollum Mound in Chester County. This site, located along the Broad River, had been tested by Edward Palmer of the Bureau of Ethnology in 1884. Ryan (1971a:96; 1971b:106) reported the presence of Pee Dee, Savannah, and Pisgah-like ceramics at the site, and extensive, well-preserved occupational features. In 1972 George Teague (nd) conducted testing at the Blair Mound, also along the Broad River, where both Pee Dee and Pisgah-like remains were found.

In the late 1960s and early 1970s surveys were initiated in the area of the Richard B. Russell Reservoir (Hutto 1970, Hemmings 1970, 1972), along the upper Savannah River. These led to extensive survey, testing,

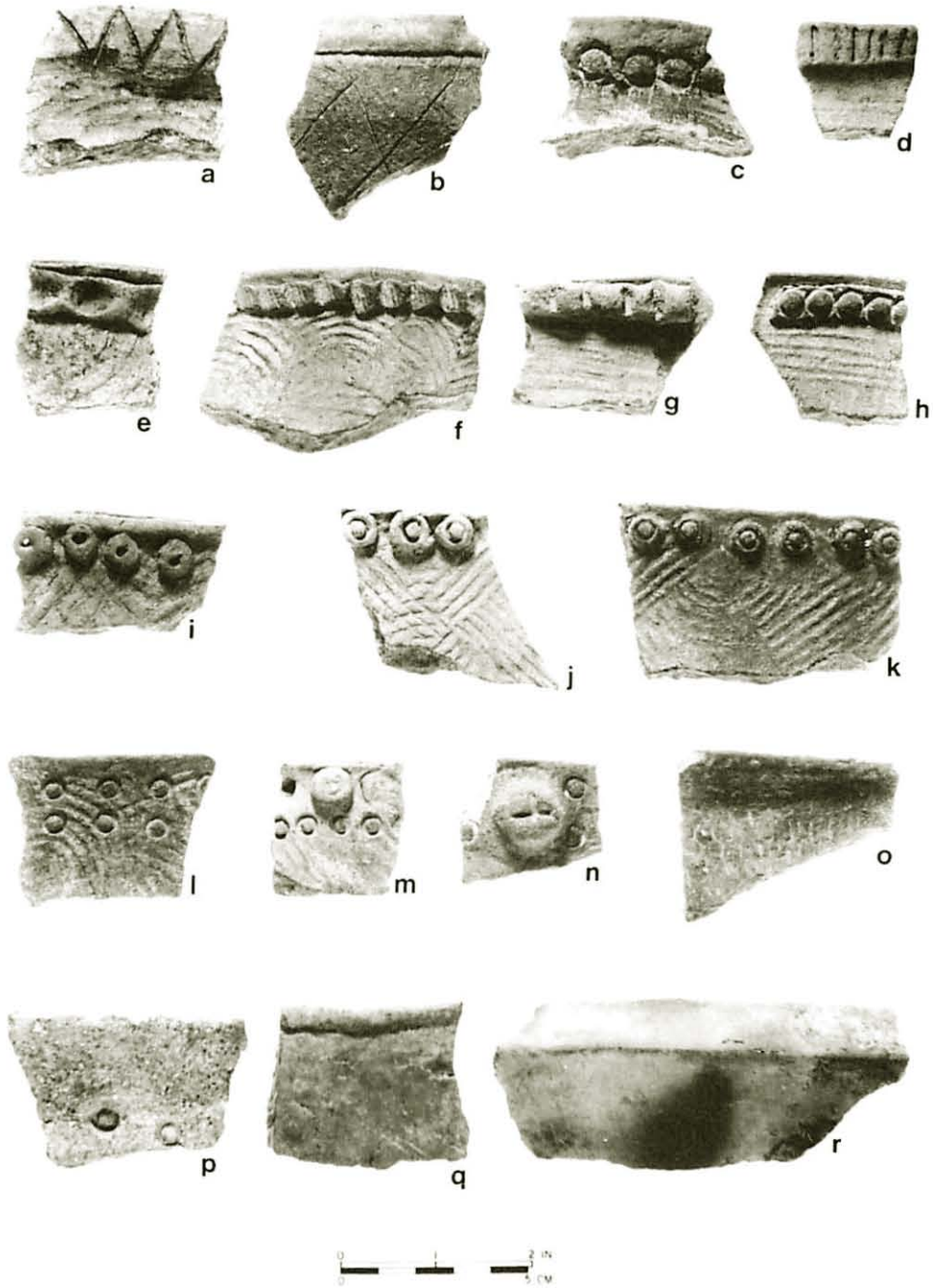


Figure 6.3: Mississippian rim and lip treatment from the South Carolina area: a, folded with fine incised rim; b, folded with plain rim and fine incised body; c, folded with reed punctations; d, folded with notching; e-g, applied rim strip with finger pinching; h, applied rim strip with reed punctations; i-k rosettes; l, separate reed punctations; m, rosettes and separate reed punctations; n, node with separate reed punctations; o, corncob marked; p, notched lip and separate reed punctations; q-r, burnished plain. d, Pisgah series; e-h, Irene/Early-Late Lamar series; o, Savannah series; q-r, no series affiliation; all others Pee Dee or transitional Savannah/Irene series or equivalent.

a 9EB91-1; b 38HA1-9; c 38CR11-DM-1-154; d 38AB175-8-3; e 38CR11-DM-1-183; f 38CR11-DM-1-144; g 38CR11-DM-1-147; h 38CR11-DM-1-130; i 38CS2-6B-5; j 38CR1-DM-3009; k SC:CL:7; l 38CR1-DM-1-3068; m 38CR3-1-DM-96; n 38CR1-DM-1-2988; o 9EB86; p 38CR00-DM-3-59; 9EB91-1; 38CR3-1-DM-92.

and data recovery projects in the late 1970s and early 1980s, providing considerable information on the Mississippian occupations in that area. Major monographic reports on Mississippian ceremonial centers (Rudolph and Hally 1985), villages (Tippitt and Marquardt 1984; Anderson and Schuldenrein 1985), and hamlets (Campbell and Weed 1984) were produced, and detailed information on the local sequence and immediate pre-Mississippian occupations in the area were collected (Taylor and Smith 1978; Anderson and Schuldenrein 1985; Wood *et al.* 1986; Anderson and Joseph 1988). This was particularly fortunate, since the amount of data recovery that had occurred during the construction of the Thurmond and Hartwell Reservoirs was comparatively minimal. The archaeological investigations in the Russell Reservoir, which lies between the Clark Hill and Hartwell Lakes, as a result, stand as virtually the only floodplain data on late prehistoric settlement from the Piedmont portion of the Savannah drainage.

In 1972 and 1973 Leland Ferguson conducted two seasons of excavations at the Scott's Lake/Fort Watson site along the shores of Lake Marion in Clarendon County, South Carolina. The site, located along a former oxbow of the Santee, consisted of two mounds, both of which were tested. Most effort focused on the summit of the primary mound, where the well preserved remains of the 1781 British Revolutionary War Fort Watson were found immediately below the surface (Ferguson 1973, 1975b, 1977). This fort, a small stockaded enclosure atop the mound, had been built and occupied by British forces under a Colonel Watson, shortly after the fall of Charleston. The fort had been besieged by Lee and Marion, who effected its surrender through the construction of a high tower, from which the American forces were able to shoot down into the post. The excavations also yielded extensive Mississippian remains, including evidence for structures and possibly shell bead manufacturing areas atop the mound (Ferguson 1975b:79-93).

In 1973 Ferguson also visited the Mulberry site and re-profiled Mound A; over the next year he prepared a synthesis of research at this site, as noted previously, publishing both his findings and available accounts of the 1952 excavations (Ferguson 1974). Concurrent with the excavations at Scott's Lake, a Mississippian period multiple burial was excavated at the nearby Wright's Bluff site, where it was found eroding into the lake. The report on this work (Carter and Chickering 1973) represents one of the only published analyses of Mississippian skeletal remains from the state. Few late

prehistoric burials have been either excavated or examined, and paleoanthropological research in the state can be said to be in its infancy (Trinkley and Hogue 1979; Brooks *et al.* 1982). Although burials are comparatively rare along the central Santee, large quantities of late prehistoric artifacts have been found, from probable outlying settlements around the Scott's Lake mound center. A detailed summary of available information on site distribution and assemblage content in this area has been prepared as part of an overview of the Santee National Wildlife Refuge (Anderson *et al.* 1979).

In 1975 Stephenson's "Archeological Preservation Plan for South Carolina" appeared, in which he called for extended research on Mississippian sites in the state, especially those along the coast, which were (and still are) in danger of destruction due to rapid economic development. That same year an extensive archaeological survey was conducted in the Camden area by Albert C. Goodyear and David G. Anderson, along a proposed highway corridor that was to run along the river terrace between the Mulberry and Adamson mound groups. Several large scatters of late prehistoric material were discovered and examined, and a ring of surface debris found at the Ferry Landing Site (38KE18) was interpreted as a possible stockaded village (Goodyear and Anderson n.d.; Goodyear 1975: Figure 1). The highway was never built, although the sites and assemblages, possible outlying settlements associated with the center of Cofitachequi (thought to be located at Mulberry or Adamson) warrant further examination and full reporting. In 1975 Ferguson (1975a, 1975b) presented papers on his work at Scott's Lake and offered an initial locational nearest neighbor model for the distribution of Mississippian ceremonial centers in the region. Supporting this, Anderson (1975a:189-191) published a study indicating that Mississippian ceramics (and hence presumably the larger or more permanent settlements) were confined primarily to the major drainages in the coastal plain portion of the state.

In the mid to late 1970s a series of major projects were initiated in the general region that have greatly augmented our understanding of later prehistoric settlement in the South Carolina area. The first of these was the extensive program of research conducted by the University of Georgia in the Wallace Reservoir along the upper Oconee River, in the eastern Georgia Piedmont (Fish and Hally 1983). Major excavation reports, dissertations, and technical papers resulting from this work have presented Mississippian settlement pattern models (Lee 1977; Smith and Kowalewski 1981; Rudolph and Blanton 1981); models of

intersite functional variability (Shapiro 1983, 1985a, 1985b); a secure ceramic chronology for the later Mississippian in that area (Smith 1983; Rudolph 1983; Shapiro 1983; Williams 1983); and a number of excellent site reports (Smith 1981; Smith *et al.* 1981; see also Lamar Briefs 1983 for a listing of Wallace Reservoir papers). The Wallace Reservoir research proved to be an invaluable guide to subsequent Mississippian projects in the region, notably in the Richard B. Russell Reservoir. Many of the personnel involved in the Wallace project, including Chester DePratter, David Hally, James Rudolph, Gary Shapiro, Marvin Smith, and Mark Williams, have maintained a strong interest in South Appalachian Mississippian and have directly shaped much of the current research on this period in the region (e.g., DePratter 1983, Chapter 7 this volume; Hally 1981, 1983a, 1983b, 1984, 1987; Hally and Rudolph 1986; Rudolph 1984; Rudolph and Hally 1985; Smith 1984, 1987; Shapiro 1983, 1985a, 1985b; Williams and Shapiro 1986, 1987).

In 1979 major prehistoric excavations were undertaken at two site groups along the lower Santee River during the Cooper River Rediversion Canal project that provided valuable information on the late prehistoric occupation of that area. At the Mattassee Lake sites (Anderson *et al.* 1982) a detailed ceramic and projectile point sequence was established, detailing diagnostics for the Mississippian and particularly for the pre-Mississippian Woodland period. This sequence, which is based on materials found in stratified context and backed by 14 internally consistent radiocarbon dates, currently stands as one of the more securely documented later prehistoric sequences in the state away from the Savannah River Valley. Excavations at two nearby sites directed by Brooks and Canouts (1984) discovered a Mississippian hamlet, with associated cremations, as well as evidence for a possible Late Woodland period structure. Detailed settlement models for the area were proposed and tested by both groups, using excavated and survey data from the immediate region.

In 1979 Stanley South began the first of several seasons of excavations at the site of Santa Elena on Parris Island. This research, focusing on the 1565-1587 Spanish settlement, has generated valuable information on Spanish-Indian relations; the site assemblages have additionally provided tightly dated examples of late 16th century Indian material culture (South 1982:60-62) that are invaluable for the construction of local sequences. The ceramics and other native American materials are currently undergoing examination by Chester DePratter (n.d.).

In 1978 the Department of Anthropology at the University of South Carolina began a long-term research program, the Wateree Archaeological Research Project, in the upper Wateree Valley, near Camden. While focusing on the Mulberry mound group, the goals of the project were to:

*Investigate human-land relationships in the Wateree River Valley utilizing a wide range of approaches including anthropology, archaeology, geography, history, folklore, as well as the natural sciences ... the ultimate temporal and spatial framework of the project will include the entire valley from initial occupation through the present time (Ferguson and Green 1984b:1).*

Under the direction of various faculty members, including Leland Ferguson, Chester DePratter, Joan Gero, Stanton Green, Dennis Lewarch, and others, field schools were conducted at Mulberry from 1979 to 1982, and again in 1985. Controlled surface collections were made over the site and were used to help resolve its dimensions and internal organization (Sassaman 1981; Merry 1982). Test and block units opened in several areas have helped document the content, preservation, and stratification of the historic and prehistoric components (Merry and Pekrul 1981, 1983; Harmon 1982; H. Smith 1982; Sassaman 1981, 1984). In one of these block units an apparent residential structure with a large quantity of associated mica debris was found, offering valuable insight on local craft specialization (Grimes 1986). Given the recent identification of the Camden area as the location of the central towns of the 16th century province of Cofitachequi (DePratter *et al.* 1983; Hudson *et al.* 1984, 1985, 1987), the Wateree Valley Archaeological Project has the potential to generate important information in the years to come. In recent years work in the upper Wateree Valley has continued under the direction of Chester DePratter (see Chapter 7, this volume).

Several field projects have occurred at smaller Mississippian sites in the South Carolina area in recent years that complement the more extensive projects just described. Under the direction of A. Robert Parler and James L. Michie, extensive excavations were conducted for several field seasons at the Allan Mack site along a tributary of the Edisto River near North, South Carolina (Parler and Lee 1981). The Mississippian components at this site, consisting of numerous stone tools but comparatively few ceramics, may reflect the repeated use of the location as a hunting camp by groups based elsewhere in the region, possibly along



the Santee or Savannah River. In northern Charleston County a second small, probably briefly occupied Mississippian site was tested at Moore's Landing; the report on this work included a summary and evaluation of Mississippian remains in the northern Charleston County area (Anderson and Claggett 1979).

Under the direction of Michael Trinkley a number of late prehistoric sites have been tested in the coastal South Carolina area in recent years. Along the southern coast, in Beaufort County, excavations at three sites on Pinckney Island tested and demonstrated the general utility of the mouth-of-the-Savannah sequence in that area. The fieldwork did suggest that St. Catherine's pottery (dated from A.D. 1000 - 1150 in the Savannah sequence; DePratter 1979:111) might run as late as the 16th century in the area (Trinkley 1981a:82) and that classic Savannah and Irene ceramics were rare (see also Braley 1983; Brooks 1983). These distributions warrant careful attention since later prehistoric and protohistoric assemblages have been reported from the southern coast (e.g., Moore 1898a; Anderson 1975a, 1975b; Michie 1980), and native groups were present at the time of Spanish settlement in the 1560s (South 1982:60-62; DePratter n.d.). Excavations at the St. Catherines/Savannah I period Callawassie Island Burial Mound (Brooks *et al.* 1982) suggest that an essentially Woodland burial tradition may have continued into the early Mississippian period in the southern coastal area. Alternatively, these apparent unoccupied zones (i.e., areas with no unambiguous Mississippian diagnostics) may represent areas of lower natural productivity, or possibly buffer zones between differing societies or settlements. The relationships between Woodland and Mississippian occupations in South Carolina, particularly the mechanisms bringing about the transition between these seemingly markedly dissimilar forms of social organization and subsistence adaptation, will undoubtedly serve as a focus for much future research in the state.

Along the central and northern South Carolina coast in the vicinity of Charleston and Georgetown counties, Trinkley and his colleagues have tested a number of sites yielding later prehistoric and protohistoric components (Trinkley 1980, 1981b, 1981c, 1982; Trinkley and Hogue 1979; Trinkley *et al.* 1983). In addition to providing valuable descriptive accounts of the artifactual and subsistence remains encountered at these sites, Trinkley (1981d, 1983a, 1983b) has advanced a cultural sequence for later Woodland and Mississippian remains in the central coastal area that encompasses his McClellanville, Jeremy, "classic"

Pee Dee, "post-classic" Pee Dee, Wachesaw, and Kimbel series (see Anderson 1982:293-319 for commentary, and an alternative perspective). This research, particularly at Wachesaw Landing, where extensive follow-up activity has occurred (Michie 1984), has produced valuable information about later prehistoric coastal lifeways.

As can be seen from this review, the situation noted by Ferguson in 1971 - that "a published archaeological record simply does not exist" for the Mississippian in the South Carolina area - clearly no longer holds true. In South Carolina Mississippian sites are widespread, and are recognized by the presence of one or more of the following attributes: complicated stamped or burnished plain pottery, triangular arrow points, intensive agriculture, or evidence for mound ceremonialism, specifically the construction of platform/temple mounds. Given this review of previous research, though, what do we really know about the Mississippian in South Carolina as of the mid-1980s?

#### DEFINITIONS, ORIGINS, AND IDENTIFICATION OF LOCAL MISSISSIPPIAN OCCUPATIONS

In recent years, two major definitions of Mississippian have appeared, by Griffin (1967) and Smith (1978). Both, with some qualification, appear to apply in the South Carolina area. According to Griffin, Mississippian:

*Is used to refer to the wide variety of adaptations made by societies which developed a dependence upon agriculture for their basic, storable food supply (1967:189).*

Domesticates, notably corn, have been found at a number of late prehistoric sites, including Mulberry, Fort Watson, and Charles Towne Landing. While the degree of dependence upon agriculture in the general region has been questioned, most notably by Ferguson (1971:11-12), there is little doubt that intensive, agriculturally-based food production characterized the local Mississippian. The dates of the initial appearance and subsequent large-scale adoption of agriculture in the South Carolina area, however, remain unknown. Only minimal evidence for domesticates has been found in secure pre-Mississippian context in the state. A squash rind fragment was found in Late Woodland, late Swift Creek context at Simpson's Field (38AN8; Gardner 1986:390-391) along the upper Savannah River, while corn was found with Late Woodland/initial Mississippian Santee Simple Stamped pottery at the Mattassee

Lake sites along the lower Santee (Harris and Sheldon 1982:346). As flotation processing comes to be increasingly utilized, our knowledge of later prehistoric subsistence will undoubtedly improve.

Recently Smith (1978:486, 488) proposed a somewhat more specific definition of Mississippian, encompassing populations with:

*A ranked form of social organization, and [who] had developed a specific complex adaptation to linear, environmentally circumscribed floodplain habitat zones... The location of almost any Mississippian settlement within a floodplain habitat zone can, to a great extent, be generally explained as a result of two energy-capture factors:*

1. *The availability of well-drained, easily tilled, energy-subsidized natural levee soils suitable for horticultural garden plots.*

2. *Easy access to the rich protein resources of fish and waterfowl in channel-remnant oxbow lakes (Smith 1978:486, 488).*

Mississippian sites in the South Carolina area are, in fact, found along major drainages, in locations favorably disposed to both agriculture and the exploitation of riverine resources (Ferguson 1971:246; Anderson 1975:189-191). In his dissertation research, Ferguson (1971:245-248) examined the distribution of Mississippian mound sites throughout the South Appalachian area, demonstrating a placement both along major drainages and in areas of high soil fertility. Ferguson and Green (1984a) have continued this research and have recently produced a synthesis of their work, appropriately entitled "Politics and Environment in the Old, Old South." Their research indicates that platform mound/ceremonial centers are located along the drainages of major rivers and that they tend to form a symmetrical pattern about the fall line. A nearest neighbor analysis, furthermore, indicated that many of the centers were regularly spaced with respect to each other. Ferguson and Green went on to postulate a linear settlement hierarchy along the major drainages of the region. Under this model communities closest to mound centers were the largest, with village size decreasing with increasing distance from these centers. Isolated hamlets dispersed up and down the rivers were also expected, particularly in light of early historic accounts describing such a pattern (e.g., Lawson 1701/1709). Their model can be used to help predict the locations of incipient or moundless centers, and the

spatial extent of local Mississippian polities.

Examples of other models of Mississippian settlement in the general region include Ward's (1965:45) correlation of major Mississippian settlement with "soils with a high degree of fertility and a highly friable texture;" Larson's (1972) arguments about Mississippian warfare being in part due to competition for prime agricultural land; Lee (1977) and Pearson's (1978) development of three- and four-level site hierarchies, respectively, based on the size of surface artifact scatters; Peebles (1978) and Steponaitis's (1978) arguments about locational relationships between primary and secondary centers, and their position in tributary economies; Shapiro's (1983, 1985b) analysis of site functional variability in the Oconee (Ocute) province; Williams and Shapiro's (1986) arguments about occupations alternating between closely spaced or 'paired' ceremonial centers, to counter factors of soil or firewood depletion; and Anderson's (1986, 1987a, 1987b, 1988b) linkage of population concentrations and voids, and chiefdom stability, to patterns of warfare and political competition over the general region. These models emphasize a linkage of Mississippian sites with easily tilled, highly fertile floodplain soils, and factors influencing the spacing of centers and subsidiary sites across the region. Obvious limitations in this work, however, include a research emphasis on large mound or village sites and a heavy reliance on surface data. Research by Shapiro (1983), unfortunately, has indicated that surface size is not always a good indicator of subsurface content. All of these attempts at model building highlight the critical importance of effective, fine-grained chronologies, to date components and delimit contemporaneous assemblages.

While we have a fair appreciation for the culmination of the Mississippian in South Carolina, its origins and immediate Woodland antecedents remain largely unknown at the present. One trend that has been noted at a number of sites is the replacement of earthlodges (actually earthen embanked structures) by platform mounds in the early Mississippian. Rudolph (1984), in an examination of submound earthlodge construction in the South Appalachian area, has suggested that this replacement (of earthlodge by platform/temple mound architecture in the region) reflects broad changes in socio-political organization, specifically changes in the composition of groups permitted access to public/ceremonial facilities, and decision-making itself. Platform mounds, in his view, were physically and symbolically elevated administrative/ceremonial centers designed to separate and reinforce the status of the elite that made use of them. As social hierarchies developed

locally, presumed communal meeting places (i.e., earthlodges) were replaced by the residences and temples of a much smaller group of elite decision-makers.

The emergence of ranked society in the region is currently poorly understood, and sites spanning the transition period will need to be carefully examined. Perhaps the best data for the study of local Mississippian origins and for changes in organizational complexity currently at hand comes from the Savannah River. At the Irene Mound near the mouth of the river eight construction episodes were documented; based on ceramic evidence (i.e., the presence of Savannah Complicated Stamped pottery in the earliest construction episode) the beginnings of that center appear to occur sometime around A.D. 1150-1200 (Caldwell and McCann 1941:78). Six stages of construction were documented at the Beaverdam Creek Mound in the piedmont portion of the drainage, a center that also appears to begin sometime around ca. A.D. 1150-1200 (Rudolph and Hally 1985:470). Regional trends may also prove a useful avenue for research on questions of Mississippian emergence. Where Mississippian sites in the South Carolina area have been dated, for example, the earliest occupations are invariably in the 12th and 13th centuries. Ferguson (1971:177-178; personal communication) first noted a tendency for sites to be younger, or more recent, the further east one travels in the South Appalachian province, suggesting a possible expansion of settlement from the west, possibly from Early Mississippian centers in northwest Georgia such as Etowah.

Away from the lower Savannah, knowledge about the immediate antecedents of the local Mississippian is only beginning to emerge. The later Woodland-early Mississippian sequence from northern Georgia (i.e., Swift Creek-Napier-Woodstock), for example, does not work well in much of South Carolina for the simple reason that most of the types used to define this complex are rare to non-existent. Currently the only area of the state where this sequence has been shown to have some utility is along the upper Savannah River (Wood *et al.* 1986; Anderson and Joseph 1988). The paucity of Napier ceramics, even in the area of Georgia where the series was defined, has been commented on previously by Ferguson (1971:67), Keel (1976:221), and others (Anderson and Schuldenrein 1985:362-365), although Teresa Rudolph (1985, 1986) has shown the series is more common than once thought.

In recent years it has become evident that the later Woodland over much of South Carolina is character-

ized by rather undistinguished assemblages of plain, cordmarked, fabric impressed, and simple stamped wares, some of which (notably the simple stamped) have traditionally been assigned to much earlier periods (Anderson 1982, 1985b; Trinkley 1980, 1983a). In the piedmont, for example, Connestee and Cartersville-like plain, brushed, and simple stamped assemblages have been dated to between A.D. 400 and 800 in both western North Carolina and northern Georgia (Keel 1976; Manning 1982; Anderson and Schuldenrein 1985:340-347), and some investigators, including the present author, would push this complex or variants of it to as late as A.D. 1000 (Anderson 1985b:42-44).

One thing is emerging from recent work, and that is that characteristically Mississippian complicated stamped ceramics do not appear until at least A.D. 1100, and probably not until as late as A.D. 1200, over much of the South Carolina area. Whether this means that the Mississippian adaptation itself, specifically the adoption of intensive agriculture within the context of a hierarchical ranked society, occurred earlier remains unknown.

A fairly refined Mississippian ceramic chronology has emerged from the last 40 years of research, with absolute control provided by an increasing number of radiocarbon dates. Rim modification has proven a particularly sensitive chronological indicator. A sequence of unmodified to collared rims, to rims with rosettes or punctations, and then to applied and pinched rim strips is evident over much of the region (Reid 1967; Rudolph 1983; Smith 1983; Hally and Rudolph 1986:63). While plain (unmodified) rims continue to occur, the incidence of folded and punctated, pinched, or notched rim strips increases over time in the region, with the later treatments typically larger and more poorly executed (Figure 6.3). This phenomenon was originally noted by Kelly (1938:48) at Macon Plateau and by Caldwell and McCann (1941:41) in the Irene Mound report, where "transitional" rim forms were illustrated. Both South (1973) and Stuart (1975) have observed this phenomenon on central South Carolina Mississippian ceramics, and in central Georgia Rudolph (1983:90-93) has documented an increase in the width of rim strips over time. Design motifs are also useful, although there is increasing evidence emerging from recent work along the upper Savannah and Oconee Rivers that some supposedly "diagnostic" motifs – notably nested diamonds, which are traditionally linked with Etowah/early Mississippian components – actually occur somewhat later in time as well (Figure 6.4) (e.g., Smith 1981:182-186, 1983:75-81; Hally and Rudolph 1986:37-51; Anderson *et al.* 1986:38). Well-

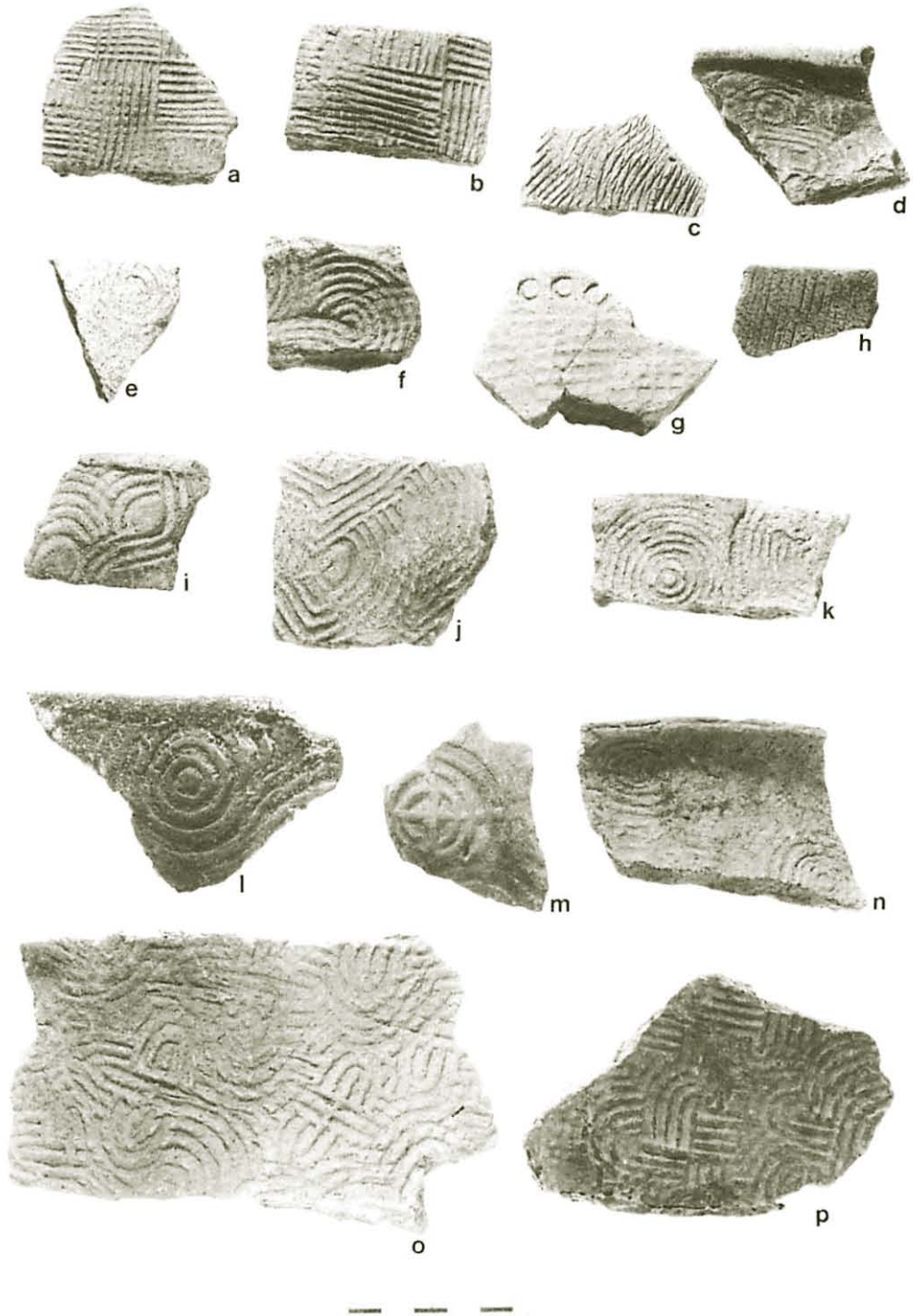


Figure 6.4: Mississippian design motifs from the South Carolina area: a,b, line block; c, h fine cord marked; d, e, nested P's; f, n, "hollow center" nested circles; g, check stamped; i, interlocking circles; j, nested p/arc-angle; k, l, "bull's eye" nested circles; m, quartered nested circles; o, p, filfot cross/scroll. a, b, o, p, probable Irene/Early Lamar series; all others probable Savannah/Pee Dee series.

a, 38CR1-737; b, 38CR1-240; c, 38AL50-3/57p3; d, 38CR33-1-DM; e, 38CR24-4-76; f, 38CR11-DM-1-559; g, 38AL11-1-15; h, 38AL50-3/57p3l; i, 38CR5-1-DM-124; j, 38CR11-DM-1-540; k, 38CR11-DM-1-124; l, 38CR1-DM-1-2975; m, 38AK3-25; n, 38CR11-DM-1-103; o, 38CR1-DM-1-3003; p, 38CL18-17.

documented sequences, exploiting this patterned and predictable variability in rim treatment and exterior surface finish, have been produced for the upper Savannah, upper Oconee, and upper Wateree river valleys in recent years (Smith 1981, 1983; Rudolph and Hally 1985; Hally and Rudolph 1986; Williams and Shapiro 1987; Anderson *et al.* 1986; DePratter and Judge 1986; Chapter 7, this volume).

Perhaps the most innovative of recent work with Mississippian ceramics in the region, however, has focused on their function and not on their chronology. In a series of recent papers Hally (1983a, 1983b, 1984, 1986) and Shapiro (1983, 1985a, 1985b) have explored the uses to which Mississippian vessels were put at mound, village, hamlet, and special activity sites in the central and northern Georgia area. This work is proving valuable, both for the resolution of intra-site activity areas and for determining the range of activities that occurred on these site types. In an important illustration of the utility of this approach, Shapiro (1985a) has shown that large jars – possibly communal or tribute storage vessels – were disproportionately represented in mound as opposed to village contexts at the Dyar site on the upper Oconee River in the central Georgia piedmont. This evidence and method of analysis suggests new ways in which to explore questions of organizational complexity and possible tribute flow in local chiefdoms.

#### CONTRIBUTIONS FROM ETHNOHISTORIC RESEARCH

In recent years, ethnohistorical as well as archaeological investigations have made significant contributions to our understanding of the late prehistoric and protohistoric periods in South Carolina. Two major developments have been: (1) the synthesis of a large body of information on coastal contact period populations by Eugene Waddell (1980) and (2) the identification of some of the early contact period sites visited by DeSoto, notably a number of towns in the provinces of Ocute, Coosa, and Cofitachequi (DePratter *et al.* 1983; Hudson *et al.* 1984, 1985, 1987).

Waddell's work is important because it summarized much of the early historic literature on the native inhabitants of the immediate coastal zone, peoples who were apparently employing a Mississippian way of life. He documented, among other things, a high degree of mobility or seasonal dispersal among coastal groups, an observation challenging traditional views of the local Mississippian as a sedentary adaptation. Waddell's work indicates that village aggregation, at least

for some local Mississippian groups, may have occurred only over a fairly limited portion of the year. A description of the annual round of the Orista [Edisto], a coastal South Carolina Mississippian group, by Fray Jean Rogel in 1570, gives some indication of the ethnographic detail that can be found in these early sources:

*At this season [summer] they were congregated together [to plant and tend crops], but when the acorns ripened they left me quite alone, all going to the forests, each one to his own quarter, and only met together for certain festivals, which occurred every two months, and this is not always in the same spot ... the inhabitants of these twenty houses [at the main village of Orista] scattered themselves in twelve or thirteen different villages, some twenty, some ten, some six, and some four. Only two families remained ... for nine out of the twelve months they wander without any fixed abode ... (Rogel 1570; cited in Waddell 1980:147-151).*

This statement constitutes solid evidence for seasonal movement among late prehistoric groups, at least in the coastal area. The possibility that seasonal dispersal of population occurred, it should be noted, has only rarely been considered in models of Mississippian settlement in the South Appalachian region.

The identification of the location of Cofitachequi with the mound complexes near Camden, South Carolina, by Hudson and his colleagues is also an important contribution of recent research. Earlier investigators, most notably Swanton (1939), had been nearly unanimous in placing Cofitachequi along the Savannah River. The primary accounts of the DeSoto entrada (Rangel 1539-41; de Biedma 1544; Elvas 1557; Garsilaso de la Vega 1605) provide fairly detailed descriptions of the central towns of the province, particularly the spectacular mortuary temple of Talomeco. These accounts also help document the political organization and tributary relationships within these societies (Hudson 1975, n.d.; DePratter 1983; Anderson 1985a, 1986, 1987a, 1987b, 1988b). Smaller towns at distances of up to several days travel time were aligned with or subject to the domination of Cofitachequi, which was thus the center of a fairly respectable prehistoric province (DePratter 1983; Hudson *et al.* 1985, 1987).

As a result of this recent ethnohistorical research, the existence of three geographically extensive, complex

chiefdoms has been documented on the South Atlantic Slope at the time of initial European contact, about A.D. 1540 (Hudson *et al.* 1985, 1987). These polities included the province of Coosa, centered on northwest Georgia and extending from east-central Alabama into eastern Tennessee; the province of Ocute and a series of lesser chiefdoms in central Georgia, and the province of Cofitachequi extending from central South Carolina into central and western North Carolina. Archaeological exploration of these polities, and their predecessors, however, is only in its infancy beyond the level of single site investigations, or the formation of simple settlement models. Studies that have attempted to directly explore the existence of areally extensive polities in the region using archaeological data are: South's (1988 - written in 1972) early and innovative work comparing the Lamar ceramics of central Georgia with the Pee Dee series materials from central South Carolina; Hally's attempts to delimit the range of ceramic variation within the province of Coosa (in Hudson *et al.* 1985:726-732; Hally and Rudolph 1986:77-78); Smith and Kowalewski's (1980) use of locational analysis to define a late prehistoric province on the central Oconee River in Georgia, since recognized as Ocute; (Hudson *et al.* 1985, 1987); Anderson's (1986, 1987a, 1987b, 1988b) analyses of Mississippian materials from along the Savannah River, between the provinces of Ocute and Cofitachequi; and DePratter's work with materials from Cofitachequi from along the upper Wateree (Chapter 7, this volume). Site-settlement models are not well-developed at the present, consisting of simple hierarchies or locational models largely based on the presence or absence of mounds or mound stages, or the size of surface artifact scatters (Lee 1977; Pearson 1978; Ferguson and Green 1984a; Hally 1987).

The evidence about the geographic extent of the region's complex chiefdoms that are emerging from the ethnohistoric data are almost revolutionary. Previous estimates of Mississippian polity size have been much smaller. Peebles (1978:375), for example, estimated the extent of the Moundville phase, centered on the second largest Mississippian mound group in the eastern Woodlands, was on the order of 75 river miles. Hally (1987) has recently suggested an even smaller average size value, on the order of 40 km, for most local chiefly polities. The extent of the early contact era provinces of Coosa and Cofitachequi, based on the locations of towns reported by the Spanish as owing tribute and allegiance, in contrast, extended over much larger areas, on the order of hundreds of kilometers. It is becoming evident that the complex chiefdoms of the

early contact era were composed of a number of subsidiary chiefdoms linked together in alliance, conquest, or tributary relations. Each of these constituent units may have been the size of one of Hally's modal 40 km polities. Over the next 10 to 20 years a major challenge for Mississippian researchers in the region will be understanding how these polities operated - their extent, internal structure, and evolution over time, including their relations with other, comparable polities.

The work of Waddell, Hudson, DePratter, and others has shown that valuable information about contact-era Mississippian societies on the South Atlantic Slope can be found in early historic records, particularly those from the early to mid-16th century, before the native chiefdoms collapsed due to disease-induced depopulation and warfare (Ramenofsky 1982; Dobyns 1983; Smith 1984, 1987). Research along these lines has already been initiated (DePratter 1983; Smith 1984, 1987; Hudson *et al.* 1984; 1985, 1987; Hudson n.d.; Anderson 1985a), demonstrating that further effort, directed to the location, description, and interpretation of sources concerned with aboriginal political, agricultural, and settlement systems is likely to prove quite rewarding.

The ethnohistoric sources also indicate the nature of regional information and exchange networks. Within the major provincial-level polities, lesser towns, leaders, and individuals submitted tribute to those higher in the hierarchy. Tribute thus served to help define and formalize social relationships in these societies, particularly those concerned with status positions, alliances, and trade. Tribute appears to have included both foodstuffs and luxury goods:

*Maize is kept in [a] barbacoa, which is a house with wooden sides, like a room, raised aloft on four posts, and has a floor of cane ... [around] the houses of the masters, or principal men ... are many barbacoas, in which they bring together the tribute their people give them of maize, skins of deer, and blankets of the country. These are like shawls, some of them made from the inner bark of trees, and others of a grass resembling nettle, which, by treading out, becomes like flax (Elvas 1557/in Bourne 1904, I:53).*

The early sources also indicate that chiefs maintained barbacoas in outlying settlements and could call on these stores (in theory) whenever they wished. Thus, when De Soto's army arrived at Ilapi, a town

some three days to the northeast of Cofitachequi, they found "seven barbacoas of corn, that they said were there stored for the woman chief" (Ranjel 1540/in Bourne 1904, II:100). Numerous examples exist in the De Soto accounts, and in other sources from the 16th century, of the chief's ability to call upon stores located in other towns; De Soto's strategy of capturing and carrying along native leaders wherever possible was predicated upon this fact. These few examples suggest the potential detail on the agricultural, settlement, and political/tributary systems that may be found in early sources (e.g., see particularly DePratter 1983; Hudson n.d.).

#### CONTROLLING FOR EXISTING BIAS: DEFINING SITE/ENVIRONMENTAL ASSOCIATIONS

To better understand and control for the potential range of Mississippian land use practices, and hence determine where their field systems and agricultural communities were located, archaeological survey and excavation data from large areas need to be collected and examined. Unfortunately, most Mississippian settlement and subsistence research conducted to date in the vicinity of South Carolina has tended to focus on very small study areas or on a narrow range of site types or environmental zones. With rare exception, most of the major work that has been accomplished has been directed to prominent sites such as mound groups or large villages, or sites with specific artifact categories present, usually ceramics. Sites yielding only small triangular projectile points, a Mississippian diagnostic in the region, interestingly, have only rarely been considered in settlement analyses. Due to this uneven coverage, existing models are at best only partial settlement reconstructions.

Given the amount of archaeological research conducted in the South Appalachian region in recent years, much of the survey data necessary to explore Mississippian settlement variability has probably already been collected. Almost 40,000 prehistoric archaeological sites are now recorded from Georgia and the Carolinas, as opposed to less than 3000 fifteen years ago. What is needed is the selection and informed analysis of representative samples from among these data. Regional archaeological coverage will be essential to examine the cultural variability that occurred in the province-sized polities of the contact and pre-contact era chiefdoms.

Studying the extent and evolution of late prehistoric chiefly societies in the South Carolina area will thus

require the intensive, thoughtful examination of a wide range of archaeological, ethnohistorical, and paleoecological data. The interdisciplinary nature of this work must be stressed. Intensification of agricultural production in the area, for example, may have been related to localized changes in rainfall, something that in turn may have affected nutrition and hence relative population health. These subjects could be explored using paleoclimatic data, ethnobotanical and other artifactual materials, and skeletal remains. Changes in regional political conditions undoubtedly brought about localized changes in health or demography, depending on a community's position in tributary networks, or relation to conflicting factions.

The abandonment of a whole series of Mississippian communities along the lower Savannah River after A.D. 1450, for example, appears to be directly linked to the rise of the rival provinces of Ocute and Cofitachequi, which were separated by an extensive buffer zone at the time of the De Soto entrada. The effects of this circumscription have been observed at a number of sites, and over a number of categories of archaeological remains (Anderson 1986, 1987a, 1987b, 1988b). At the same approximate time that the lower Savannah was abandoned, a sharp increase in the number of Mississippian sites occurs along the upper Oconee (Rudolph and Blanton 1981:34). It is not currently known whether this increase represents a major rise in population, possibly due to the influx of populations from the Savannah River Valley, or if it was due to unrelated changes in Oconee Valley settlement patterning (i.e., from nucleated villages to villages and dispersed hamlets).

The size of local and regional polities may have been related to the probabilities of crop failures or losses due to drought, excessive rainfall, hail, or warfare. The ethnohistorically observed dispersal of both fields (i.e., with households scattered along rivers and through the uplands) and harvests (i.e., in communal or chiefly barbacoas placed in a number of separate locations), and the development of geographically extensive polities may have thus been coeval, in part a risk-minimization strategy. This possibility could be partially examined through analyses of paleoclimatic data from the region.

#### CONCLUSIONS: CURRENT RESEARCH DIRECTIONS

In closing, a number of questions and ideas are worth mentioning that may help guide future Mississippian research in the South Carolina area. First, the

relationship of ceramic styles or traditions with political entities needs to be explored. An example of the potential utility of this approach can be seen in Hally's (reported in Hudson *et al.* 1985, 1987) tentative association of Barnett Phase Lamar ceramics in northwest Georgia with portions of the 16th century province of Coosa. I would suggest, in a similar fashion, but on a larger scale, that the constellation of ceramic attributes making up the "Chicora" horizon in the Carolinas, as defined by South (1973), may well be a stylistic reflection of sites affiliated with the evolution of the ethnohistorically documented province of Cofitachequi. The somewhat distinctive Lamar materials from central Georgia, in turn, may reflect the extent of other major provinces, notably Ocuta on the Oconee River and Coosa in northwest Georgia. As South noted in the early 1970s (1988/written 1972), we need to examine respectable ceramic samples from each of the mound centers in this region, with particular emphasis on rim and design attributes (e.g., see recent work by Hally and Rudolph 1986). By doing so and developing measures of association and affinity between assemblages, we may be able to delimit alliance networks and/or political hierarchies. Such work is particularly crucial at sites in putative boundary areas, such as along the Savannah River, for which political affiliations are largely unknown.

We also need to examine why provinces appeared in the first place. Positing warfare and the need to develop defensive alliances is not satisfactory, since it doesn't explain how or why the rival entities formed, only how they interact. One possible explanation for the origins of geographically extensive polities may be as part of an attempt, on the part of local populations, to overcome or even out the effects of periodic crop failures. Examining rainfall records from across the state (Kronberg and Purvis 1959), for example, it is apparent that in most areas droughts inducing crop failures occur at least once every 10 years or so. Examining these records on a county-by-county basis indicates that these failures may be quite localized (although widespread droughts also occur). That is, in any given year one county may have adequate rainfall while another, adjoining or nearby county may experience drought conditions (e.g., Miller 1971:72-74; Long 1980:93; Gerald 1976:63-64). Since summer rainfall in the South Carolina area is usually in the form of short localized thunderstorms, such a varied precipitation pattern is not altogether unexpected. Some form of larger association among local populations and centers or polities, therefore, makes sense simply from the perspective of risk-minimization (e.g., Chmurny 1973;

O'Shea 1981).

Risk-minimization strategies may also be operating within individual polities, such as within the area farmed by the populations aligned to a single center. A pattern of dispersed hamlets or farmsteads along major drainages is well-documented historically, and this may represent a conscious attempt to reduce the possibility of harvest failure by dispersing crops over a number of locations. Hally's (1987) observation that Mississippian polities tend to be ca. 40 km in maximum extent may be due, at least in part, to localized ecological conditions, although other factors such as travel time are also clearly relevant.

We need to begin thinking about how southeastern Mississippian polities were held together. Were there, for example, regular scheduled activities linking individuals to centers and, on a larger scale, individual centers to a paramount center? Ceremonial activities unquestionably fulfilled such an integrating mechanism – the busk ceremonial is a classic example from the later historic period – but were there also regular exchange, tribute flow, marriage networks, or other such mechanisms operating? Burial ceremonialism, and the collection of both food and exotic items, notably maize, bark blankets, animal skins, shell beads, and river pearls, as "tribute" is documented ethnohistorically, but the social context or importance of these activities is still very poorly understood.

Finally, we need to begin thinking about resolving archaeological correlates for many of our ideas about Mississippian political organization, settlement strategies, and social hierarchies. It is not enough to infer the existence of these phenomena just because they were observed in the early historic era. We must learn how to use archaeological data to address these problems, in such a way that the linkages between the data and our conclusions are evident. As can be seen from this review, there is much to be resolved.

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## Chapter 7

### COFITACHEQUI: ETHNOHISTORICAL AND ARCHAEOLOGICAL EVIDENCE

Chester B. DePratter

During the summer of 1670, Henry Woodward made a trek inland from the newly founded English colony at Charles Towne to the Indian town of Cofitachequi. Although Woodward did not leave a narrative account of this expedition, we have available several contemporary sources which provide some details of his visit. In order to reach Cofitachequi, Woodward travelled 14 days to the northwest from Charles Towne, stopping to seek peace with chiefs or "Petty Cassekas" that he encountered along the way (Cheves 1897: 186-187). Woodward referred to the chief of Cofitachequi as the "Emperor," and there were reported to be "1000 bowmen in his towne" (Cheves 1897: 186, 249). Woodward convinced the "Emperor" to visit the English settlement, and after a delay caused by an attack on Charles Towne shipping by several Spanish vessels, the "Emperor" and his entourage arrived for a state visit in mid-September, 1670 (Cheves 1897: 194, 201).

Following this brief interaction with the English, the chief of Cofitachequi apparently endured only a brief relationship with these newly arrived settlers. During the Spring of 1672, the Emperor was again in Charles Towne for unspecified purposes (Cheves 1897: 388; Waddell 1980: 236). As Baker (1974: 52, note 21) indicates, there is only one documentary reference to Cofitachequi in the Carolina archives for the years following 1672. That reference, dated 1681, makes only passing mention of Cofitachequi. By the time that John Lawson traveled up the Wateree/Catawba River Valley in 1701, the area formerly occupied by the Emperor Cofitachequi and his subjects was occupied by a new group of people known as the Congaree. The main Congaree town consisted of about a dozen houses with additional small "plantations" scattered up and down the river (Lefler 1967:34). Clearly, the people of Cofitachequi abandoned their homeland shortly after 1672.

The history of the Cofitachequi would be truly enigmatic if we had only these few passing references to the history of this powerful Indian society that lived

in interior South Carolina. But there had been many Europeans at Cofitachequi prior to Woodward's visit. Hernando De Soto and his followers were there in 1540, and they may have been preceded by members of the 1526 Ayllón expedition (Swanton 1922: 31; Quattlebaum 1956; Quinn 1977: 143-144). Spanish Captain Juan Pardo and his force of 125 soldiers visited Cofitachequi in 1566 during their attempt to open an overland route to Mexico from the Atlantic coast (Vandera 1569; Ketcham 1954). In 1568, Pardo established a small fort there, leaving a contingent of 30 soldiers in an outpost that was overrun by the local Indians within a year. Another small Spanish expedition traveled through the region in 1627-1628, and the only Indian placename mentioned in accounts of this expedition is Cofitachequi (Rojas y Borja 1628). Clearly Cofitachequi was an important place throughout the early historic period. For the time before the Spanish arrived in the Southeast, we must turn to archaeology to supply answers to our questions concerning the origin and development of the chiefdom of Cofitachequi.

There are a number of intriguing questions relating to Cofitachequi that can be answered more clearly now than in the past due to newly accumulated historical and archaeological evidence. First, who were these Indians of Cofitachequi and what were their origins? Where were their villages located, and how extensive was the territory controlled by their chief? What was the impact of the several 16th and early 17th century Spanish expeditions that visited the chiefdom? What happened to the peoples of Cofitachequi in the decade following Woodward's visit?

#### WHAT WE KNOW ABOUT COFITACHEQUI

*It being my fortune to bee gone uppon ye discovery of Chufytachyqj fruitfull Provence where ye Emperour resides... a Country soe delitious, pleasant & fruitfull, yt were it cultivated doubtless it would prove a second Paradize.*

Henry Woodward (Cheves 1897:186)

At the present time, all of the hard evidence for the

location of the town and chiefdom of Cofitachequi comes from documentary sources. Although Cofitachequi may be identical with the provinces of Chicora (Swanton 1922: 31-48; Quattlebaum 1956) or Duhare (Swanton 1922: 31-48; Baker 1974: 73) described by survivors of the 1526 Ayllón expedition or of the province of Chiquola described by the French in 1562-4 (Swanton 1922: 219; Bennett 1975: 29-30), there is simply not enough evidence to convincingly argue the case one way or the other. Thus, we are left to begin this discussion with the evidence provided by the 1539-1543 De Soto expedition.

Hernando De Soto was a seasoned conquistador who had served in the conquest of Panama, Nicaragua, and Peru prior to his arrival in "La Florida" (U.S. De Soto Expedition Commission 1939: 65-74). In 1536, he was appointed Governor of Cuba and he acquired the right to explore the Gulf of Mexico coastline previously assigned to Pánfilo de Narváez and the south Atlantic coastal region previously assigned to Lucas Vasquez de Ayllón (U.S. De Soto Expedition Commission 1939: 76). In May 1539, De Soto arrived in Tampa Bay on Florida's Gulf Coast with an army of about 625 soldiers and 250 horses. The gulf coast was fairly well mapped by that time (Weddle 1985), and De Soto's plan for exploration of "La Florida" involved travel inland parallel to the coast while maintaining close contact with his ships which were intended for use in resupply (Elvas 1904: 47-48). Thus, while he was still at Tampa Bay, De Soto sent his ships back to Cuba to obtain supplies as he moved north (Elvas 1904: 34; Ranjel 1904: 62).

The army fought its way north through peninsular Florida, finally arriving at Apalachee near present-day Tallahassee in October 1539 (Ewen 1988). De Soto immediately made contact with his supply fleet which he then sent west along the coast to find a suitable port for their next rendezvous (Elvas 1904: 47-48). While the ships were absent on their westward voyage, soldiers captured a young boy in the vicinity of Apalachee, and information he provided led to a dramatic change in De Soto's plans. This boy, named Perico, claimed to have traveled throughout "La Florida" with traders, and he described a place called Yupaha where a woman chieftainess ruled over a territory rich in gold (Elvas 1904: 51; Ranjel 1904: 81). Yupaha turned out to be another name for Cofitachequi.

Based on the information provided by this boy, De Soto turned north, away from the coast in quest of Yupaha. He traveled across what is today Georgia, arriving on the banks of a river at Ocute (Figure 7.1, A)

in early April 1540 (Smith and Kowalewski 1980; Hudson, Smith, and DePratter, 1984). Upon arriving in Ocute, De Soto enquired about Yupaha or Cofitachequi. He was told that Cofitachequi was located farther to the east, across a wilderness that contained neither trails, Indian towns, nor food supplies (Elvas 1904: 59-61; Biedma 1904:11; Ranjel 1904: 89-91; Varner and Varner 1951: 276). The Indians of Ocute described another large and populous province called Coosa located inland to the northwest (Hudson *et al.* 1985), but De Soto was not to be distracted in his quest for Cofitachequi and its chieftainess. De Soto gathered together supplies and bearers for a trek across the wilderness that lay between Ocute and Cofitachequi, and in mid-April he departed from Cofaqui heading east with the trading boy, Perico, as his only guide. Perico soon lost his way and claimed to be possessed by the Devil; an exorcism was held and Perico recovered, but the expedition was by then lost in an uninhabited region without trails. The expedition spent 10 days crossing this wilderness, finally reaching a small hamlet, called Aymay, that provided enough corn to temporarily supply the starving expeditionaries with food. Cofitachequi was reported to be only two days' journey from Aymay (Elvas 1904: 59-63; Biedma 1904: 11-13; Ranjel 1904: 91-96).

After only a brief rest, De Soto and a small contingent moved upstream toward Cofitachequi, soon reaching the riverbank opposite its main town. De Soto was greeted there by the woman chief who crossed the river in canoes specially outfitted for her use. She welcomed the Spaniards to her territory and presented De Soto with a string of pearls. Soon thereafter, the army was ferried across the river and the soldiers were housed in half of the houses in the town of Cofitachequi (Elvas 1904: 64-5; Biedma 1904: 13; Ranjel 1904: 98-9).

De Soto immediately began questioning the chieftainess and her subjects about the gold they were reported to possess. The chieftainess had samples of all of the metals and precious minerals found in her territory brought before De Soto for inspection, but they included only copper, mica, and pearls, and not the gold and silver the Spaniards sought (Varner and Varner 1951: 310-11). The chieftainess then offered to allow the Spaniards to inspect the contents of her temples that contained many pearls and other objects of interest (Elvas 1904: 66; Ranjel 1904: 101).

In the temple of Cofitachequi, De Soto found more than 200 pounds of pearls and an abundance of deer-skins. He also found a variety of European items including a knife or dirk, glass beads, rosaries, and

Biscayan axes (Elvas 1904: 67; Biedma 1904: 14; Ranjel 1904: 100). All members of the expedition agreed that these materials must have originated from Ayllón's 1526 expedition to the nearby Atlantic coast. In the temple of Talimeco, an abandoned town located a league from Cofitachequi (Varner and Varner 1951: 314), De Soto entered another temple located atop a high mound (Ranjel 1904: 101). Inside the temple was a vast array of captured weaponry and tribute items including an abundance of mica and copper, as well as innumerable pearls (Ranjel 1904: 101-2; Varner and Varner 1951: 315-324).

While at Cofitachequi, De Soto sent about half of his army to the town of Ilapi, because the chieftainess had a large supply of corn stored there (Ranjel 1904: 100; Varner and Varner 1951: 325). Only Garcilaso (Varner and Varner 1951: 325) provides any information on where Ilapi was relative to Cofitachequi; he says it was located 12 leagues distant, but he does not provide a direction of travel to get there.

Food supplies were soon exhausted at Cofitachequi, so De Soto enquired about neighboring chiefdoms. He was told about Chiaha, subject to Coosa, that was located 12 days travel distant through the mountains (Elvas 1904: 68). On May 13, 1540, De Soto departed from Cofitachequi, taking with him the chieftainess to assure his safe passage on the way to Chiaha.

Biedma (1904: 15) says that De Soto departed from Cofitachequi traveling to the north. Along the way the army passed through Chelaque and Guaquili before arriving at Xualla. Word was sent to the soldiers at Ilapi, and they caught up with the army a few days after it had arrived at Xualla (Ranjel 1904: 102-3; Varner and Varner 1951: 326-28). Xualla was a large town and chiefdom located at the eastern margin of the Appalachians. During their stay at Xualla, the Spaniards were treated well and supplied with an abundance of food. Garcilaso (Varner and Varner 1951: 330) says that Xualla "belonged to this same Señora [of Cofitachequi], although it was in itself a separate province." Elvas (1904:71) says that her territory extended to Guaxule, the next town along the trail beyond Xualla on the way to Chiaha. A full discussion of the extent of the chieftainess's territory will be provided later in this paper.

On the way to Guaxule, five days travel through the mountains from Xualla, the chieftainess escaped (Elvas 1904: 71; Ranjel 1904: 105) taking with her a box of the finest pearls removed from her temple. Spanish deserters who caught up to the army at Chiaha

reported that the chieftainess and a Spanish slave were living together as man and wife at Xualla and were to return to Cofitachequi (Elvas 1904: 72). Although this account may well be true, it could just as well have been the creation of envious soldiers who themselves had wanted to remain behind in Cofitachequi (Elvas 1904: 68).

The De Soto expedition passed on through Chiaha and Coosa and ultimately explored most of what is today the southeastern United States. De Soto died on the banks of the Mississippi River in 1542, and the surviving members of the expedition ultimately reached Mexico in September 1543.

It was only 26 years after De Soto's departure that another Spanish expedition traveled to Cofitachequi. Captain Juan Pardo was sent into the interior from Santa Elena located near present-day Beaufort, South Carolina (South 1980). At that time, Santa Elena was the Spanish capital of "La Florida," and Pardo's mission into the interior centered on plotting an overland route to Mexico by which treasure obtained from Central America could be safely transported for shipment back to Spain. Pardo's secondary missions were to pacify interior Indians and obtain food stuffs to supplement the limited supplies at Santa Elena and St. Augustine (Vandera 1569).

Pardo moved into the interior with 125 soldiers on December 1, 1566 (Vandera 1569; Ketcham 1954: 69). He had with him a French interpreter, survivor of the 1562 French outpost at Port Royal (also near Beaufort), and he was led by Indian guides. On this first expedition, Pardo made it as far as the eastern foothills of the Appalachian Mountains where he found a town called Joara, the same town as De Soto's Xualla (Vandera 1569; Ketcham 1954: 70-1). At that point, the trail became impassable due to snow, so Pardo established a fort at Joara and left 30 soldiers there under the command of Sergeant Moyano. Pardo then returned to the coast with the remainder of his small force. He traveled back to Santa Elena by a different route from the one he used going inland, and he stopped at a town called Guatari (Wateree) on the way home (Ketcham 1954: 71). He spent about two weeks at Guatari, and when he left, he left behind his chaplain, Sebastian Montero, and four soldiers (Gannon 1965).

On September 1, 1567, Pardo set off into the interior again, this time with 120 soldiers (Vandera 1569; Ketcham 1954: 73, 87). He headed inland across 40 leagues of coastal plain, passing through several small towns along the way (Figure 7.1, B). On Septem-

ber 8, Pardo arrived at Guio-mae which was the same town as De Soto's Aymay or Hymahi. From there, the expedition traveled north along a river to reach Cofitachequi, which was also called Canos in the Pardo accounts. At Cofitachequi, the Pardo expedition accounts note that the terrain changed from low and swampy to higher with deep valleys, abundant stone, and red soil (Vandera 1569; Ketcham 1954: 72, 88). Clearly, Cofitachequi was at or near the Fall Line. From Cofitachequi, Pardo moved on upriver through Tagaya, Tagaya the Lesser, Gueza (Waxhaw), Aracuchi, and Otari; these towns were spaced about one or two days travel apart. After then passing through Quinahaqui and Guaquiri, Pardo reached Joara where he had left Sergeant Moyano, but Moyano was not there (Vandera 1569; Ketcham 1954: 72, 75-7, 80). During the preceding year Moyano had moved north into the mountains, attacking village after village, and finally arriving at Chiaha, another place that De Soto had visited a quarter of a century before.

Pardo moved on from Joara after a brief stopover, and on October 7 he arrived at Chiaha where he was greeted by Moyano and his men. The reunited forces then proceeded farther inland in their quest for Mexico, but threat of attack by a large force of Indians soon forced them to turn back (Vandera 1569). As they retired toward the coast, Pardo established several small forts to protect the passage that he had explored; forts with garrisons of 15 to 30 men were built at Chiaha, Cauchi, and Joara (Vandera 1569; Ketcham 1954: 74; DePratter and Smith 1980; DePratter 1987).

From Joara, Pardo travelled to some potential mining locations that Moyano may have identified during his time there. The expedition visited several "crystal" mines in the vicinity of Yssa (southeast of Joara), staking claims in the name of the Spanish Crown. Continuing on, Pardo then passed through Guatari where he picked up his chaplain and established another of his forts before moving on to Aracuchi. At Aracuchi, Pardo decided to divide his force, sending half on to Cofitachequi, while the other half traveled to Ylasi. Ylasi is clearly the same town as De Soto's Ilapi (Vandera 1569).

On January 23, 1568, the two forces were reunited at Cofitachequi (Vandera 1569). At Cofitachequi, Pardo obtained a good supply of corn which he ordered moved downstream to Guio-mae in canoes. From Guio-mae, the expedition moved across the coastal plain, gathering corn along the way for the resupply of Santa Elena as they went. Once back on the coast, Pardo built another fort at Orista (near present-day Beaufort), and

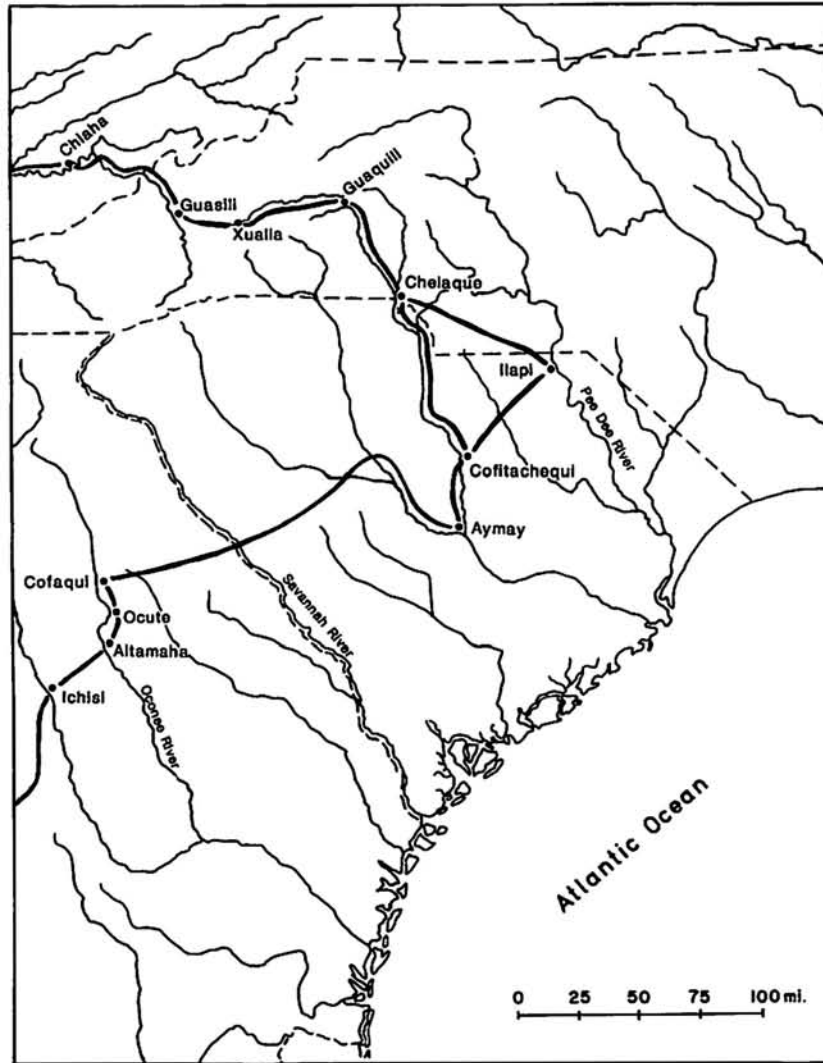
he sent a contingent of 30 men back to Cofitachequi to build and man a fort there. The remainder of his party arrived back at Santa Elena on the afternoon of March 2, 1568 (Vandera 1569).

Before moving on to discussion of other European visitors to Cofitachequi, it should be pointed out that the Pardo expedition accounts are extremely important in trying to reconstruct a map of 16th century explorations in the interior. The long Vandera account (1569), written by the official Pardo expedition scribe, provides an abundance of information on distances and directions of travel between Indian towns, in many cases on a day-by-day basis. Because Pardo frequently made side trips and then returned to the main trail that he was following, we have triangulation points and measurements that are useful in plotting town locations accurately. Another important aspect of Pardo's explorations is that he visited many of the same towns that De Soto did. Thus, the Pardo accounts can be used to accurately locate such places as Cofitachequi, Ylasi, Joara, and Chiaha that could be located with far less accuracy using the De Soto accounts alone (Hudson 1987a, 1987b).

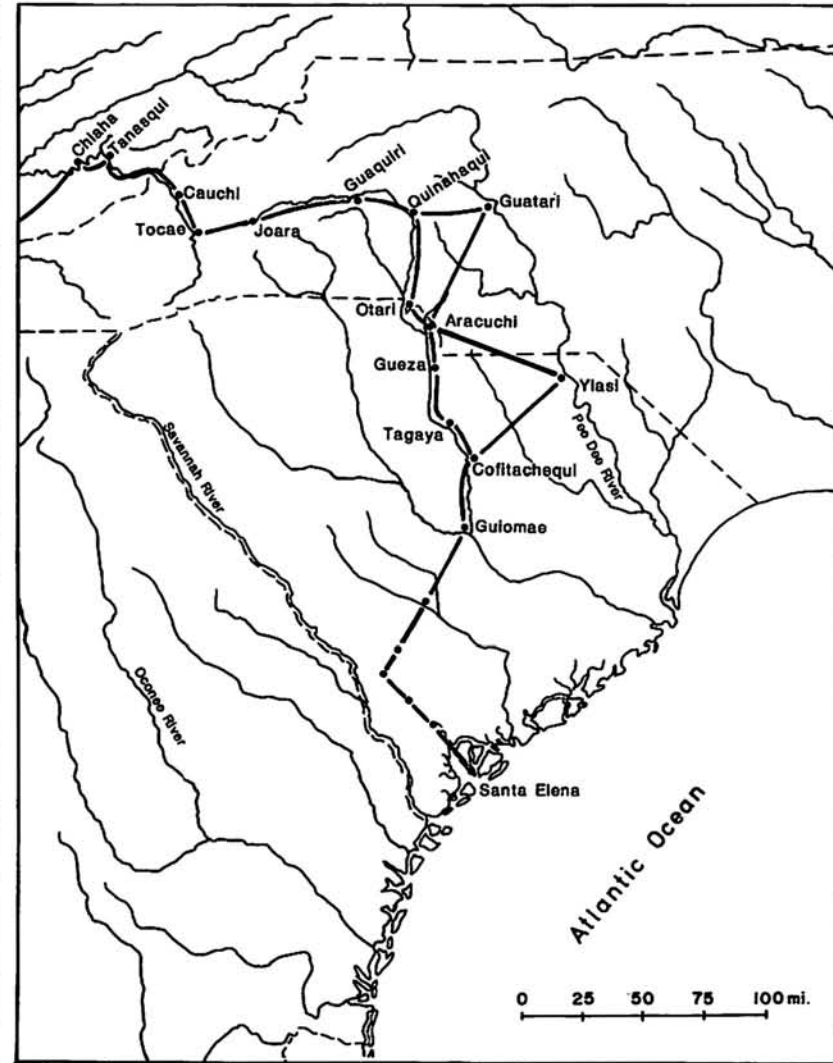
The next European expeditions that provide information relating to the region surrounding Cofitachequi arrived in the first decade of the 17th century. In 1605 and 1609, Captain Francisco Fernandez de Ecija was dispatched from St. Augustine to search along the Atlantic coast for signs of a reported English colony (Hann 1986). In August, 1605, Ecija's ship entered the mouth of the Jordan River (the Santee); from there he tried to sail upstream, but the current was too swift. Stopping in the harbor, he enquired about Indians in the interior. He was told that Indians from the interior brought skins, copper, and other metals to the coast to trade for fish, salt, and shellfish. The copper was said to come from a town called Xoadá located near a high range of mountains (Hann 1986: 10). Xoadá is probably the same as Pardo's Joara and De Soto's Xualla.

Ecija took several Indians from the mouth of the Jordan back to St. Augustine for questioning. There one of the captives said that he had been as far inland as Guatari (a place previously visited by Pardo), and he provided a list of places that lay between the mouth of the Jordan and Guatari. Among the towns he listed was Lasi (Hann 1986: 10), probably identical to Pardo's Ylasi and De Soto's Ilapi. Other towns listed by the captive are not identifiable with placenames listed by either Pardo or De Soto, perhaps because neither of those expeditions spent much time inland in the area around Ylasi.





A.



B.

Figure 7.1: A. Exploration route of the Hernando De Soto expedition, 1540 (Redrawn from Hudson, Smith, and DePratter 1984). B. Exploration route of the Juan Pardo expedition, 1567-1568 (Redrawn from DePratter, Hudson, and Smith 1983).

Ecija returned to the mouth of the Jordan in 1609, again in search of an English settlement thought to be farther north along the coast (Hann 1986: 17-61). Despite the fact that Jamestown had been settled by then, Ecija found no sign of that colony. His account (Hann 1986: 24-46) of a second stopover in the mouth of the Jordan provides no additional information on Indian town locations in the interior. It is interesting that neither of Ecija's accounts provides any mention of Cofitachequi. Reasons for this omission are unclear.

The final Spanish expedition known to have reached Cofitachequi arrived in 1627-1628 (Rojas y Borja 1628; Swanton 1922: 220). Sometime in 1627, the Governor of Florida dispatched an expedition from St. Augustine to investigate reports that there were mounted Europeans roving about in the interior. Ten Spanish soldiers and 60 Indians under the command of Pedro de Torres spent four months in the interior searching for these intruders. Torres returned to St. Augustine and reported his failure to find any sign of Europeans (Rojas y Borja 1628).

The Governor was not satisfied by this report, however, so sometime late in 1627 or early in 1628, Torres and his small force were once again sent into the interior (Rojas y Borja 1628). Available documents do not say how long Torres was gone on this second trip, but he is reported to have traveled more than 200 leagues in his search. Torres and his men reached Cofitachequi where "he was well entertained ... by the chief, who is highly respected by the rest of the chiefs, who all obey him and acknowledge vassalage to him" (Rojas y Borja 1628). It is worth emphasizing here that the only named place in the available summaries of Torres's expeditions is Cofitachequi.

In the years following Torres's journeys to Cofitachequi, there were no other Spanish expeditions into the interior, or at least none are known from documents studied and published to date. Accounts describing additional expeditions may still await discovery in archives located in Spain, Cuba, Mexico, or other former Spanish colonies.

By 1670, Spanish withdrawal toward St. Augustine was well underway. Santa Elena had been abandoned in 1587, and all of the coastal Georgia missions were abandoned by 1686. The English settlement at Jamestown was founded in the lower reaches of Chesapeake Bay in 1607, and another English settlement of coastal North Carolina was attempted as early as the 1660s (Quinn 1977: 447-460). Charles Towne was settled in the late Spring of 1670, and only a few months

later Henry Woodward traveled to Cofitachequi. Within little more than a decade after Woodward's visit, Cofitachequi was gone.

#### WHERE WAS COFITACHEQUI?

*Doubtless more scholarly speculation has been expended upon attempts to trace the route of Hernando de Soto than upon any comparable problem in American history. Respecting most of the points upon this route every one who has attempted an interpretation seems to have arrived at a different conclusion. Upon one locality, however, recent authorities are in substantial agreement. I refer to the town and "Province" of Cofitachequi. Although estimates may vary by a few miles, it is now generally thought to have been situated on the eastern bank of the Savannah River, some distance below the fall line.*

Chapman Milling (1969: 65)

Given the documentary information summarized in the preceding section of this paper, any proposed location for the chiefdom of Cofitachequi must mesh with descriptive details contained in available documents. A number of those details can be summarized as follows. Cofitachequi was located to the east of a large uninhabited buffer zone nine or 10 days travel or about 150 miles across (Elvas 1904: 61; Biedma 1904: 11). The archaeological remains of the chiefdom of Ocute must be present to the west of the same wilderness (Elvas 1904: 60; Ranjel 1904: 91). The remains of the Cofitachequi chiefdom should be composed of a major center (Cofitachequi) located on a river (Elvas 1904: 64-65; Ranjel 1904: 99; Biedma 1904: 13; Ketcham 1954: 70, 79) with other large towns nearby (Elvas 1904: 66; Varner and Varner 1951: 298). One of those towns (Talimeco), about a league from the main town, should be on "an eminence overlooking the gorge of the river" and contain a high mound (Ranjel 1904: 101; Varner and Varner 1951: 314).

Upstream from Cofitachequi should be remains of towns occupied by the Waxhaw (Vandera 1569; Ketcham 1954: 79), the Sugeree (Vandera 1569), and the Catawba or Issa (Vandera 1569). There must also be another river to the east of the River on which Cofitachequi was located, since both De Soto and Pardo sent contingents to the town of Ilapi or Ylasi located on that second river (Ranjel 1904: 100; Varner and Varner 1951: 325-8; Vandera 1569). The seacoast should be about 30 leagues (about 104 miles) distant from Cofitachequi if we accept Biedma's (1904: 14) estimate and the evidence in the Pardo expedition accounts (Vandera 1569; Ketcham 1954).

Remains of the main town of Cofitachequi should be extensive, since De Soto's army of more than 600 men was housed in half of the town's houses (Biedma 1904: 13; Varner and Varner 1951: 303). Although there is no mention of mounds in any of the descriptions of Cofitachequi, the main town did contain a large temple and such temples were typically located atop mounds (DePratter 1983). And finally, if the chiefdom of Cofitachequi observed by De Soto and Pardo in the 16th century and Woodward in the late 17th century were indeed the same place, then archaeological remains of the chiefdom must span the interval between 1540 and 1670.

A key source of information regarding the placement of Cofitachequi is found in the accounts of the De Soto, Pardo, Torres, Ecija, and Woodward expeditions as previously discussed. Until recently, the four accounts describing the De Soto expedition were the most reliable sources for plotting the distribution of Indian societies in the interior southeast. Although the information in those De Soto expedition accounts is often general in nature and sometimes conflicting, taken together that information does allow reconstruction of the route followed (Hudson 1987a, 1987b). Details contained in the three brief Pardo expedition accounts and those of Torres and Ecija supplement information found in the De Soto narratives.

Despite the fact that there were many attempts to trace De Soto's route prior to and following the work of the U.S. De Soto Expedition Commission (1939: 12-46, Map 2; Brain 1985), it is the work of this commission that has remained the standard reference on De Soto's route until very recently. The U.S. De Soto Expedition Commission was created by Congress in 1935 to trace De Soto's route as part of the commemoration of the expedition's 400th anniversary. The Commission was composed of John Swanton, eminent ethnohistorian from the Bureau of American Ethnology at the Smithsonian Institution, and six other members, but it is clear that Swanton was the Commission's most active and most influential member (Sturtevant 1985: v-vi). Appointment to the De Soto Expedition Commission allowed Swanton to continue research on a topic that had interested him for more than 20 years (Swanton 1912, 1922, 1932). As Chairman of the Commission, Swanton took the opportunity to travel along his proposed route, visiting with historians and archaeologists as well as viewing the landscape of the region.

As a result of the exhaustive research that went into the Commission's report, that volume has stood as

a nearly unimpeachable reference on the route taken by De Soto and his followers. The Commission's report differs from most of its predecessors in that it carefully plots the movements of the expedition along the entire route followed. Most other previous reconstructions traced only portions of the route or were presented as route lines on maps without reference to day-by-day movements.

In more recent times, the Commission's reconstructed route has come under increasing scrutiny for several reasons (Brain 1985). First, several of the sites identified by the Commission as locations of 16th century towns were collected or excavated by archaeologists and found to be either too early or too late to have been visited by De Soto (De Jarnette and Hansen 1960; Fleming 1976; Scurry *et al.*, 1980; Smith 1976). Second, we now know much more about the distribution of archaeological sites across the region than was known in Swanton's time, and we are therefore better able to match concentrations of 16th century archaeological sites with places where the Spaniards encountered concentrations of people, and we can match areas lacking archaeological sites with the uninhabited buffer zones or "deserts" crossed by the expedition (DePratter 1983; Hudson *et al.* 1984; Brain 1985; Hudson *et al.* 1985; Hudson 1987).

Third, we have additional primary documents, particularly the long Vandera account describing the Pardo expedition, which contribute significantly to our ability to pinpoint towns and provinces visited by De Soto (Vandera 1569; DePratter *et al.* 1983). Fourth, we know that there were two league measures in use in the 16th century Southeast and that it is likely that travel estimates in both the De Soto and Pardo accounts were in common leagues of 3.45 miles rather than legal leagues of 2.63 miles (Chardon 1980). Swanton and the U.S. De Soto Expedition Commission (1939: 104) accepted the legal league as the standard used by these expeditions. And finally, we now have far better topographic maps of the Southeast than were available to Swanton and his colleagues. These maps have proved to be a critical resource in plotting the expedition's route across the southeastern landscape.

Using the information and resources then available to them, Swanton and the De Soto Expedition Commission (1939: 183) placed the main town of Cofitachequi "on the Savannah River not far below Augusta and on the South Carolina side whether it was or was not precisely at Silver Bluff." The Commission's report (1939: 180-185) summarizes the arguments for placing Cofitachequi on the Savannah rather

than on the Broad or Congaree in South Carolina, and those arguments do not need to be summarized here.

Problems with placement of Cofitachequi on the Savannah River were apparent to Swanton from the very beginning. For instance, Swanton was aware of the fact that the Pardo expedition accounts placed the Waxhaw, Esaw (Catawba), Sugeree, and other Siouan groups in close proximity to Cofitachequi. If Cofitachequi were on the Savannah River, then these other groups must also have been on or near the Savannah in the 16th century. But in 1670 when Charles Towne was settled, each of those groups was clearly located on the upper Wateree/Catawba River drainage. In order to compensate for this inconsistency, Swanton (1946: 30, 67, 104, 206) was forced to conclude that there was a general northeastward migration of Siouan groups from the Savannah River drainage to the Wateree/Catawba river drainage in the century following Pardo's expedition.

Another example of problems relating to placement of Cofitachequi on the Savannah River concerns another group, the Westo. From Spanish and English accounts of the 1660s and 1670s, it is clear that the Westo were settled near the Fall Line on the Savannah River by the 1660s. It is equally clear from Woodward's visits to the Cofitachequi (Cheves 1897: 186, 191, 194, 220, 316) and the Westo (Cheves 1897: 456-462) that these two groups were not neighbors. So how did Swanton deal with this problem? He proposed another relocation, this time suggesting that Cofitachequi must have moved upstream along the Savannah River from their 16th century Fall Line location to make way for the arrival of the hostile and aggressive Westo in the mid-17th century (Swanton 1922: 220).

There are several points that can be made which clearly illustrate the inaccuracy of these movements proposed by Swanton and the U.S. De Soto Expedition Commission. First, we have an increasing body of archaeological knowledge that allows us to plot the distribution of major Indian settlements in the 16th century, and by the same means we can identify areas devoid of Indian occupation during the same period. This newly available archaeological data demonstrates that the Savannah River Valley, extending from the coast nearly to the Blue Ridge province, was unoccupied between about A.D. 1450 and 1660 (Gardner and Rappleye 1980; Goodyear *et al.* 1983; Hally and Rudolph 1986; Hanson *et al.* 1978, 1981; Hemmings 1970; Rudolph and Hally 1985; Scurry *et al.* 1980; Stoltman 1974; Taylor and Smith 1978; Anderson *et al.* 1986; Hally *et al.* 1985; DePratter 1989). Thus, it is clear that

neither the chiefdom of Cofitachequi nor its Siouan neighbors ever occupied the Savannah River Valley despite Swanton's arguments to the contrary.

Second, we now have available the detailed account of Pardo's second expedition into the interior (Vandera 1569) that provides travel distances and directions to Cofitachequi and beyond from the Santa Elena starting point. This document, taken in conjunction with the other Pardo expedition accounts (Ketcham 1954; DePratter 1987) makes it clear that Cofitachequi was located on the Wateree River near Camden, South Carolina (DePratter *et al.* 1983). This Pardo expedition placement of Cofitachequi is supported by information contained in the De Soto expedition accounts (Bourne 1904; Hudson *et al.* 1984; DePratter 1987; Hudson *et al.* 1989). Placement of Cofitachequi and its neighbors based on tracing of De Soto and Pardo routes by Hudson, DePratter, and Smith is given in Figure 7.1, A and B.

Although Hudson and his colleagues have provided the most thorough documentation for De Soto's and Pardo's travels in South Carolina, Ross (1930), Baker (1974), and Gannon (1965, 1983) each previously placed Cofitachequi in central South Carolina. Ross (1930), drawing on the three shorter Pardo accounts, placed Cofitachequi on the Congaree River near present-day Columbia. Baker (1974: 91, IV-7), using De Soto, Pardo, and Woodward accounts, argued for the placement of the chiefdom's main town on the upper reaches of the Santee River, approximately 30-35 miles south of Camden. Gannon (1965; 1983), using the longer, detailed Vandera account of the Pardo expedition, placed Cofitachequi in the vicinity of Columbia, South Carolina. These three placements of Cofitachequi vary from one another, and none traces day-to-day movements of either the De Soto or Pardo expeditions. Although each of these locations was in the right neighborhood, none was correct.

If we accept the placement of Cofitachequi on the Wateree River as proposed by Hudson, DePratter, and Smith, then the next question to ask is: Does the available archaeological evidence support that placement? We can begin answering this question by looking at the distribution of major archaeological sites (i.e. those with platform mounds) over an area including eastern Georgia and all of South Carolina (Figures 7.2 and 7.3). Information on dating of sites illustrated on those maps is derived from several published and manuscript sources (Hally and Rudolph 1986; Caldwell 1953; De Baillou 1965; Caldwell and McCann 1941; Anderson and Schuldenrein 1983, 1985; Ferguson

1974, 1975; Stuart 1970, 1975; Teague n.d.; Ryan 1971; DePratter 1975; Judge 1987; Williams 1984, 1985; Williams and Shapiro 1986, 1987; DePratter and Judge 1986) as well as reexamination of archaeological collections stored at the South Carolina Institute of Archaeology and Anthropology.

Figure 7.2A shows the distribution of mound sites which were occupied about A.D. 1250-1300. These sites are distributed across the landscape with most major river systems containing one or more mound centers. Excavations in mounds at these sites typically show evidence of ceremonial structures covered by later platform mounds. This construction sequence has been interpreted to be a reflection of increasing sociopolitical complexity where tribal level societies were gradually developing into chiefdoms ruled by powerful chiefs (DePratter 1977, 1983; Rudolph 1984; Anderson 1986, 1987).

Figure 7.2B plots the distribution of mounds in the interval between about A.D. 1400-1450. Many of the same sites occupied earlier continued to be occupied, and some new mound centers were settled for the first time. The known site distribution is still rather even across the landscape, with each major river valley containing one or more major centers. Our current understanding of polities in existence at this time is not well-developed, but Hally and Rudolph (1986) have provided preliminary polity boundaries for the Savannah River and areas to the west.

At some time shortly after A.D. 1450, a dramatic series of changes occurred in distribution of centers with mounds (Figure 7.3A). The most dramatic shift in site distribution occurred in the Savannah River Valley which had been a major focus of regional occupation in the preceding centuries. The upper reaches of the Savannah River drainage continued to be occupied (Hally and Rudolph 1986), but the remainder of the valley all of the way to the coast was abandoned (Anderson, Hally, and Rudolph 1986). To the east in South Carolina, both the Broad and Saluda River Valleys also were abandoned at this time. The Scott's Lake Mound Site on the upper reaches of the Santee River was also abandoned, and no other mound site seems to have originated in its vicinity to take its place.

Following this series of movements and abandonments, the lower Wateree River Valley was clearly the focus of occupation to the east of the Savannah River (Figure 7.3B). The lower Wateree Valley site cluster undoubtedly represents the archaeological remains of the chiefdom of Cofitachequi, whereas the Oconee

River cluster contains the remains of the Ocuta chiefdom (Smith and Kowalewski 1980).

How does the Wateree Valley location for Cofitachequi fit with the locational criteria listed at the beginning of this section? Clearly the necessary buffer zone of an appropriate width exists between the Wateree and Oconee rivers. The Wateree valley contains several mound sites, but at present only one, the Mulberry site, is known to have been occupied during an appropriate time interval to have been seen by De Soto and those who came after him. In the early historic period the Waxhaw, Sugeree, and Catawba were located up the Wateree/Catawba valley from the Camden area where the Mulberry site is located, just as we would expect from the historical accounts. The distance from the seacoast, approximately 100 miles, fits with Biedma's estimate. At present, there is no other known locality that fits these criteria as well as the central Wateree valley.

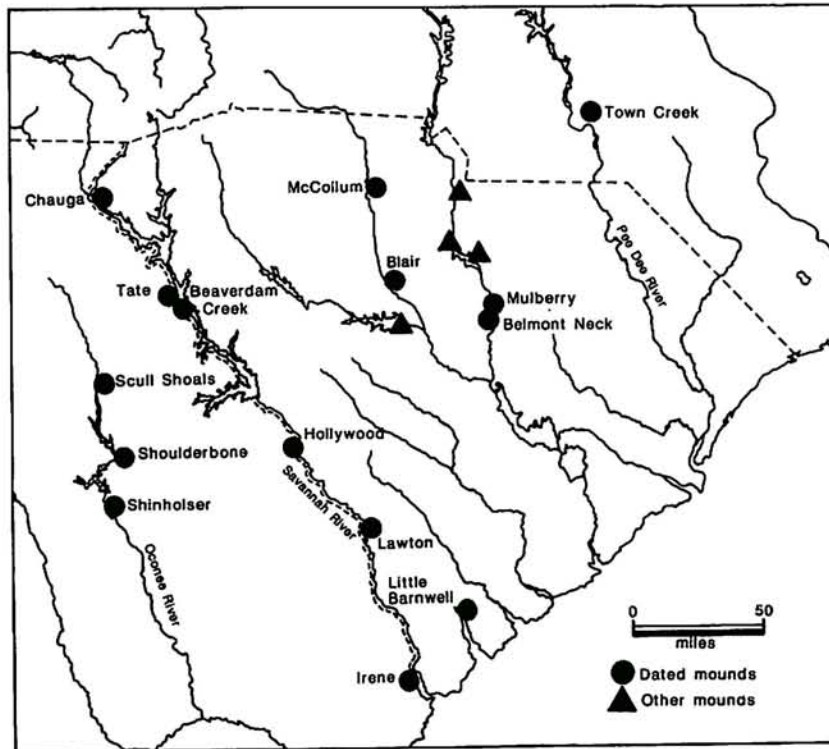
#### IS THE MULBERRY SITE THE MAIN TOWN OF COFITACHEQUI?

*The next day [May 1, 1540], the Governor came to the crossing opposite the village [of Cofitachequi], and the chief Indians came with gifts and the woman chief, lady of that land whom Indians of rank bore on their shoulders with much respect, in a litter covered with delicate white linen. And she crossed in the canoes and spoke to the Governor quite gracefully and at her ease. She was a young girl of fine bearing; and she took off a string of pearls which she wore on her neck, and put it on the Governor as a necklace to show her favour and to gain his good will. And all the army crossed over in canoes and they received many presents of skins well tanned and blankets, all very good; and countless strips of venison and dry wafers, and an abundance of very good salt. All the Indians went clothed, down to their feet with very fine skins well dressed, and blankets of the country, and blankets of sable fur and others of the skin of wildcats which gave out a strong smell. The people are very clean and polite and naturally well conditioned.*

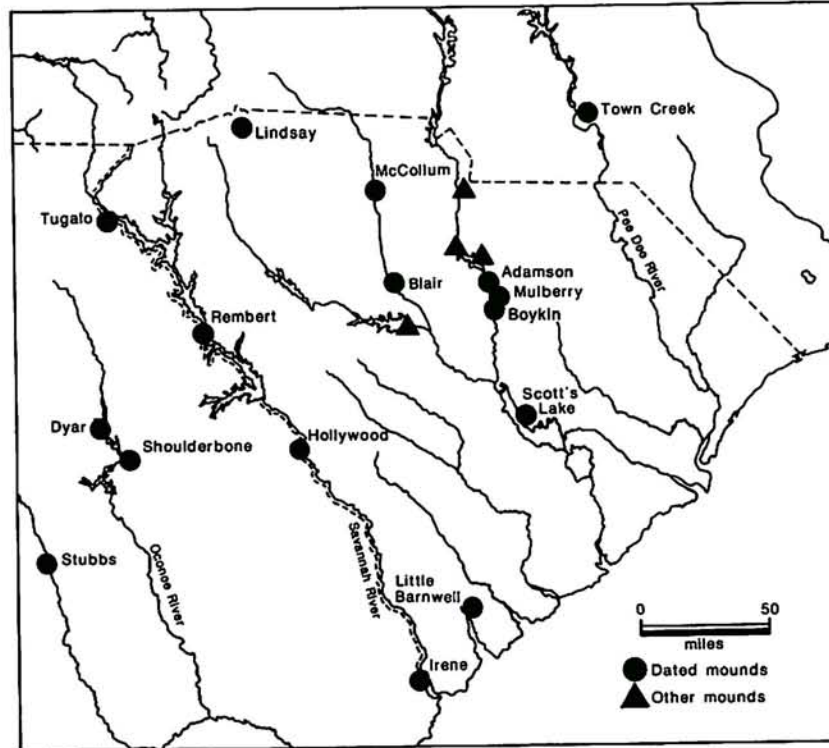
Rodrigo Ranjel (Bourne 1904: II, 98-9)

Of the several mound sites located in the lower Wateree River valley, only the Mulberry site (38KE12) can be shown to have been occupied during the 16th century (Figure 7.3B). The site was first recorded in the early 19th century (Squier and Davis 1848:107), and since then there have been several excavation and mapping projects conducted there (Thomas 1894;

7. Cofitachequi: Ethnohistorical and Archaeological Evidence

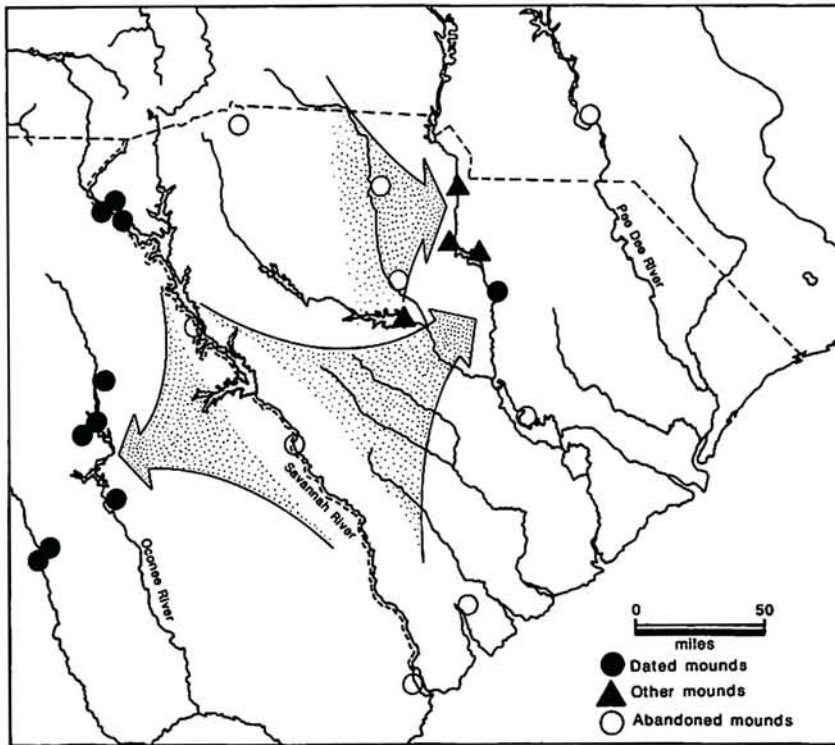


A.

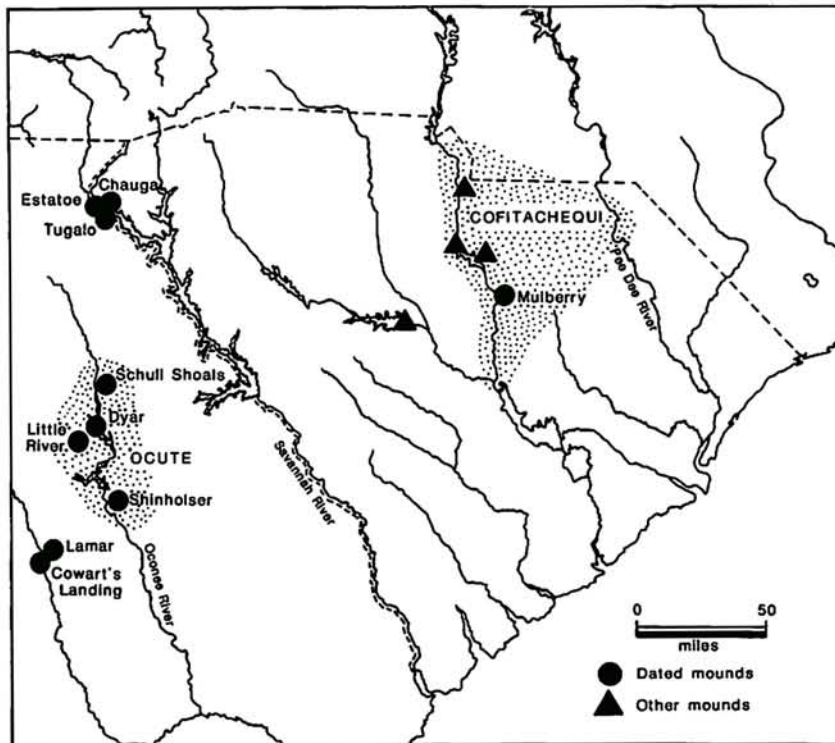


B.

Figure 7.2: A. Distribution of mound sites c. A.D. 1300. B. Distribution of mound sites c. A.D. 1450.



A.



B.

Figure 7.3: A. Possible population movements resulting in abandoned buffer zone centered on Savannah River after A.D. 1450. B. Distribution of mound sites c. A.D. 1540.

Ferguson 1973, 1974; Stuart 1975; Merry 1982; Merry and Pekrul 1983; Sassaman 1984; Sutton 1984; DePratter 1985a; Grimes 1986; Judge 1987). Despite all of this research, the site is still poorly known.

The site originally had at least three mounds. The largest mound, Mound A, was approximately 9-10 feet (2.75-3.05m) high when it was first described (Squier and Davis 1848: 107). This mound is located adjacent to the present channel of the Wateree River and more than three-quarters of it has been eroded away in the past century and a half. Mound B, located approximately 50m east of the riverbank, was also originally about 12-15 feet (3.7-4.6m) high. A smaller mound two feet (0.6m) high located near Mound B was destroyed in 1953 (Thomas 1894: 327; Stuart 1975: 99).

The occupation of the Mulberry site spans the interval between A.D. 1250 and the latter part of the 17th century (DePratter and Judge 1986). Occupation spans for the various parts of the site are not completely known at present, but some estimates can be made. Village occupation apparently began at about A.D. 1250 along the riverbank, with construction of Mound A atop village deposits by about 1300-1350. Given presently available data, abandonment date for Mound A cannot be determined. Mound B was begun about A.D. 1450-1500 and may have been used for 75-100 years. Burials excavated by Kelly (Ferguson 1974: 83-87) date to the A.D. 1400-1450 era, but it is not known at present if they were from house floors, a mortuary, or a cemetery. Village debris dating to the later portion of the site's occupation extends inland away from the river for a distance of approximately 250m. Total size of the village area cannot be determined due to a thick alluvial layer that covers much of the site.

Clearly the Mulberry site is large enough to have been the main town of Cofitachequi, and its occupation spans the appropriate time interval for it to have been visited by De Soto, Pardo, and Woodward. There is no other large site anywhere in the vicinity that can be shown to have been occupied during the mid-16th century (DePratter and Judge 1986). Despite the fact that extensive excavations have been conducted on both the land portion of the site and in adjacent portions of the Wateree River and Big Pine Tree Creek, no 16th or 17th century European artifacts have been recovered. While this would at first glance seem to be an argument against the Mulberry site being Cofitachequi, the lack of European artifacts is probably a factor of their distribution. Only limited excavations have been conducted in the contact period portion of the site, and even there no burials have been excavated. We know

from excavations elsewhere in the region that European trade items appear most commonly in association with burials, so the lack of European artifacts is at least in part due to a lack of data from burials. Present evidence indicates that Mulberry must be Cofitachequi despite the lack of artifactual evidence from the contact period.

If Mulberry is indeed Cofitachequi, then the Adamson site, 38KE11, is the most likely candidate for the location of De Soto's Talimeco (Squier and Davis 1848: 106-107; Stuart 1975: 59-84; DePratter 1985b). Adamson is located about 6.4km (a little more than a league) upstream from the Mulberry site, and it has two mounds including one located directly adjacent to a former channel of the river. These characteristics fit with the descriptions provided by the De Soto chroniclers for Talimeco. Although the Adamson site appears to date mainly to the A.D. 1250-1400 interval, there is some indication of later use (Stuart 1975: 59-84). There is a strong possibility that the temple atop the large mound on this site was maintained long after the surrounding village was abandoned, and that it was this temple that was entered by De Soto in 1540.

#### EXTENT OF THE CHIEFDOM OF COFITACHEQUI

*From Guioenez, he [Pardo] went straight to Canos, which the Indians call Canosi, and by another name Cofetazque. There are at the end of this land three or four rivers, and one of them has a very large volume of water, and even two of them. There are some small swamps that anyone, even a boy, can cross on foot. There are in this section deep valleys, with much stone and boulders and low ones. The earth is red and very good; much better in fact than all the preceding.*

Juan de la Vandra, 1569 (Ketcham 1954: 79)

The next question to be answered concerns the extent of the territory included in the chiefdom of Cofitachequi. Although the available documentary information is not as complete on this subject as we might like, there are clearly some inferences that can be made from that which is available.

John Swanton, working in the first half of the 20th century, predated development of the concept of chiefdom, and he generally argued against evidence for any degree of advanced levels of socio-political complexity among southeastern Indian groups. That problem, compounded by the fact that Swanton and the De Soto Expedition Commission placed Cofitachequi on the Savannah River rather than the Wateree, makes



most of what Swanton had to say on the subject useless today. More recently, Baker, Hudson and his colleagues, and Anderson have been the primary investigators concerned with the extent of this chiefdom.

Baker (1974: map facing page 1) indicates the greatest extent in his "Greater Chiefdom of Cofitachequi." His map shows Cofitachequi extending from the mouth of the Ogeechee River on the Georgia coast inland to include most of the Savannah River Valley, the Congaree, Wateree, Santee, and Black River Valleys in South Carolina, the Broad and Saluda River valleys except for their headwaters, and that portion of the Pee Dee River drainage immediately to the north and south of the North Carolina-South Carolina State Line.

In papers detailing the exploration routes of Hernando De Soto (Hudson *et al.*, 1984) and Juan Pardo (DePratter *et al.*, 1983), Hudson and his colleagues provide no estimate of the extent of the chiefdom of Cofitachequi, concentrating instead on plotting exploration routes followed by those expeditions. DePratter (1983: 21-22), however, argues that this chiefdom may have been 200 miles (320 km) across, stretching from central South Carolina to the vicinity of Asheville, North Carolina. Hudson (1986, 1987a) also proposes an extensive area for the chiefdom of Cofitachequi, although he does not include as broad a territory as Baker does. Hudson's (1986: 139-141) boundary includes "Indians all the way from the mouths of the Santee and Pee Dee Rivers on the coast of South Carolina to the upper reaches of the Catawba River on the eastern edge of the Blue Ridge Mountains." Elsewhere Hudson (1987a: 18) also includes "the Peedee [sic] River up to the narrows of the Yadkin." The map accompanying each of Hudson's papers (1986: Figure 1; 1987a: Figure 2) incorrectly show Cofitachequi extending inland along the Broad and Saluda Rivers to the mountains rather than along the Wateree-Catawba drainage as described in the text of his papers; this discrepancy is clearly a drafting error.

Anderson (1986: Figure 2) indicates a different, but still extensive, set of boundaries for Cofitachequi. Anderson's Cofitachequi includes a large portion of the South Carolina coast extending from the mouth of the Edisto River north to the North Carolina border, and then inland to include the entire Pee Dee/Yadkin River drainage, the Santee and Catawba River valleys, and the lower portion of the Broad River.

Each of these disparate sets of boundaries is based primarily on interpretation of information contained in

the De Soto and Pardo expedition accounts. Review of these documents suggests that the boundaries of Cofitachequi may not be nearly so extensive as indicated in the previously cited papers. If the main town of Cofitachequi was located on the Wateree River near Camden, South Carolina, then clearly the lower portion of the Wateree Valley must be included within the boundaries of the chiefdom. When De Soto reached the town of Aymay at the junction of the Wateree and Congaree Rivers (DePratter *et al.* 1983; Hudson *et al.* 1984; Hudson *et al.* 1989), it was there that he first learned that he was in the territory of Cofitachequi, and it is certain that the chiefdom extended downstream to this small town.

Baker, Hudson, and Anderson each extend the boundaries of Cofitachequi down the Santee River to include large portions of coast and coastal plain South Carolina. Baker (1974: 91, 94; IV-4, 5; V-15, 16) places the center of the chiefdom on the upper Santee River just below the junction of the Wateree and Congaree Rivers, so it is logical that Baker would include the Santee within his proposed boundaries. His reasons for including the central portion of the Pee Dee River valley within the Cofitachequi chiefdom are unstated. Hudson and his colleagues (DePratter *et al.* 1983; Hudson *et al.* 1984) place the Indian town of Ylasi (Ilapi) on that stretch of river, but Baker (1974: V-17) locates Ylasi near Camden on the Wateree River. In drawing his boundary for the chiefdom, Hudson (1987: 18) draws primarily on the list of chiefs who came to visit Juan Pardo as he traveled through the interior in 1566-1568. The fact that Hudson would use Pardo era data to construct boundaries for Cofitachequi is perplexing in that he argues that Cofitachequi entered a period of rapid decline after De Soto's 1540 passage and by the time of Pardo's arrival Cofitachequi did not, in Hudson's estimation, possess a paramount chief (Hudson 1984: 31).

For piedmont areas, none of these authors provides good information on why most included areas on their maps were seen as part of Cofitachequi. Anderson (1986; 1987) simply provides territorial limits without any justification in his text, although he does cite Elvas as his primary source in another paper (Anderson 1985: 52). Baker (1974: 144) includes the Congaree, Broad, and Saluda River Valleys within the limits of his "Greater Chiefdom," but he admits that "occupation [of these river valleys] is not documented but these areas were almost certainly within the territory of the chiefdom." The error in Hudson's (1986, 1987a) maps showing territorial limits in the piedmont has already been identified above.

So, what were the limits of the chiefdom of Cofitachequi? Before answering, we must pinpoint the time of which we are asking the question. Do we mean in 1540 when De Soto visited the chiefdom or 1566-68 when Pardo was there? Or are we referring to 1670 when Woodward was there? Or were the territorial limits consistent through time? If we accept Hudson's argument (1984:31; see also Milner 1980; Baker 1974: 100-101; Wright 1981:44) that the chiefdom had undergone severe declines in both population and the degree of political centralization by 1566, then Cofitachequi must have been more extensive in 1540 than at any subsequent time.

Presumably it is these maximum territorial limits that Hudson (1986, 1987a) was trying to plot on his maps. Anderson (1986) dates his map showing the extent of Cofitachequi and other chiefdoms in the region at 1540, so presumably he is using the De Soto and earlier accounts for his boundaries. Baker (1974: 100-101) proposes great loss of life through epidemic prior to the arrival of De Soto, but he saw Cofitachequi continuing as a powerful chiefdom up to the late 17th century when Woodward traveled there. It is clear that Baker's boundary for the chiefdom would also be applicable to the 1540 era, however.

Just what do the De Soto accounts have to say concerning the territorial limits of Cofitachequi? That information is not, of course, as clear as we would like, and that which is available is subject to a broad range of interpretation. Not one of the four extant De Soto expedition accounts provides a clear statement concerning the extent of the chiefdom. De Soto and his men visited only a narrow strand of terrain that wound its way through the region, so speculations by the chroniclers on the region's larger territorial limits and political structure must have been based on information supplied by the Indians. Clearly interpreters must have garbled some information, and we know that local chiefs also supplied misinformation just to convince the expedition to move on to the next chiefdom (Biedma 1904: 13; Varner and Varner 1951: 422).

Several examples of either misinformation or misunderstanding of conversation by De Soto and his men at Cofitachequi can be identified. The Gentleman of Elvas (1904: 66) says he was told that the sea was two days travel distant from Cofitachequi, but that straight line distance is actually more than 100 miles (a figure corroborated by another of the De Soto accounts — see Biedma 1904: 14), and clearly even more than that by trail or by water. Another example is the fact that the expeditionaries never knew if they were deal-

ing with the Chieftainess of Cofitachequi (Elvas 1904: 65; Ranjel 1904: 98-9), or both the chieftainess and her niece (Biedma 1904: 13), or with the chieftainess's daughter (Varner and Varner 1951: 304). There can be no doubt that part of this problem relates to failure of the Spanish to comprehend the kinship system of these Indians. Nonetheless, translation difficulties may have further confused the issue.

A final and more critical problem of misinformation concerns the epidemic said to have swept through Cofitachequi prior to De Soto's arrival. Neither Ranjel (1904) nor Biedma (1904) mentions the supposed epidemic, but Elvas (1904: 66) provides the following account:

About the place [the main town of Cofitachequi], from half a league to a league off, were large vacant towns, grown up in grass, that appeared as if no people had lived in them for a long time. The Indians said that, two years before, there had been a pest in the land, and the inhabitants had moved away to other towns.

Garcilaso (Varner and Varner 1951: 298) describes the epidemic as follows:

The Indians [of Cofitachequi] responded that they accepted the peace [offered by De Soto] but that they had little food because a great pestilence with many consequent deaths had ravaged their province during the past year, a pestilence from which their town alone had been free. For this reason the inhabitants of the other villages of that province had fled to the forests without sowing their fields. And now, although the disease had passed, these people had not yet been gathered to their homes and towns.

Garcilaso (Varner and Varner 1951: 325) also provides the following information said to be derived from Alonso de Carmona concerning one of the towns in the chiefdom of Cofitachequi:

And he [Carmona] says that in the town of Talomeco, where the rich temple and burial place was located, they found four large houses filled with the bodies of people who had died of the pestilence.

These are the sources on which Milner (1980), Wright (1981), Dobyns (1983), Hudson (1986, 1987a), and Smith (1987) base their conclusion that Cofitachequi

had been devastated by an epidemic prior to De Soto's arrival. I feel that there are alternate explanations that can be provided for the details of this "epidemic" as noted in the accounts above.

Garcilaso says that the main town of Cofitachequi "had been free" of the epidemic, and Elvas seems to make the same point when he says that the inhabitants of the "nearby towns" had moved away due to the epidemic. If there had indeed been an epidemic in the chiefdom of Cofitachequi, the main town surely would not have been spared devastation when all neighboring towns were depopulated. Perhaps there was no pre-1540 epidemic at Cofitachequi.

Archaeology provides an alternate explanation for the descriptions of abandoned towns provided by Elvas and Garcilaso. Upon arrival at the main town of Cofitachequi in May 1540, the expedition found corn to be in short supply because the new crop had just been planted. Half of the expedition was dispatched to Ylasi to use corn stored there, and undoubtedly search parties were dispatched into the countryside surrounding the town of Cofitachequi to seek corn stored in other towns. These search parties would have reported on the existence of the vacant towns.

We know from archaeological survey (Stuart 1970, 1975; Ferguson 1974) and historical documents (Blanding *in* Squier and Davis 1848: 105-8) that the area around present-day Camden, South Carolina, contained a number of large mound sites situated along the Wateree River. Some of those mounds have not yet been relocated, but the ones that have (with the exception of the Mulberry site-38KE12) all date to about A.D. 1200-1450. This includes the Adamson Mound (38KE11), Boykin Mound (38KE8), and Belmont Neck Mound (38KE6). These three mound sites are all located within 5 miles (about a league and a half) of the Mulberry site (38KE12—the most likely candidate for the main town of Cofitachequi), and these sites may well be the large vacant towns mentioned by Elvas and Garcilaso. Elvas (1904: 66) notes that the vacant towns were "grown up in grass that appeared as if no people had lived in them for a long time," clearly suggesting that they had been abandoned for more than the one or two years since the supposed epidemic had driven away the towns' inhabitants. I propose that these nearby mound sites, abandoned long before De Soto arrived in the Wateree Valley, were the abandoned towns referred to in the expedition accounts.

In a discussion of the supposed epidemic at Cofitachequi, Hudson (1984:31) refers to many deserted

towns and "Several buildings ... piled full of corpses" as evidence for the supposed Cofitachequi epidemic. Buildings full of corpses would indeed be good evidence of a recent epidemic if the Spaniards truly saw such mortuaries, but there is evidence that they never saw such piles of epidemic-related corpses. The Alonso de Carmona account quoted above from Garcilaso (Varner and Varner 1951: 325) provides the only reference to "houses filled with the bodies of people who had died in the pestilence." If such buildings truly existed, it seems that one of the other chroniclers would have mentioned them, since raiding parties would have scoured the region around Cofitachequi for food supplies to feed the army and its horses, and these foraging parties would have visited all of the towns affected. Garcilaso (Varner and Varner 1951: 315) says that his men paused in some houses in Talimeco, one of the abandoned towns, before entering the temple there, but he makes no mention of those houses containing bodies.

It seems far more likely that instead of describing houses full of epidemic victims, Carmona was reporting on the fact that the Talimeco temple contained bodies of past rulers of the chiefdom, and he was mistakenly identifying those bodies as victims of "the pestilence." It is clear from the accounts (Ranjel 1904: 100; Biedma 1904: 14; Varner and Varner 1951: 319) that the temple at Talimeco contained bodies of past chiefs and not just defleshed bones stored in baskets or other containers as we know occurred elsewhere in the Southeast. Probably the interior of the Talimeco temple looked much like the coastal North Carolina temple depicted by John White in the 1580s (Lorant 1946:201), showing extended bodies laid out shoulder to shoulder, and it was probably this sort of arrangement of bodies within a high status mortuary that Carmona was trying to describe. It is possible that Carmona never entered the Talimeco temple and that he was basing his description on hearsay, because Ranjel (1904: 101) suggests that there was some secrecy involved in the visit to the Talimeco temple, and it may have been entered by only De Soto and his lieutenants. If that were indeed the case, then the remainder of the army would have known about the temple's contents through second- or third-hand accounts.

I have attempted to show to this point that there may not have been a devastating epidemic at Cofitachequi prior to De Soto's arrival. We know that De Soto had some trouble understanding the Indians at Cofitachequi. We know that there were abandoned towns around Cofitachequi that could have been abandoned decades before De Soto's arrival, and there is at

least some doubt that the expedition saw houses full of epidemic victims. I would argue that the case for the supposed epidemic is quite weak.

The importance of this argument is that if there was not an epidemic just prior to 1540, how does that affect our interpretation of the later history of the chiefdom of Cofitachequi? Hudson (1984:31) argues for a marked decline in the fortunes of Cofitachequi between 1540 and 1566-68, based on the fact that Juan de la Vandra (1569) does not mention the presence of a paramount chief at Cofitachequi during Pardo's visit. At the same time, it is clear from Vandra's account that a great many chiefs traveled great distances to come to Cofitachequi to visit Pardo. If, as Hudson argues, Cofitachequi was no longer the great center or power that it had formerly been, why did so many chiefs come from so far to be there when Pardo arrived in 1567? Why did Pedro de Torres, who visited Cofitachequi 60 years after Pardo, describe the chief there as "highly respected by the rest of the chiefs, who all obey him and acknowledge vassalage to him" (Rojas y Borja 1628)? How is it that the "Emperor" found by Woodward at Cofitachequi still ruled a vast territory with many chiefs subject to him? Clearly Cofitachequi was not totally decimated by the 1538 or 1539 epidemic, if there ever was such an epidemic.

The De Soto accounts do not provide much information concerning the towns subject to the chieftainship of Cofitachequi. Aymay or Hymahi was the first place that De Soto reached after crossing the wilderness between the chiefdoms of Ocute and Cofitachequi (Ranjel 1904: 96-97; Elvas 1904: 63; Biedma 1904: 13). None of the expedition accounts specifically states that Aymay was part of the chiefdom of Cofitachequi except Garcilaso (Varner and Varner 1951: 294). Ranjel (1904: 97) and Elvas (1904: 63), however, both describe a situation where an Indian of Aymay had to be burned to death before directions to the main town of Cofitachequi could be obtained from other captives; clearly there was some sense of loyalty involved in this episode, and it is likely, therefore, that Aymay was part of Cofitachequi. The Pardo expedition accounts do not provide any information on the affiliation of this town, which was called *Guioamæ* by Vandra (1569) and Pardo (Ketcham 1954).

For towns to the south and east of Aymay, neither the De Soto nor Pardo accounts provides any clear clues to the extent of the chiefdom in that direction. While it is possible that the territory of Cofitachequi extended down the Santee River from Aymay, there is no good evidence in the documents to support such a

possibility.

Upstream from Cofitachequi, there is seemingly conflicting evidence for the extent of the chiefdom. Two of the De Soto accounts (Elvas 1904: 70; Ranjel 1904: 105) clearly state that the chieftainship of Cofitachequi was taken as hostage by De Soto and forced to accompany the expeditionaries as they traveled north and west toward the mountains, and that the chieftainship "brought...service in all the places that were passed" (Elvas 1904: 70). Another of the accounts (Varner and Varner 1951: 328) clearly states that the chieftainship was left behind in her capitol. Biedma (1904) makes no mention of the fate of the chieftainship. Given the relative unreliability of Garcilaso compared to Ranjel and Elvas, it seems likely, as is generally accepted, that the chieftainship was indeed kidnapped and forced to accompany the expedition.

The fact that De Soto and his men were treated well by the Indians whom they visited between Cofitachequi and Guaxule, located in the Appalachian mountains, has led some researchers to conclude that the intervening towns were subject to the chieftainship. But the evidence from the De Soto accounts is not so clear-cut.

The first place visited by De Soto after his departure from Cofitachequi was "Chalague" which is variously described in the expedition chronicles as a "province" (Elvas 1904: 70; Varner and Varner 1951: 325), a "territory" (Ranjel 1904: 102), and "some small settlements" (Varner and Varner 1951: 328). This province may not have been a chiefdom, since Ranjel (1904: 102) says they "were not able to come upon the village of the chief" there. Elvas (1904: 70-71) described Chalague as "the country poorest off for maize of any that was seen in Florida" where the people "subsisted on the roots of plants they dig in the wilds, and on the animals they destroy with their arrows." Even the powerful chieftainship of Cofitachequi was of no assistance in either locating the main town of the province or in obtaining more than turkeys and few deerskins as gifts for De Soto (Elvas 1904: 70-71). As Swanton (U.S. De Soto Expedition Commission 1939: 50) indicates, the name Chalague was a Creek word meaning "people of a different speech" and it is likely that the expedition had entered a region occupied by tribal level Siouan speakers after having passed through Muskogean territories. Location of this linguistic boundary just south of the South Carolina/North Carolina state line is confirmed by information in the Pardo expedition accounts (U.S. De Soto Expedition Commission 1939: 53; Ketcham 1954: 79; DePratter *et al.*

1983).

The next place visited by De Soto also presents problems regarding its affiliation with the chieftainess as well as its level of socio-political organization. The town (or province?) of Guaquili, located a few days beyond Chalaque, is mentioned by Ranjel (1904: 103) but not by the other three chroniclers. Ranjel mentions neither a chief nor a principal town there, but he does say that the Indians provided De Soto with a limited quantity of corn, roasted "fowls," dogs, and tamemes or bearers. Neither the role of the chieftainess in obtaining these supplies nor the size or extent of Guaquili is provided by Ranjel.

After passing through Chalaque and Guaquili in a trip that took about 10 days (including a two or three day stopover at Chalaque), the expedition arrived at Xualla on May 21, 1540. At Xualla, according to Ranjel (1904: 103) they found a chief who was "so prosperous that he gave the Christians whatever they asked — tamemes, corn, dogs, petacas [leather-covered baskets], and as much as he had." But Biedma (1904: 15) says only that Xualla "had a thin population," and Elvas (1904: 71) says that they found little grain there. Garcilaso (Varner and Varner 1951: 330-331), on the other hand, says that Xualla contained "a great amount of corn and of all the other grains and vegetables that we have said were to be found in Florida." Garcilaso (1951: 330) says that the expedition rested in Xualla for 15 days, but Elvas (1904: 71) places their stay at two days, and Ranjel (1904: 103-104) says four days.

From Xualla De Soto moved on to Guaxule, a place with little maize (Elvas 1904: 72; Biedma 1904: 15). The chieftainess escaped from her captors between Xualla and Guaxule (Ranjel 1904: 105; Elvas 1904: 71), and Elvas indicates that Guaxule was at the "farthest limit of her territories." Garcilaso (Varner and Varner 1951: 332) also implies that the chieftainess's territory extended to Guaxule.

This problem can be summarized as follows. Some of the De Soto expedition narratives imply that the territory between Cofitachequi and Guaxule was controlled by the chieftainess of Cofitachequi, but some of the related information in those accounts is conflicting. When traveling from Cofitachequi to Xualla, a trip of several days on the road, the Spaniards encountered only two towns and neither was well-populated or contained an abundance of foodstuffs. The fact that there were no other towns present in the area is clearly indicated by the descriptions that the army's campsites

for this segment of the expedition were consistently placed in swamps, plains, or woods with no reference to nearby Indian habitations (Ranjel 1904: 102-103). Even having the chieftainess as hostage did not bring De Soto abundant supplies along this part of the route. Clearly two towns in a distance of more than 150 miles does not mesh with what we know of town spacing within chiefdoms from the remainder of the southeast (see summary papers in Smith 1978 for comparison).

We can look at the Pardo expedition accounts for additional information on the distribution of towns in this region, since both De Soto and Pardo followed the same trails through this part of the interior. When Pardo departed from Cofitachequi (or Canos as he also called it), he also moved north where he found several towns called Tagaya, Tagaya the Lesser, Gueza (Waxhaw), Aracuhi, and Otari in the first 60 miles of his travels (Vandera 1569; Ketcham 1954; DePratter 1987; Hudson *et al.* 1983). Beyond Otari, Pardo encountered only two additional towns in an area that took him five or six days to cross on his way to Joara or Xualla (DePratter *et al.* 1983: 141-142). One of those towns was Guaquiri, clearly identical with De Soto's Guaquili. As was the case with the De Soto expedition, Pardo and his men were forced to camp in the open along this part of their route due to the absence of Indian towns (Vandera 1569; Ketcham 1954).

Based on the information in the accounts of these two expeditions, I would argue that both De Soto and Pardo traveled through many towns between Cofitachequi and the present-day North Carolina-South Carolina line where Pardo found Otari. These towns, including Tagaya, Tagaya the Lesser, Gueza (Waxhaw), and perhaps Otari, within three to four days travel from Cofitachequi, would have been subject to the chieftainess of Cofitachequi and would have been the places where she ordered "the Indians to come and take the loads from town to town" (Elvas 1904: 70) as she traveled with her captors. At about the present North Carolina-South Carolina state line, there was the previously discussed linguistic boundary with Muskogean languages spoken to the south and Siouan spoken to the north. Beyond that line was a vast sparsely occupied territory that stretched the 100 or so miles to Xualla. Within that distance, De Soto encountered only Chalaque and Guaquili (discussed above), and Pardo found Quinahaqui and Guaquiri. All available information on these places indicates that they were small, isolated settlements.

While it is possible that the chiefdom of Cofitachequi extended all the way to Xualla or Guaxule as

described by Elvas and Garcilaso, it seems far more likely that it extended only as far north as the linguistic boundary at the present state line (Figure 7.3, B). This interpretation is consistent with what is known of the archaeology of the upper Wateree/Catawba River Valley (Levy *et al.* 1989). Beyond that point there were only a few small towns that probably were tribal level peoples not subject to anyone. The affiliation of the Yssa (Issa or Catawba) that Pardo found to the west of the Wateree/Catawba River is not known.

Downstream from Cofitachequi there is even less firm evidence for the extent of the chiefdom. If Aymay or Guiomae was indeed subject to Cofitachequi as the documents seem to indicate, there do not seem to be too many other towns located near it. When Pardo passed through Guiomae, only one other chief, Pasque, came to visit Pardo while he was there (Vandera 1569). This would seem to indicate that there were few other towns in that direction. The absence of 16th century mound sites (see above) in the upper Santee River valley would also seem to indicate that there were no large population centers there. Any attempt to extend the limits of Cofitachequi even farther south and southeast to the coast is pure speculation that goes counter to the sparse evidence available.

To the east of Cofitachequi, it is clear that Ilapi (of De Soto) and Ylasi (of Pardo) was part of the chiefdom of Cofitachequi. Both De Soto and Pardo sent contingents there to gather corn supplies belonging to Cofitachequi. Distances and directions provided in the De Soto and Pardo expedition accounts as well evidence in the Ecija accounts clearly indicate that Ylasi was located on the Pee Dee River in the vicinity of present-day Cheraw (DePratter *et al.* 1983; Hudson *et al.* 1984). Extent of this territory upstream or downstream from Cheraw cannot be determined from the documents.

To the west, Cofitachequi was bounded by the vast uninhabited buffer that extended all of the way to the Oconee River valley in Georgia. Large sites that had formerly existed in the adjacent Broad River Valley were abandoned by about A.D. 1450 (DePratter 1987).

#### SUMMARY AND CONCLUSIONS

The preceding discussion of Cofitachequi's boundaries is clearly based on information from the De Soto and Pardo accounts and therefore is applicable only to the mid-16th century. Unfortunately, the 17th and 18th century accounts of Torres and Woodward, respectively, do not provide us with any clear information regarding boundaries at the time of their visits.

Given my arguments against a pre-1540 epidemic at Cofitachequi and the likely continuation of chiefdom status for this polity throughout the 16th and most of the 17th century, however, I feel that it is unlikely that the restricted boundaries that I have defined for the chiefdom changed markedly during the period in question. In other words, the "Emperor" of Cofitachequi who entertained Henry Woodward in 1670 must have ruled over most, if not all, of the same territory controlled by the "Lady" of Cofitachequi when De Soto was there 130 years earlier.

In 1670, the English settled Charles Towne on the South Carolina coast, and the chief of Cofitachequi visited there on at least two occasions. Within only a few years of Charles Towne's founding, the chiefdom of Cofitachequi ceased to exist. Its people had left their homeland, abandoning their sacred mounds and the graves of their ancestors. The region in which Cofitachequi existed and flourished for at least two centuries had entered a new era which was to be dominated by the persistent expansion of the English settlement on the nearby coast as well as by the slave raids and the deer skin trade that these invaders initiated.

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## Chapter 8

### FROM ARCHAEOLOGY TO INTERPRETATION AT CHARLES TOWNE

Stanley South

#### INTRODUCTION

In a volume dedicated to Bob Stephenson, it is appropriate that my chapter focus on the work at Charles Towne Landing since it was at that site in 1968 that I began my relationship with him. It is also appropriate that a statement on Charles Towne be presented here because that site has had a seminal influence on all my work to follow, with 13 articles, monographs, and books resulting from the nine months of fieldwork I carried out on the site in 1969 (South 1969a, 1969b, 1969c, 1970a, 1970b, 1971a, 1972a, 1972b, 1974a, 1974b, 1977) and two articles by Bob Stephenson (1969, 1970). This does not include the articles dealing with the prehistoric components—baked clay objects, Indian pottery taxonomy for the South Carolina coast, and the Charles Towne moundless ceremonial center (South 1970c, 1973, 1974a). Much remains to be published in this area on the Charles Towne site, and hopefully in the near future a monograph on the prehistoric Indian occupation will be published in the *Anthropological Studies* series of the South Carolina Institute of Archaeology and Anthropology.

It might well be argued that with so much in print already on the Charles Towne expedition, which was sponsored by the Tricentennial Commission, that another article on the work carried out there would not be necessary. It is ironic that, in spite of the publication of so many articles, chapters, etc., based on work at Charles Towne, Bob and I felt more needed to be published due to the time depth the site offered, from the Archaic period with a variety of baked clay objects, through a moundless ceremonial center of the Mississippian period, to a post-ceremonial center occupation that I have called the Ashley Series in the York Ware Group (South 1973). Unfortunately, funds have never been available for publication of the technical report on the prehistoric Indian components at Charles Towne and it is for this reason results have been published as articles or chapters over the past 15 years in a piecemeal fashion, though that is not to imply the results have not been useful. The publication record on the site speaks for itself.

What I plan to do in this short essay is to present

primarily a visual documentation of the process we went through at Charles Towne in translating the 1670-1680 period archaeological features into the interpretive defensive ditches, embankments, embrasures, and palisades that visitors to the site have been seeing and wondering about for the past 15 years. This process of historic site development continues to be carried out on historic sites from archaeology to interpretive exhibit as more such sites are explored and interpreted to the public. Perhaps a summary of what we did at Charles Towne with the 17th-century fortification features and a discussion of our justification may be of use to other archaeologists faced with a similar challenge.

When the English colonists forming the Port Royal Expedition arrived at Charles Towne Landing in 1670 and decided to stay there rather than at their original destination at Port Royal, they had uppermost in their minds the possible danger from the Spaniards in Florida as well as from Indians (Chevis 1897). They were instructed by John Locke to build a small ditch along the land face of their settlement, with a palisade, to protect against Indians, and a much larger one with artillery emplacements was built facing the deep water access to the site by sea. These defensive ditches were located by John Combes and myself in December 1968 (Figures 8.1c and 8.1d). Figure 8a reveals the tip of Albemarle Point where the high ground meets the deep water channel of Oldtown Creek. The west arm of the "V"-shaped fortification ditch can be seen in the woods. As the Spaniards had done 104 years before them in selecting a site for the capital of Spanish Florida at Santa Elena in Port Royal Sound, the settlement was placed on a small creek landing from the main river to the first point of high ground, as a defensive location against attack from the sea.

In this essay I will be discussing the large "V"-shaped ditch facing the deep water access to the site, the smaller anti-Indian ditch and palisade along the land site of the peninsula, later ditches intruding onto the 17th-century features, and the explanatory interpretations in the form of ditches, embankments, and the palisade.



A



B



C



D



E

Figure 8.1: Archaeological features at Charles Towne.

## VINEYARD DITCHES

Trenching at various locations on the Albemarle Point peninsula revealed a quantity of parallel ditches that have been interpreted as vineyard ditches. Four of these are seen in Figure 8.1c, with the small land face fortification ditch at a right angle in the background. The alignment of the fortification ditch with these vineyard ditches suggests that they are contemporary, and, indeed, 17th-century pipestems, pottery, and other artifacts from the Charles Towne period were found in the vineyard ditches. A series of these is seen crossing the trench in Figure 8.1e. The site was long used for planting vines, from the first settlers, who brought vines in tubs of earth with them, to the 19th-century plantation owner who used arbor-type vineyards seen archaeologically as rectangular postholes with cut nails and other 19th-century artifacts within them. Such ditches have also been found at the Spanish settlement of Santa Elena on Parris Island, where there was a flourishing vineyard in 1568.

## 19TH-CENTURY PLANTATION DITCHES

The alignment of a number of ditches with the ruins of the Horry-Lucas Plantation house on the Charles Towne site places them in that time frame. These ditches intrude onto those dug by the earlier Charles Towne citizens. In Figure 8.1b such a 19th-century ditch is seen to the left as it crosses and intrudes upon the small land face fortification ditch to the right. In Figure 8.1e, a long intrusive 19th-century ditch is seen as it crosses a series of vineyard ditches from the 17th-century Charles Towne occupation.

## THE ANTI-INDIAN LAND FACE FORTIFICATION DITCH

Once the land fortification ditch was located near the neck of the Albemarle Point peninsula (Figure 8.1c), it was followed by removing topsoil from several rectangular areas such as that seen in Figure 8.1b, after which a roadgrader was brought in to remove the plowed soil zone from an area about 20 feet wide (Figures 8.2a, 8.2b, 8.2h). When this was done a gang of crewmen was brought in to gang-schnitt by skimming the loose soil from over the area, thus revealing the dark humus-filled outline of the fortification ditch.

Profiles were left at various places along the ditch to provide a photographic and drawing control as the contents of the ditch were removed and sifted to remove artifacts (Figure 8.2c, 8.2e, 8.3c). During this process, pipestems, pottery fragments, and other artifacts were revealed, such as the pipe bowl in Figure 8.2, found in the fill of area 82 of the ditch. Each 10-foot run

of the ditch was assigned a separate provenience number for artifact location control. By this means a concentration of artifacts was found to be located at the east end of the fortification ditch as it crossed the highest point of the ridge of Albemarle Point. From this we have interpreted a road through the fortified area at that point, where refuse was easily thrown into the fortification ditch.

Near the angle in the fortification ditch seen in Figure 8.2h, a series of postholes was found paralleling the ditch at a distance of five feet from it along the inside. We have interpreted this as the location of the palisade accompanying the ditch, with the embankment from the soil from the ditch being thrown around the palisade posts to stabilize them in the embankment. Such a palisade and small ditch would be a reasonably effective protection against an Indian attack along this land face, an attack that never came.

In revealing the fortification ditch along the land face several features were found, such as that seen in Figure 8.2d, that represented an occupation of the site by Indians prior to the appearance of the English colonists. One such feature, a corncob-filled pit, was taken intact from the field to the Institute where it is anticipated it will some day be used in a museum exhibit illustrating such features. When the profiles seen in Figure 8.2c and 8.2e are examined closely as to the formation processes involved in their becoming filled with sand, it can be seen on which side the parapet accompanying the ditch was located. This is seen in the way the lighter subsoil sand washes back into the ditch shortly after it was originally dug. The side from which the lighter sand washed into the ditch is the side on which the loose side of the embankment beside the ditch was located. Profiles of this ditch were literally lifted from the field using a method devised at Charles Towne for doing this (South 1970a). These profiles can then be used to study in detail later or as teaching aids for students to draw profiles without having to go into the field to obtain an archaeological profile.

As the excavation of the east half of the land face ditch was completed, soil was brought back to the area just inside the ditch and shaped by hand into a low embankment paralleling the ditch (Figure 8.2a). This procedure was carried out until the entire 10 acres of the original fortified area was enclosed by the fortification embankment along the land face of the peninsula (Figure 8.2g).

Stabilization of such ditches and embankments can take place naturally, but planting of seed when the soil

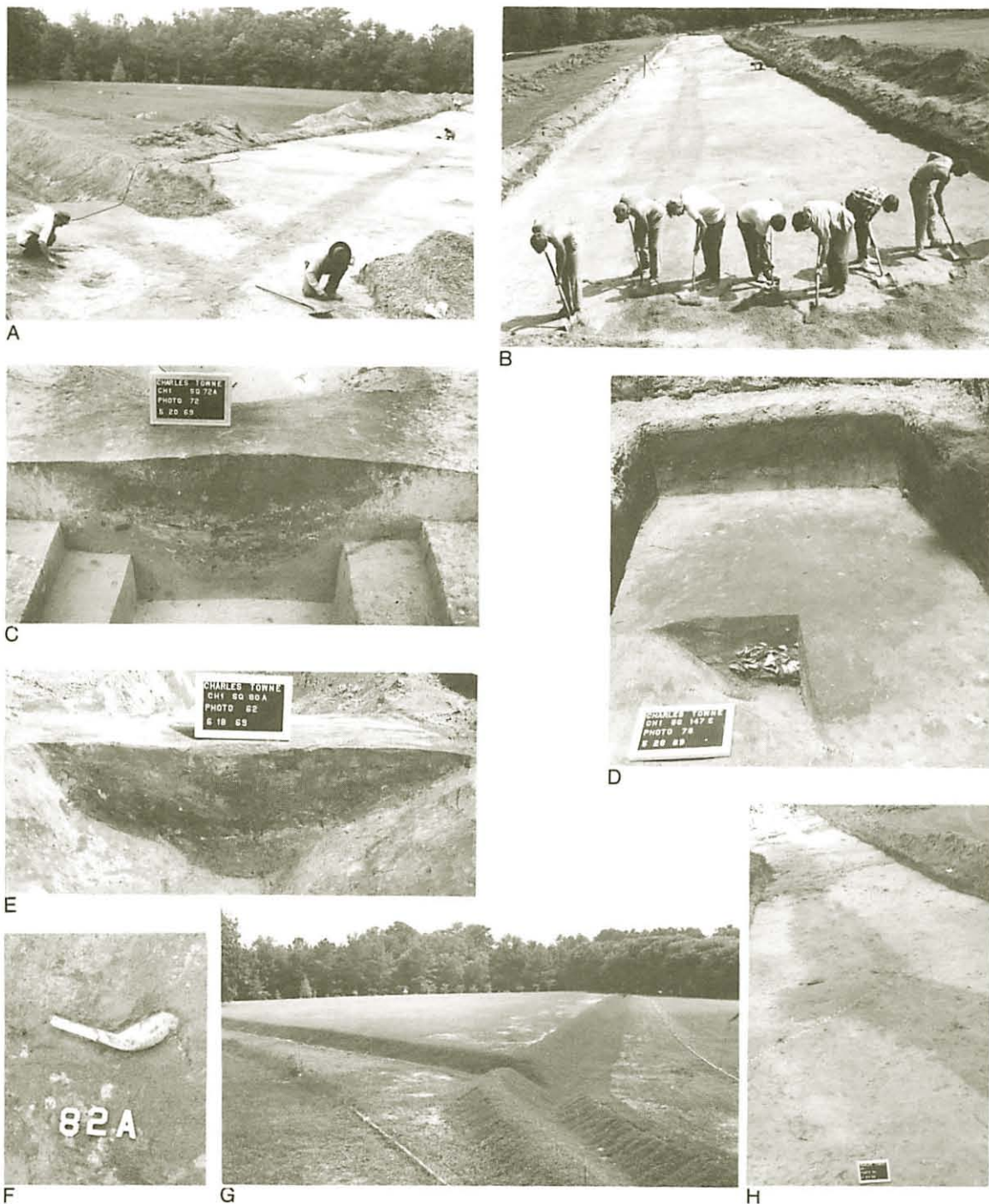


Figure 8.2. Archaeological features at the land face anti-Indian ditch at Charles Towne.



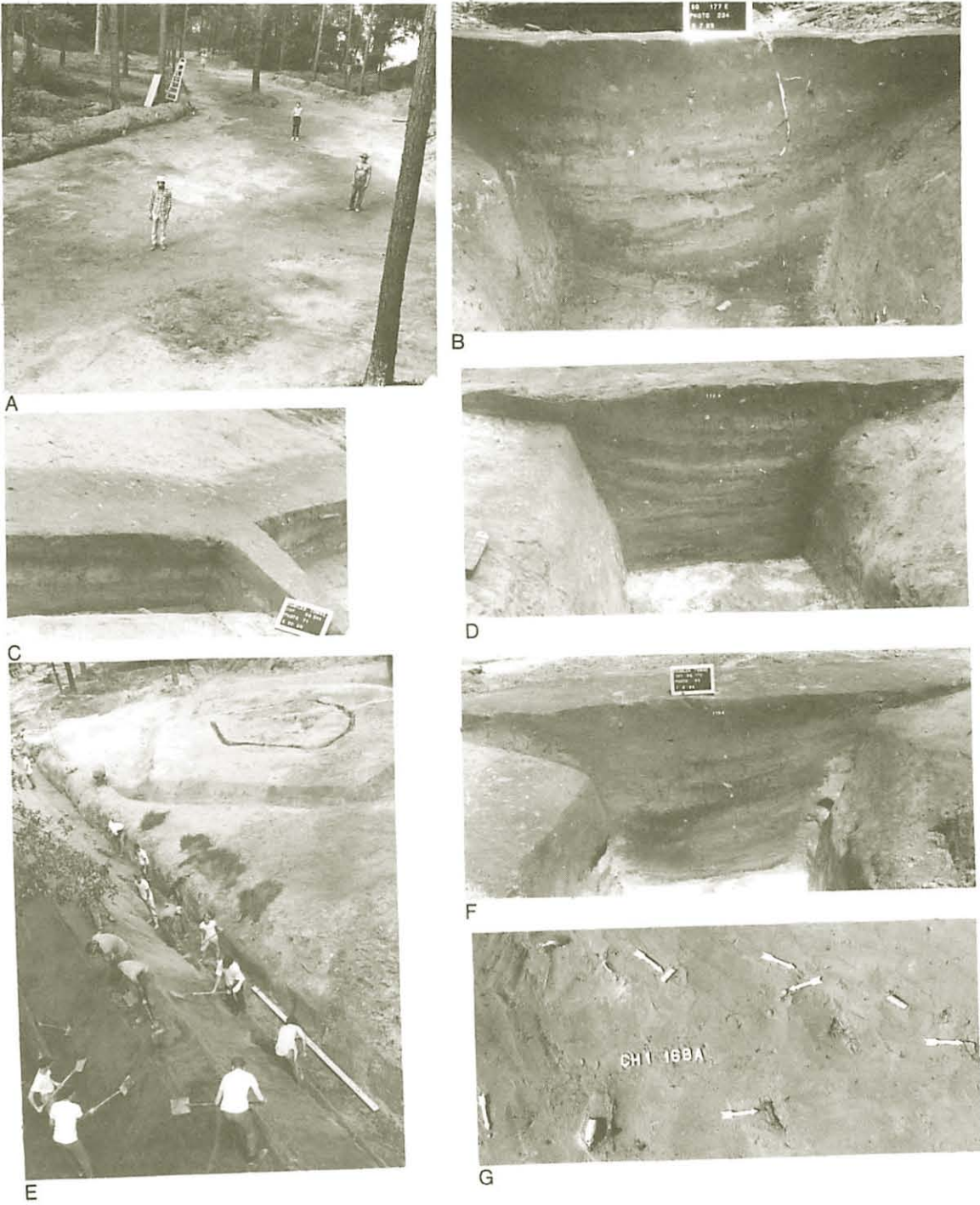


Figure 8.3. Archaeological features at the anti-Spanish ditch at Charles Towne.

is loose, warm and moist will speed up the stabilization process. However, the Tricentennial Commission was in a hurry to stabilize the interpreted fortification ditch and paid for importing truck loads of sod from Florida to place on the ditch and earthworks so that the formal opening of the site would reveal green grass. This required an irrigation system to water the grass to keep the sod from dying (Figure 8.2g).

#### THE PALISADES AND POLITICS

When the extent of the land face fortification ditch was realized, the question of its interpretation to the public arose. A strong feeling was afoot that "those groundmoles should be allowed to do their burrowing thing and then we should backfill the entire site and rebuild Charles Towne on top of the backfilled ditches." It was necessary, therefore, to do some plain and fancy arguing for leaving the ditches open and replacing an embankment of earth beside them complete with palisades in the embankment, as an explanatory exhibit of the fortifications once at Charles Towne.

We had completed excavation of a section of the fortification ditch in the woods and a short distance on each side of the access road to the Albemarle Point site, and to illustrate our point about the embankment, we had placed a low ridge of soil beside the open ditch we had excavated. The Tricentennial Commission was to pay a visit to the site that afternoon, passing down the access road, and then meet with us to decide if we were to be ordered to backfill the ditches or to allow them to stand open and be supplied with \$10,000 worth of palisade posts to be placed in the embankment as a permanent exhibit of the colonist's land face fortification against the Indians.

As I supervised the shaping of the embankment, and the dressing of the area for the visit that afternoon of the dignitaries, it occurred to me that a more powerful point could be made regarding the funding for the palisade posts if we had some palisade posts already in place when the visitors arrived. I had rebuilt a palisaded French and Indian War period fort around Bethabara, North Carolina, in the original fort ditch, and a section of the Civil War palisade at Fort Fisher, North Carolina, so I was familiar with the logistics involved in such explanatory exhibits for interpretation of such a fort to the public. With only a few hours remaining before the commission arrived with the governor to tour the site, I ordered some of my crew (54 men were on the crew at that time) to begin cutting down some of the already dead pine trees on the site, killed by pine borers, trimming off the limbs, and with axes sharpen-

ing the ends into points. We then quickly set 30 or more feet on each side of the roadway at the point where the fortification ditch crossed it, giving a feeling that one was entering a gate of a palisaded fort as you walked down the access road.

The bark was still on the posts and the crew was still placing palisades into position as the Commissioners walked through the quickly erected palisade wall to visit the anti-Spanish excavation underway on the tip of Albemarle Point. The political statement by way of palisades paid off and that afternoon we received our \$10,000 for the palisades and those arguing for backfilling of all our archaeological features lost their fight for a smoothly landscaped site on which a "rebuilt Charles Towne" was to stand, devoid of the distraction of ditches and palisades where the colonists once had them.

Fate stepped in, however, in the form of a summer storm and prevented us from being able to place palisade posts around the entire land face fortification embankment. We were able to run a palisade from the Ashley River marsh through the woods to a point just beyond where our quick palisade had been erected but later removed to make way for the treated posts designed to last a quarter-century or more (Figure 8.4h). What we did with the remainder of the funding for the palisades, after we had to cancel a large order for the posts, I will discuss in the next section. The point I am making here, however, is that sometimes archaeologists involved in translating archaeological features into interpretive exhibits must become involved in the political process in order to achieve their goals of historic preservation and interpretation. To do this they may well need to make a political statement in the form of a jury-rigged palisade when the occasion calls for it!

#### THE ANTI-SPANISH FORTIFICATION DITCH ON ALBEMARLE POINT

When John Combes and I ran a 10-foot wide ditch down the center of Albemarle Point in order to try to intercept 17th-century archaeological features, we crossed a ditch shaped in the form of an open "V" with the ends extending from one side of Albemarle Point to the other (Figure 8.3a). Through slot trenching we were able to delineate the edges and the extent of this ditch which was about 13 to 15 feet wide at the surface, about five feet wide at the bottom, and six feet deep (Figures 8.1d, 8.3b, 8.3d).

When our slot trenching revealed the extent of the ditch we were dealing with, we then brought a backhoe



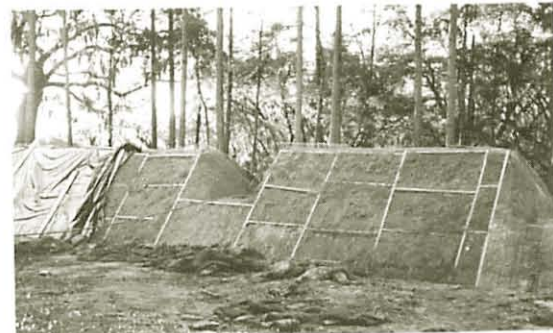
A



B



C



D



E



F



G



H

Figure 8.4. Interpretive exhibit embankments, ditches, and palisade at Charles Towne.

to the site to remove the trees directly over the ditch and for some distance on each side. We then machine stripped the area to the depth of the bottom of the plowed soil, and with the archaeological crew divided into gang-schnitt squads, we skimmed the surface of the soil to reveal the 17th-century ditch and associated features (Figure 8.3a).

The profiles of the ditch revealed that it was allowed to fill up gradually, with alternate periods from summer rains (represented by yellow sand lenses washed into the ditch) and periods of stabilization when humus buildup from leaves and plant growth produced lenses with high humus content. This alternately light and dark type profile is typical of those features allowed to fill gradually through time (Figures 8.3b, 8.3d, 8.3f). In the uppermost humus layer A, in square 168, a number of pipestems, a bowl of a tobacco pipe, wrought nails, musketballs, and shot were found (Figure 8.3g). In general, however, very few artifacts were recovered from this major fortification ditch. The major ceramic pieces were the neck of a Bellarmine jug (Figure 8.3b) lying on the bottom (Layer E) of the ditch in Square 177, and fragments of an Italian costrel of marbled yellow slipware.

#### THE HESSIAN REDOUBT

In front of the large fortification ditch a fan-shaped moat around a similarly shaped smaller ditch revealed the location of a military redoubt with an inner wall and a central posthole to support heavy weight overhead. Beside the post was a heavily burned hearth area. The shape of the redoubt suggests a trail carriage gun was placed over a room 20 feet across, with walls of palisades against which earth from the ditch around it was thrown. The fact that this feature aligned at a 90° angle with the line of the anti-Spanish fortification ditch suggested that they were contemporary, and for a while we thought that they were part of the same Charles Towne fortification. However, as we analyzed the artifacts from the moat, we found that they dated from the period of the Revolutionary War, whereas no artifacts from that period were found in the large moat ditch from the Charles Towne fort adjacent to it. It appears then, that a Revolutionary War fort was placed on Albemarle Point in a position to repel an enemy attack in a similar manner to the original Charles Towne fort. The relationship of the redoubt to the Charles Towne ditch is seen in Figure 8.3e. As more research on the Revolutionary War period was done, it was found that a Hessian redoubt was built under British supervision on what was then Linning's Creek on Albemarle Point and a circular redoubt was shown

there on a map in Tarleton's account of the Revolutionary War.

#### FROM FEATURES TO EXPLANATORY EXHIBIT

As mentioned previously, before the fortification ditch was revealed, plans had been made by some imaginative souls to put a fiberglass town on the tip of Albemarle Point and the ditch interfered with this. If the ditch were to be left open as an explanatory exhibit with accompanying embankment of earth, the plans for the pseudo-Charles Towne would have to be abandoned. This idea did not die easily, and those in favor of the Hollywood-style town store-front interpretation urged strongly that the ditches dug by the colonists be backfilled so that the imaginative town could be constructed. We, on the other hand, strongly argued against such an interpretation to the public and for placing an embankment beside the open ditch as had once been the case when the Charles Towne colonists dug it as a defense against the Spaniards in Spanish Florida who might come and attack the settlement. Their fears were valid ones, for a spy was indeed sent to Charles Towne to report on the guns and fortifications, who said there were 12 guns pointed toward the deep water channel and others behind the small embankment along the land face ditch and palisade.

As those visitors who have visited the Charles Towne site during the past 15 years have observed, we demonstrated the wisdom of our case and the fort ditches with embankments and embrasures is a major interpretive feature on Albemarle Point, along with the Revolutionary War Hessian redoubt. Before I describe what we did to transform the archaeological feature to 17th-century ditch and 18th-century redoubt into an explanatory exhibit we should examine the model used to achieve that goal and discuss some of the problems and philosophy involved in such an undertaking.

In 1950, J. C. Harrington (1962) reconstructed the scone built by colonists in the late 16th century at Ralph Lane's "new Fort in Virginia" (Harrington 1962: 24). Harrington's reconstruction of this fort is an excellent model for the works found at Charles Towne and was the inspiration and model used for the interpretive exhibit at the Charles Towne site. Harrington said, "Upon completion of excavations in which a structure is involved, one of an archaeologist's obligations is to provide an interpretation of what the original structure looked like" (1962: 24). This chapter deals with this responsibility as it was fulfilled at the Charles Towne site.

If we take Harrington's admonition literally providing an interpretation "of what the original structure looked like," then we are often hard put when it comes to details. We can, however, provide an "impression" of what the structure looked like, or perhaps an exhibit that will provide a "feeling" for what the structure looked like in its *general* form. I have shown how it was not easy to even obtain permission to provide a general interpretive exhibit at Charles Towne, and this is often the case. The reason for this is that there are those who tend to confuse a *general* interpretation with a *literal* one. They may well argue against a *general interpretive exhibit* using objections that the *specific details* are not known. The archaeologist would likely be the first to agree that we do not know the *details* but given a fortification ditch a certain level of explanation can be provided at a *general interpretive level* that will aid the visitor at the site to better understand the major features present in the past. To make the judgement as to the level of generality most appropriate given the scientific and documented record in relation to the archaeological record and the realities of cost requires imagination and courage.

When we proposed the embankment and ditch interpretation to mark the location of the fortifications once at Charles Towne, we were immediately faced with the suggestion that we rebuild the gun platforms and install fiberglass artillery pieces! Then, we were told, guides explaining the fiberglass exhibit could be dressed in "authentic" 17th-century dress to explain the fiberglass things to the visiting public. This was a good example of wanting to "go all the way" rather than stopping a field exhibit of this type at an appropriately general level. Specifics can always be shown in drawings, dioramas, and paintings accompanying the field exhibit.

Our decision at Charles Towne was to leave the original ditch open. However, the original had almost vertical sides that were stabilized originally by a facing of sod by the colonists. We could not expect our ditch to retain the vertical sides without constant maintenance or a sod block wall, so we faced a problem. Our overall goal was to provide a ditch with an embankment that would not rapidly wash into the ditch, but would appear, after several years of settling, to resemble the fortification as it may have looked some years after being abandoned by the colonists. This interpretation would provide a general impression of the fort without the necessity of providing the sodded ditch walls, the faggots, the careful contouring of the original ramparts, parapet, and embrasures, wood-

work, facines, and other myriad details necessary when a literal interpretation "of what the structure looked like" is used. Therefore, given this philosophy, we felt justified in going ahead and sloping the walls of the ditch, and in so doing we compromised the original vertical walls. Given our goal, however, of presenting the ditch as it may have appeared after it had eroded and stabilized after a few years, our decision was appropriate.

Another decision that had to be made was in regard to the Revolutionary War redoubt found immediately in front of the 17th-century fort. Would this redoubt be confused with a part of the original Charles Towne fortifications, as indeed it had been before the analysis of the artifacts from the redoubt ditch was undertaken? Should we not simply backfill the redoubt ditch and remove the possibility of confusion and keep the exhibit "frozen" at the 17th-century time frame? If so, what about the 18th-century plantation house ruin found on the site, should it not also be backfilled "to avoid confusion?" Our view is that evolution does not take place on a synchronic level, but rather, through time, and the exhibit of changing form through time, changing land use, or similar land use, are all interesting aspects of the history of an historic site. Given this theoretical-philosophical approach then, we recommended that both the 17th-century fortification ditches and the Revolutionary War redoubt should be presented as exhibits. The explanation of their different time frames and similar function was expected to be carried out through museum exhibits, on-site exhibits, and interpretive signs, but this has never been effectively carried out as yet.

One of the basic issues in historic site interpretation and preservation is that of chronology and whether or not to use a magic "cut off date" for fixing the site in time as a fossil rather than interpreting it as part of a living, changing cultural process of which it was a part. When I discovered the 18th-century ruins of Bethabara, North Carolina, there was a fine 1820s period brick structure remaining on the site that would have made a fine orientation building to the earlier fortified town ruins left open as field exhibits. However, this is one that we lost. Even though we brought all our developmental philosophy to bear on those in charge, the house was torn down to keep the field exhibits "pure" to the 18th-century period. Archaeologists must learn that they will win some and lose some, but my concern is that they at least understand what issues are involved and that by leaving archaeologically excavated ditches open with accompanying embankments, and by plac-

ing palisades in original palisade postholes and trenches, they are making a strong interpretive statement based on theoretical and philosophical concepts of historic site development.

Some argument might be made for not placing palisade posts in archaeologically revealed trenches because details of support, loopholes for firing, height, size of posts, etc. are not specifically known. Again, when it is known that palisades were used, an excellent interpretive statement can be made by placing posts again in the trench. The height can often be determined from specific documentation for the site, but if not, general references for palisades "of the period" can be used. I have found that eight feet is a frequently seen height for a palisade wall of the 18th century.

At Town Creek Indian Mound State Historic Site in North Carolina, Joffre L. Coe rebuilt the palisade around the temple mound some 40 years ago using Juniper posts imported from the coastal region for the palisade because they were available at no cost there. His concern was rightfully not so much with matching the detail of pine wood from the postholes with reconstructed pine posts but, rather, with the *general impression* of a palisaded compound around the temple mound. Another example is the fact that the palisade reconstructed was the smaller, earlier one, long gone before the temple mound reached the reconstructed height on which I built the temple. Thus, these *specific elements* were not in existence at the same moment in time, but this is not of concern when your *philosophical goal* is not with nit-picky details, but with the *general interpretive statement* that temple mound ceremonial centers were enclosed by protective palisades.

Similarly, the palisade posts used in the position of the original palisade at Charles Towne along the land face of the fortified area are much larger than the palisade the colonists originally had, as revealed by the bottoms of the postholes revealed by archaeology. Such palisades must be pressure treated to last any amount of time in the earth. However, when you order small palisades, which I have done each time I have built a palisade in archaeological trenches, the suppliers of such posts insist that they cannot and will not furnish posts as small as those I have specified since to do so gets into a size of post that will not last in the earth, even when pressure treated. Thus we must yield to the pressures of the processes in our own cultural system.

The palisade, after all, is to provide a *general impression* of a fortified area, *not a specifically docu-*

*mented exact replica* of all facets of the original. Our research seldom provides such details. If they do happen to be available, however, then common sense dictates that they may well be used in such a case. When the decision was being made as to whether to use palisades in the original fort ditch at Bethabara, North Carolina, a French and Indian War period fort, it was argued by some that instead of a palisade of wooden posts, a *low brick wall* over the palisade ditch would be more appropriate as an interpretive exhibit! Can you imagine the impression the casual visitor to the site would have carried away from such a brick exhibit meant to "symbolize" the location of a *wooden palisade wall*! This is a good example of the need to join the documentary and scientific data from research and archaeology with good common sense and a philosophy oriented toward a generalized view of such past fortification features. Fortunately we won that one, and today visitors to the site get a general impression of a fortified 18th-century settlement.

After that palisade was placed in the original archaeologically revealed ditch it was discovered that a map drawn from the hill above the town in the 18th century had been found in East Germany that showed the palisade as it stood in 1758! We wondered how close our reconstructed palisade would be to the drawing. Fortunately, we were safe; with the drawing of the palisade showing it much as we had rebuilt it.

Through the years the philosophy discussed here has been behind a number of interpretive field exhibits on historic sites, from Bethabara, to Ninety-Six, South Carolina, to Fort Fisher, North Carolina, to Camden, South Carolina, and at Fort San Felipe (1572-1577) at the Spanish colonial capital city of Santa Elena, on Parris Island, South Carolina. Perhaps the earliest interpretive use of a fort ditch with accompanying parapet as a generalized statement and exhibit was carried out at Fort San Marcos at Santa Elena, the Spanish fort dating from 1577 and 1587, which was excavated and interpreted by Major George H. Osterhout, Jr., in 1923!, an exhibit still being enjoyed and visited by those interested in learning through historic site development.

The philosophy I have discussed here has recently been used by architects at Historic Halifax State Historic Site in North Carolina to house the archaeological ruin of the Montford House. The Montford Interpretive Structure contains exhibits about archaeology and protects the excavated site where Joseph Montfort's house once stood. The impressive thing about this is the

fact that the house over the ruin has been designed to give the *general appearance* of an 18th-century structure, with the chimneys being air conditioner cooling towers, the siding being modern, etc., but with the *general appearance* and *spatial mass* being suggestive of a house of the period of historic Halifax. A suggested alternative to this approach had been a Quonset hut over the ruin!, almost as good as the brick wall over a palisade ditch idea. From a distance in the town the building covering the ruin appears in keeping with other surviving structures. Up close it is obvious that it is not a reconstruction. This type of interpretive exhibit is admirable in that it falls neatly within that sensitive artistic twilight zone I have been discussing, between the exacting hard science, hard detail reconstruction and the uncontrolled, unthought-out suggestions such as brick walls representing palisades, Quonset huts over archaeological ruins within an historic house milieu, or fiberglass building "fronts" a-la-Hollywood sets, as an exhibit for the fortified area of 17th-century Charles Towne.

With the discussion of philosophy behind us we can turn to the details and problems encountered in shaping the ditches and earthen embankments at Charles Towne into an interpretive exhibit. We knew from the documents that 12 guns faced the deep water channel from behind the earthen embankment. At first I felt that since we did not know where these 12 were located it would be better to go with an embankment having no embrasure openings. However, Harold Peterson, our consultant at the time, pointed out that this would be a greater error than simply placing 12 embrasures more or less equally distributed along the defensive ditch, which is what we did.

The sides of the ditches were sloped slightly, and an embankment approximately the size of the ditch contents was positioned beside the ditch using front-loading earth-moving machinery. The archaeological crew was then used to shape the embankment by hand using shovels, feet, tamping poles, etc. (Figure 8.4a). Rolls of grass sod, cut in Florida and quickly transported overnight to the site by truck, were then placed onto the embankment and fastened into place with "U"-shaped wire pins to hold the sod in place until the roots took hold of the embankment and sides of the fort ditch (Figure 8.4b).

This process was completed for the anti-Spanish ditch on a Friday afternoon, and the crew and I were pleased with ourselves. Our only concern was the possible slumping of the embankment in case there was

a hard rain. On Saturday afternoon, a six-inch rain in three hours deluged the site, causing a collapse of the embankment into the ditch, plus erosion in places (Figure 8.4c). No funding for this disaster was available to employ the crew for a longer period of time to repair the damage, so the order, already placed for palisade posts for the entire land face of the fortification was cancelled and the funds diverted to re-working and stabilizing the embankments and ditch (Figure 8.4h). Obviously a better method was needed to hold the embankment in place. Two-by-fours were placed flush with the face of the earthworks and covered with chicken wire (Figure 8.4d).

Sod was then placed over the chicken wire. An irrigation system was installed around the base of the embankment and in the ditch and over the top of the embankments to provide a spray of water to keep the sod damp while it grew roots and became stabilized on the steep slopes of the interpretive exhibit (Figure 8.4e, 8.4f, 8.4g). In the 15 years since this work was done, the embankment and the ditch have settled and the appearance of the exhibit is more rounded and natural looking than it appears in the photographs presented here. The interpretive exhibit has been a successful one in providing a general impression for the visitor to the site of the position, scale, orientation, and shape of the 17th-century fortifications on Albemarle Point, a far better one, we feel, than a fiberglass "village" rebuilt over the backfilled ditch of the fort.

This chapter has been written to emphasize the point that as historic sites are developed at an increasing frequency, archaeologists are faced with some of the same challenges we faced at Charles Towne. It is our hope that some of the lessons learned there will be of help to others along the way.

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## Chapter 9

### ENGLISH-SPANISH CONFLICT IN 17TH CENTURY CAROLINA: A THEORETICAL PERSPECTIVE

Michael Hartley

#### INTRODUCTION

Although the Spanish ceased to maintain Santa Elena as a *presidio* in 1587, their interest and activity continued in the Port Royal area and farther north through the 17th century. While the pre-English 17th-century activities of the Spanish are poorly understood historically and archaeologically, recent archaeological surveys of the English settlement at Charles Towne explore this time of transition. Based on the 1695 Thornton Morden Map of Carolina, an initial survey was undertaken on the Stono-Edisto drainage (South and Hartley 1980) and a second on the Ashley drainage (Hartley 1984). The following is derived from a chapter of the Ashley River survey report (Hartley 1984) establishing a theoretical perspective for the 17th-century confrontation between the English colony at Charles Towne and the Spanish presence established in the 16th century.

In the consideration of the 17th-century colony at Charles Towne in broad perspectives, a framework of understanding the functioning of the colony as a system is needed. An apparent and useful tool which has been developed for exactly this purpose is the frontier model designed by Kenneth Lewis as a means of understanding cultural change in the frontier situation (Lewis 1976: 11-16).

When the 1670 settlement at Charles Towne is considered, it is assumed here that the English colonists were operating in a frontier situation. Prior to the 1669-1670 expedition, the southernmost successful colony was 500 miles to the north in Virginia, and the establishment of the colony at Charles Towne was a substantial geographical extension of English settlement (Crane 1981: 3).

To develop an understanding of the cultural change involved in the establishment of the new colony, conditions in 17th-century Carolina will be compared to the conditions necessary for the occupation and expansion of a frontier as explained in the Lewis model. Closeness of fit to the model will indicate that certain processes generally found in a frontier environment were in operation, while a divergence from the condi-

tions of the model will reveal the presence of other processes which will require explanation. The value of the model lies in both capabilities, that of revealing closeness of fit to a general set of conditions and that of revealing divergent conditions not generally present in the frontier situation.

The operation of the conditions requires the occupation of a colonial area by an intrusive culture (the English) in an entrepot (Charles Towne) with the frontier being the area of expansion beyond the entrepot. In these considerations the area of settlement as shown on the 1695 Thornton-Morden map will be regarded as the entrepot, with the nucleus of this settlement being the port and the defensive facility at Charles Towne Harbor, and the dispersed settlement extending to a 30-mile radius from the harbor. The dimensions of this dispersed settlement area appear to have been dictated in part by the extent of the navigable river systems radiating outward from the hub of the port.

There are three major river systems within the entrepot. A pilot study examined the Edisto/Stono system to the southwest, linked to Charles Towne harbor by Wappo Creek, which contained a dispersed settlement made up primarily of dissenters (Sirmans 1966: 36). This settlement extended to the South Edisto on the 30-mile radius of the entrepot. The Ashley River system to the northwest, the area of the second survey, contained a mixed settlement of dissenters and Barbadians, along with other arrivals after the first fleet. The extent of occupation on this river as shown on the 1695 map was "The Ponds," 38DR87 located on the headwater swamp and directly on the 30-mile radius several miles above the head of navigation on the Ashley. The Cooper/Wando/Goose Creek system extends to the north and east of Charles Towne harbor with the northernmost site lying on the Cooper River at the 30-mile radius. This section, particularly Goose Creek, was a stronghold of Barbadians, a powerful political faction in the new colony, who came to be known as "The Goose Creek Men" (Sirmans 1966: 17). The presence of these groups within the colony generated factional disputes which occupied the internal affairs of the colony throughout the 17th century (Sir-

mans 1966: 17-18). To the east of the harbor and on a river not directly connected to Charles Towne, was an anomalous French settlement on the Santee River.

These routes of waterborne trade and communication through the settled area within the 30-mile radius formed the roadways of the dispersed settlement. The sites lying at the head of these roadways provided the points of articulation with the zone of frontier expansion beyond the bounds of the entrepot (Lewis 1976). The zone of frontier expansion lay far beyond the relatively small dimensions of the settlement and its 30-mile boundary, and one of the developing goals of some members of the Carolina colony was to expand the frontier of Carolina deeply to the west through present Georgia and Alabama to the region of the Mississippi (Crane 1981: 42-46).

#### THE FRONTIER MODEL

In order for the Carolina traders to accomplish this, the conditions explicated in the Lewis frontier model had to be present. Lewis provides three "notions" for the model, followed by a set of "conditions" (Lewis 1976). In the following discussion these notions will be stated, followed by a statement of each of the conditions. The conditions of the colony at Carolina will be compared to the model for closeness of fit in an attempt to clarify processes operating in the colony.

##### Notions

*First, it is apparent that complexly organized intrusive societies react or adapt in a patterned way to the conditions imposed by a frontier situation. This is not to say that the colonial culture is a product of the settler's exposure to a wilderness environment in a Turnerian sense..., but rather that it is the result of changes in the effective environment of the culture as it existed in the homeland (Lewis 1976).*

##### Conditions

*First, an intrusive society must physically occupy an area on the periphery of or apart from its previously occupied territory. Its level of sociocultural integration must be that of a stratified society or state as defined by Fried (Lewis 1976).*

The first condition applies at Charles Towne.

*Second, if an indigenous people are present*

*their level of sociocultural integration must be lower than that of the intrusive culture so that prolonged resistance to colonization will not be appreciable (Lewis 1976).*

The expansion of the frontier in the critical direction to the west of the entrepot encountered the presence of a second European colonial power, the Spanish. Due to a traditional occupation of the Port Royal area and an actual occupation of the Guale area south of the Savannah River there was in fact prolonged resistance to English expansion lasting more than 30 years. Members of the indigenous Indian population were incorporated into the Spanish resistance as allies, or as a subculture within that colonial enterprise, which had a sophisticating relationship with the Indians that had begun more than 100 years previously.

The integration between these two groups, the Spanish and the Indians, is reflected in the English reference to these aboriginals as "Spanish Indians" (Cheves 1897: 200). The level of sociocultural integration in the area of frontier expansion to the west and southwest was significantly altered by the presence of this European power. The traders from Carolina, desiring the more lenient condition explicated in condition two of Lewis's frontier model, pressed for resolution through conflict. The Spanish, at the same time, attempted to reestablish the lenient condition of the model under which they had functioned prior to the arrival of the English by the same means.

*Third, the effective environment of the 'area of colonization,' that geographically defined zone of actual or potential occupancy, must be amenable to exploitation by the intrusive culture (Lewis 1976).*

The suitability of the environment for exploitation is demonstrated by the ultimate success of the expansion of the frontier, and the problems of expansion were cultural rather than environmental.

*Fourth, conditions there must not preclude access to nearly all parts of the area. The last point is of particular significance in that the maintenance of trade and communication links within the area of colonization are crucial to the survival of a colony (Lewis 1976).*

This condition applied within the entrepot and to the northern and eastern frontier areas beyond the entrepot's 30-mile boundary. However, the presence of a hostile European power occupying the territory 50

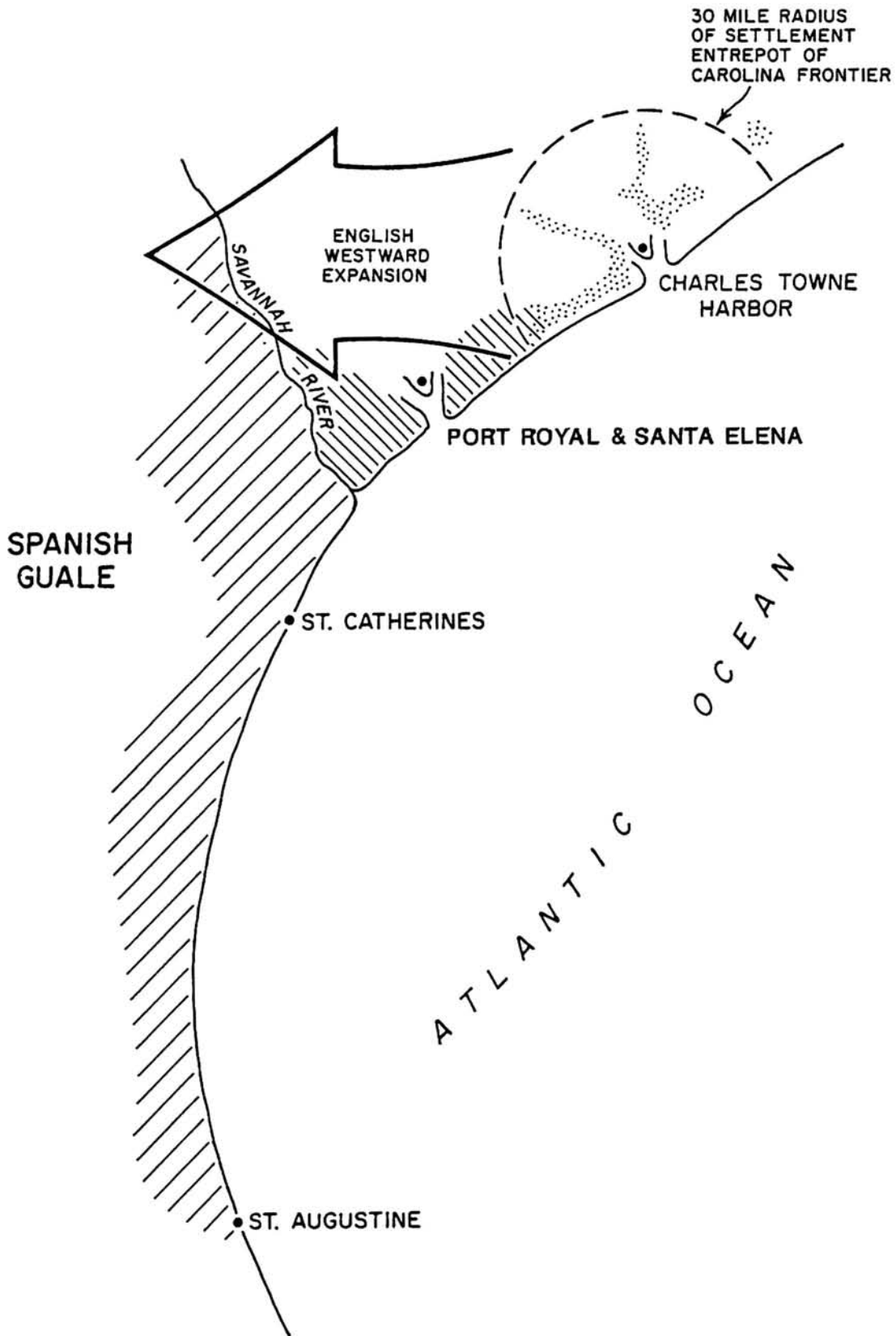


Figure 9.1: The position of the Charles Towne entrepot in relation to the Spanish lands.

miles south of the entrepot boundary (Figure 9.1) and with traditional claims and interests within the entrepot boundary bears directly on this condition. This hostile culture demonstrated an intention to dislodge the intrusive culture immediately on the formation of the settlement by direct attack on the new settlement (Cheves 1897: 187). A tradition dating to the 16th century demonstrated the Spanish intention to control the coast with lethal force, including the area of the English settlement (Gannon 1965: 28). Requests to the crown in Spain for permission to drive out the English received authorization from the Queen (Crane 1981: 10-110). Further, conflict between the two groups was a traditional one within the broader bounds of the Caribbean, and this confrontation was an extension of that conflict (Crane 1981: 11).

In 1686 the Spanish attacked and destroyed the newly established Stuart Town at Port Royal and continued the raid into the boundaries of the entrepot. They raided the plantations and sacked the houses of Governor Morton and Secretary Grimball and killed the Governor's brother-in-law, Edward Howell (Salley 1904: 108; Crane 1981: 31).

Each colonial power was denied the full operation of conditions as explicated by the frontier model in this area and each desired a resolution which would allow the operation of these more lenient conditions. Both the English and the Spanish with their respective Indian allies denied access to a contested area to the other. The colony at Charles Towne was a foothold in a sophisticated and hostile cultural environment, and confrontations of undeclared warfare took place throughout the 17th century as the English attempted to solidify their position and to gain access to crucial parts of the area of colonization. Lewis also lists six characteristics of frontier change, which were partially met except that (1) prolonged contact with certain areas of the frontier was denied, (2) the expansion of the colony through space met with distinct failures on the Spanish border, and (3) in certain areas colonists were not able to remain successfully (Lewis 1976).

These criteria are of value as they allow a discrete identification of divergence from a set of conditions that have been identified as existing in the successful colonization of a frontier. The model also allows the perception of a different set of conditions and behaviors that center on a conflict boundary between two international colonial powers.

Clearly a different condition existed in 17th-century Carolina as it was occupied by the English. The

Spanish, prior to the arrival of the English, had been functioning under the criteria of the frontier model, and the arrival of the intrusive culture significantly altered the Spanish ability to control the indigenous population as they had been able to do in the past. The new colony also denied the Spanish an area of frontier where they previously had free access.

Therefore, under the conditions brought about by the arrival of the English, neither side could achieve the criteria of the frontier model, and while neither used the terminology of the model, that is what each wanted. The Spanish wanted the intruder to leave the area so that they could maintain what they regarded as theirs, and the English wanted security in their location combined with expansion to the south and west under the conditions of the frontier model.

#### DISCUSSION

In the competition for the contested area in the 17th-century English/Spanish confrontation, negotiation was attempted on the level of government to government in a long series of futile border parleys (Crane 1981: 33). The Spanish continued to assert their inclusive claims, telling the Charles Towne colonists of orders from Spain not to let the English come south of Charles Towne (Crane 1981: 33). Cessation of hostility based on negotiation was never more than temporary.

Armed conflict was the primary means of resolution of the conflict between the English and the Spanish, with alliances created on both sides with Indian groups. The initial result of the attempt at armed resolution was the creation of a "no man's land" in which neither could function safely and the first priority was to gain control of the area with the second being to conduct exploration and trading activities in the area under the restrictions.

The English colonists were formally forbidden to intrude into this area by the proprietors (Cheves 1897: 327), but in the absence of direct control the incursions continued by Carolina traders. The ultimate resolution came when the English were able to gain a superiority of armed force, bringing about the disruption of the Spanish colonial system and its collapse back into the peninsula of Florida.

These processes bear directly on the archaeological remains contained in the area of settlement, the entrepot as recorded on the 1695 Thornton-Morden map. The behaviors discussed here will have a reflection in the materials used by the English colonists of the 17th century, and among these materials some evidence of

the Spanish presence may be found. This evidence in the material record could take many forms, but as ceramics are a predominant class of artifactual evidence on both English and Spanish sites, these artifacts should be sensitive indicators of contact. The mechanisms accounting for the presence of Spanish ceramics on an English site, with the reverse also being expected, could be the capture of goods in warfare or the presence of trade, perhaps illicit, across the border. As the ubiquitous types of ceramics found on Spanish sites are olive jar and Spanish majolica, these types are the artifactual evidence most likely to be found on the English sites if the Spanish presence is manifest archaeologically. These types, if present on English sites, should be a minor part of the assemblage with the major part of the ceramic remains made up of English wares.

A means of gaining access to information pertaining to the events and processes outlined in this brief historical account is through the examination of the material remains and sites as they exist today. The sites located in these surveys provide such access through a body of data contained in a variety of sites.

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## Chapter 10

### COLONOWARE CERAMICS: THE EVIDENCE FROM YAUGHAN AND CURRIBOO PLANTATIONS

Patrick H. Garrow and Thomas R. Wheaton

#### INTRODUCTION

The archaeological excavations conducted on the two slave quarters at Yaughan and one slave quarter at adjacent Curriboo Plantation yielded large, well-controlled collections of Colonoware ceramics. Careful analysis of those collections illustrated that two basic types of Colonoware were present in the artifact collections. Research clearly indicated that one of those types could be linked to Catawba Indian potters. Evidence recovered during the excavations indicated that the second, and by far the numerically prevalent type, was actually produced on the study plantations. Historical research proved to be mute on the subject of who produced the second type; however, converging lines of evidence clearly indicated that the second Colonoware type was produced by Afro-American slaves for their own use.

This paper discusses the Colonoware typology produced as a result of the Yaughan and Curriboo research, and how the Colonoware produced by slaves changed through time. Further, this paper suggests lines of inquiry that can be fruitfully followed by future Colonoware researchers.

Archaeological field investigations of Yaughan and Curriboo plantations were conducted between March and October 1979. Two slave quarters were investigated within Yaughan (38BK75 and 38BK76), while a portion of the slave quarters, a warehouse, "office," and brick kiln were excavated within Curriboo (38BK245). The two plantation sites occupied adjacent tracts, and both had been owned during the 18th and early 19th centuries by members of the Cordes family. The oldest slave quarters at Yaughan (38BK76) dated from ca. 1745-1795, while the younger Yaughan slave quarters (38BK75) dated from ca. 1784-1820s. The Curriboo slave quarters dated from ca. 1740-1800. Analysis of the excavation results began in early 1980, and the final project report (Wheaton *et al.* 1983) was distributed in April 1983.

The archaeological and historical investigations on Yaughan and Curriboo were conducted by Soil Systems, Inc., under contract to the Southeast Regional

Office of the National Park Service. The National Park Service acted as the technical coordination agency for the Charleston District of the Corps of Engineers, and the project was undertaken to mitigate adverse impacts to historical archaeological sites anticipated as the result of construction of the Cooper River Rediversion Canal. The investigations were restricted to the slave quarters on both plantations plus the brick kiln, warehouse, and plantation "office" at Curriboo. The main house complex at Yaughan Plantation was located outside of the direct project impact zone, while the Curriboo main house complex appears to have been destroyed during the removal of fill material prior to initiation of the archaeological fieldwork.

A total of 34,430 artifacts suitable for use in artifact pattern studies were recovered from the three sites, of which 21,357 were Colonoware (Ferguson 1978) sherds. The Colonoware sample thus amounted to 62% of the diagnostic artifacts analyzed from the three sites.

The availability of large samples of Colonoware sherds from well-controlled excavation contexts within the three sites offered the opportunity to test specific hypotheses concerning the nature of Colonoware and its origins. Two research hypotheses were thus formulated and tested during the analysis phase of the project (Wheaton *et al.* 1983: 5-7). Those hypotheses were:

Hypothesis 1: The Colonoware ceramics recovered from Sites 38BK75, 38BK76, and 38BK245 represent ceramics that were made by slaves who occupied the plantations, and that the slaves produced those wares for their own use. It is further hypothesized that the Yaughan and Curriboo plantation samples were representative of the Colonowares that were being made and used by African slaves in coastal South Carolina during that period.

Hypothesis 2. Colonoware declined in importance at the plantations as time passed. Conversely, there was a trend toward greater dependence on nonlocally produced ceramics from the 18th to 19th centuries.

Both hypotheses proved to be testable during the analysis of the Yayghan and Curriboo artifacts.

#### THE COLONOWARE SAMPLE

The archaeological investigations of Yayghan and Curriboo plantations yielded a very large sample of unglazed, low fired ceramic sherds that can be subsumed under the term "Colonoware." The project sample of 21,357 Colonoware sherds recovered included 15,184 sherds from 38BK76, 3,333 from 38BK245, and 2,840 from 38BK75. Colonoware sherds accounted for a large percentage of artifacts recovered from each site (see Figure 10.1), with the greatest percentage of Colonoware at 38BK76 and the smallest at the later 38BK75.

As stated, a major research hypothesis established for investigation of Yayghan and Curriboo plantations was that the Colonoware ceramics that occurred in such great frequencies within each slave quarter had been manufactured by the plantation slaves for their own use. Laboratory analysis of the sherds offered support for that assumption. Two unfired Colonoware sherds were recovered from 38BK245, which would not have been present had the ceramics been purchased from an outside source. Further, three fired lumps of clay were retrieved from 38BK76, including one which had apparently been squeezed in a hand while still wet leaving finger depressions. A second fired clay lump contained a number of deep gouge marks and superficially resembled a pencil holder. The third fired lump contained incised or impressed parallel lines which may have been made when the wet clay was pressed against a reed or grass. There was no evidence of fired clay daub at any of the sites.

Clay lumps of the types recovered during this project were unlikely trade or sale items, and must be interpreted as evidence for local production of the Colonowares. Further, pots with spalls were noted in the sample, and it was evident that in those cases the damage probably occurred during firing. Some of the pots contained a charred residue which indicates that they were used despite the firing damage, but it appears unlikely that damaged vessels would have been sold into the slave quarters by a nonlocal source. The sample also included portions of four miniature vessels that were very crudely made. Those vessels most likely represented practice vessels produced by children, although they may have been made by adult potters as children's toys.

Additionally, local production of Colonoware was

substantiated by the presence of a number of large pits within 38BK75 which were interpreted as clay extraction pits. Clay from those pits could have been used for a number of purposes; however, test firing of clay from the vicinity of the slave quarters indicated that clay with good to excellent potting capability was available to the residents of the slave quarters.

One of the most compelling arguments for local production of the Colonowares from Yayghan and Curriboo was the sheer quantity of the materials recovered. As illustrated in Figure 10.1, Colonowares accounted for 68% of all artifacts from 38BK76, 57% of all items from 38BK245, and 45% of recovered materials from 38BK75. Colonowares heavily outweighed nonlocal ceramics (presumably British) on all three sites (see Figure 10.2). That factor was most evident on 38BK76 (the oldest Yayghan slave quarter) and least evident on site 38BK75 (the most recent). Colonowares apparently declined in frequency through time within the slave quarters, which confirms similar findings by Lees (1979) on Limerick Plantation, also located in Berkeley County, South Carolina.

#### THE COLONOWARE TYPOLOGIES

Sufficient evidence for local manufacture of Colonoware was thus found during the Yayghan and Curriboo analyses to substantiate the hypothesis of local manufacture. Analysis of the Colonoware sherds did indicate, however, that differences existed among sherds in the collection that were sufficient to justify splitting the sample into two distinct varieties. All of the evidence for local manufacture correlated with a variety that accounted for the vast majority of all Colonoware ceramics within the project sample.

A number of sorting criteria were used to organize the Colonoware sherds into similar categories. Those criteria included: "paste color and texture, nonplastics, interior and exterior finish, surface color, and form (Wheaton *et al.* 1983: 226)." Application of those criteria led to the identification of two distinct varieties of Colonoware, which are most easily distinguishable based on sherd thickness, firing characteristics, and the relative quality of manufacture. The terms "Colono" and "Catawba" were applied to these varieties in the Yayghan and Curriboo project report (Wheaton *et al.* 1983: 226), but the terms type "Colonoware" variety "Yayghan," and type "Colonoware" variety "Catawba" are suggested in this paper so as to avoid future confusion concerning the categories. The terms "Colono-Indian" and "Colonoware" are deeply entrenched in the literature (Noel Hume 1962; Ferguson 1978, 1980;

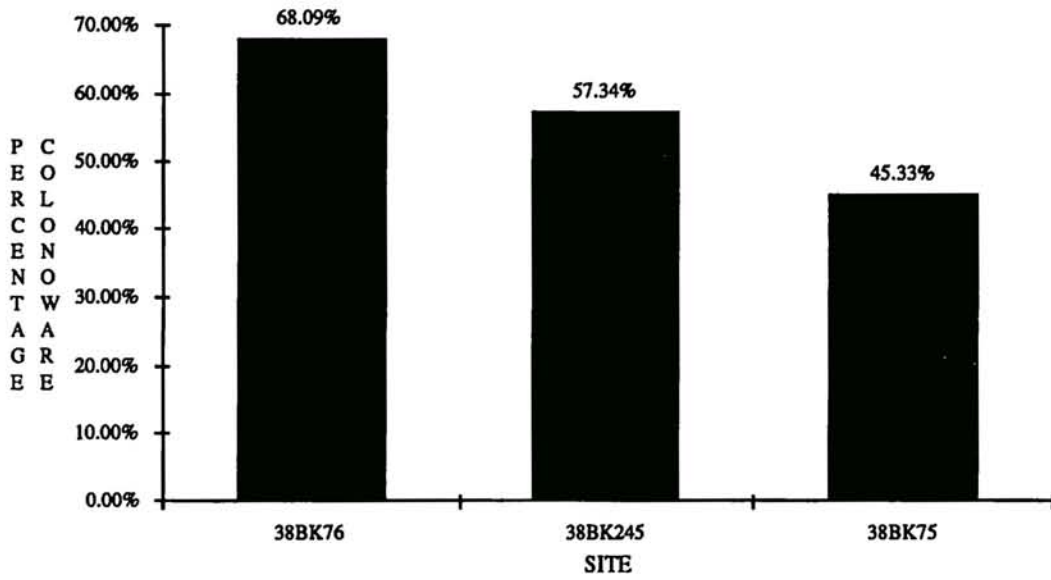


Figure 10.1: Percentages of Colonoware within total collections, includes sherds and objects.

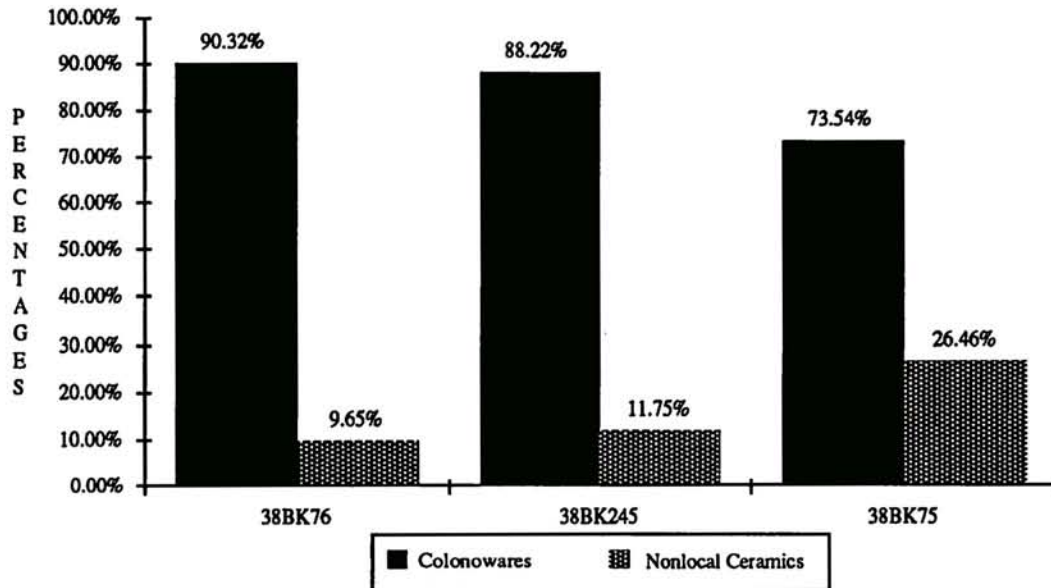


Figure 10.2: Percentages of Colonowares and nonlocal ceramics.



Drucker and Anthony 1979; Lees and Kimery-Lees 1979; Lees 1979; and Henry 1980); however, these authors believe that a type-variety designation based on "Colonoware" will best allow cross-comparisons of slave and Indian-made ceramics from the historic period, where "Colonoware" is the type, and Yaughan and Catawba are the varieties.

Table 10.1 summarizes the attributes used during the Yaughan and Curriboo Project to distinguish between varieties Yaughan and Catawba. The Catawba variety name was assigned based on several factors. First, the Catawba were known to have traveled to the South Carolina coast during the 19th century to sell pottery (Ferguson 1978: 69). Second, the Catawba sherds in the Yaughan and Curriboo collections were similar to modern Catawba vessels displayed by the Charleston Museum. Third, during the course of the project research, a 19th-century Catawba vessel was discovered among the collections of the Charleston Museum. The accession card for that vessel indicated that the vessel had been donated by David Doar, the great grandson of Dr. Samuel Cordes. According to the accession card, Dr. Samuel Cordes had supposedly purchased the vessel from a Catawba woman while he was in residence at Yaughan Plantation in 1805. The vessel in question was an unglazed pitcher, and bore the unusual "day-glo" red decoration noted on 3.5% of the archaeologically recovered Catawba variety sherds at Yaughan. Further, the curated example exhibited the same polished surfaces and thin walls as noted in the archaeological collections. The curated vessel was so similar to the excavated sherds that all or most of the reduced sherds could have been produced in the same firing. Since the conclusion of the Yaughan and Curriboo project these authors have been advised by Michael Trinkley (personal correspondence 1984) that a Catawba vessel with the same type of "day-glo" decoration is housed at the Research Laboratories of Anthropology in Chapel Hill. That vessel contains a multi-color decoration that may have been produced with sealing wax. It was acquired from a Catawba potter by the Valentine Brothers who were active in North Carolina in the 1880s (Coe 1983: 162-163). The vessel is presumably a late 19th-century example.

The designation "Yaughan" for the variety that accounted for the vast majority of the Colonowares recovered during the project was chosen to reflect the relative interpretive importance of the two Yaughan slave quarters during the project. The Yaughan variety includes both smoothed and tooled surface finishes. The exterior surfaces of the smoothed vessels had

apparently been wiped with fingers to remove surface irregularities. The smoothed vessels exhibited irregular wall thicknesses within the same vessel and tended to be the most poorly executed vessels in the sample. Some of the tooled surfaces were apparently produced by shaving off excess clay on the exterior with a tool, to the point that discernable cut facets were present in some cases. Most of the remaining tooled sherds showed evidence of the polishing tool, often considered to be evidence of pebble or stick polishing. The vessels with tooled exterior surfaces tended to be more well-made than the smoothed vessels, but they still lacked the production quality of the Catawba variety.

The vessel forms present in the collections included open incurving bowls, small jars with flared rims, flat bottomed bowls, and relatively straight-sided bowls. At least one possible plate was present in the collections, as were sherds that may have belonged to chamber pots. A small number of Colonoware handles were recovered, as were strainer parts that presumably were for a Colonoware tea pot. Figure 10.3 illustrates common rim forms attributable to the Yaughan and Catawba varieties.

A number of Colonoware objects, attributable to the Yaughan variety, were found within the slave quarters. A single Colonoware object (a marble) was recovered from 38BK75, while 36 and nine objects respectively were recovered from 38BK76 and 38BK245. The Colonoware objects removed from 38BK76 included eight pipe parts, 15 handle parts, four marbles, three strainer parts, one handle or support part, one lid knob, and four miscellaneous objects. The miscellaneous objects included the previously discussed items associated with pottery firings and a fragment of a possible skirted figurine. The nine items from 38BK245 included four pipe parts, three handle parts, and the previously discussed unfired sherds. The greatest diversity in the Colonoware collection was thus recovered from the oldest slave quarter, with the least diversity from the youngest.

Comparison of the relative frequencies of the Yaughan and Catawba varieties (see Figure 10.4) indicates that while the Yaughan variety declined in relative frequency through time, the Catawba variety increased. That trend is consistent with the shift observed from local to nonlocal ceramics (see Figure 10.2) observed from the earliest to the latest site.

The decline of the relative frequencies of the Yaughan variety appears to be linked to the process of

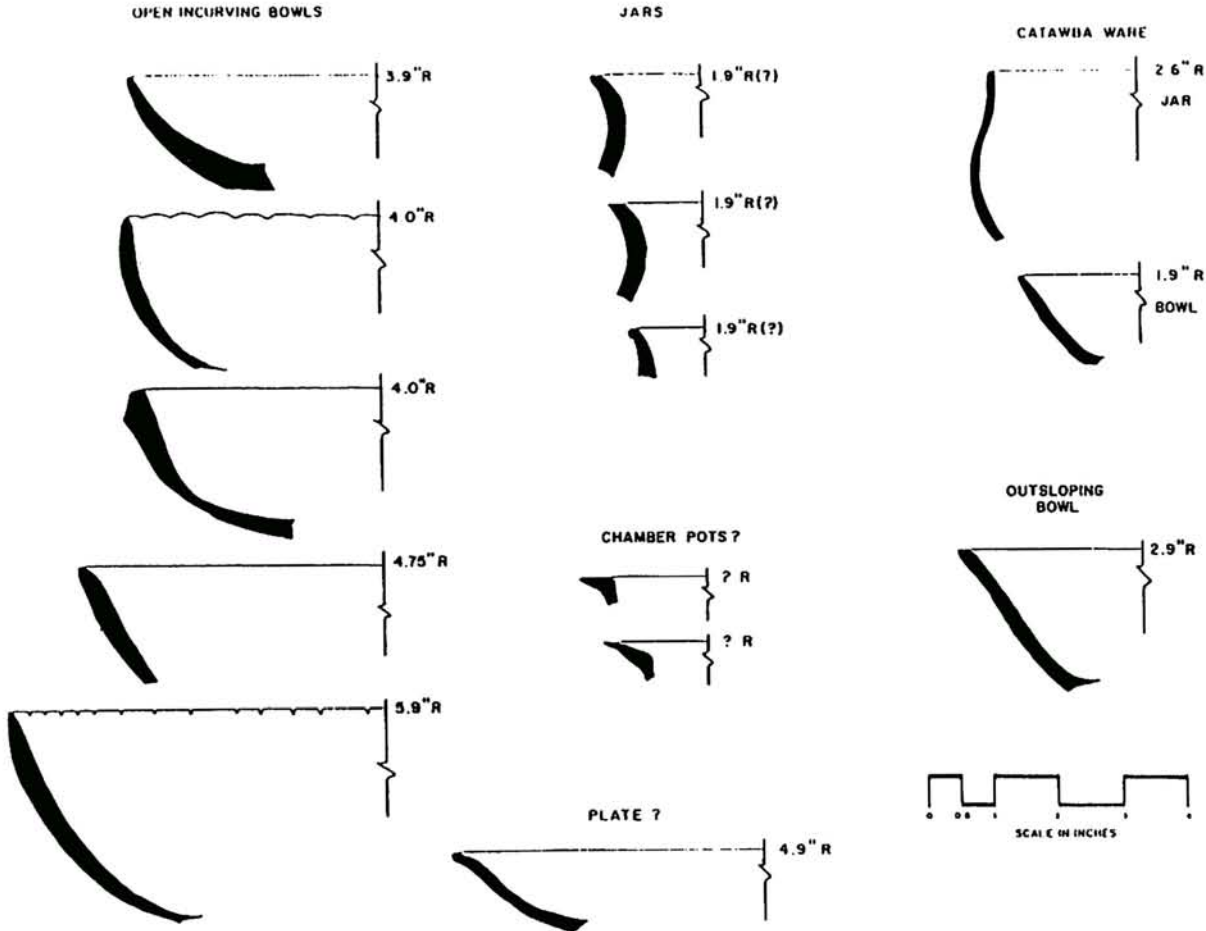


Figure 10.3: Yaughan and Catawba rim forms. Source: Wheaton, Friedlander, and Garrow 1983:228.

acculturation (see Wheaton and Garrow 1985), (Figure 10.4) which appears to have accelerated during the late 18th century. Careful study of historical, archaeological, and architectural data from the projects indicates that the inhabitants of the Yaughan and Curriboo slave quarters went through the acculturation process from the period of initial settlement of the early slave quarters to the abandonment of the late slave quarters.

The material culture during the early period appears

to have been based on West African and/or Caribbean models, and changed as time passed to become more like the prevalent Euro-American models of the South Carolina coast. Study of relative frequencies of Colonoware sherds attributable to cups/bowls versus rim sherds of cooking/storage vessels within the slave quarters illuminates the process by which acculturation proceeded. Figure 10.5 reflects the percentages of

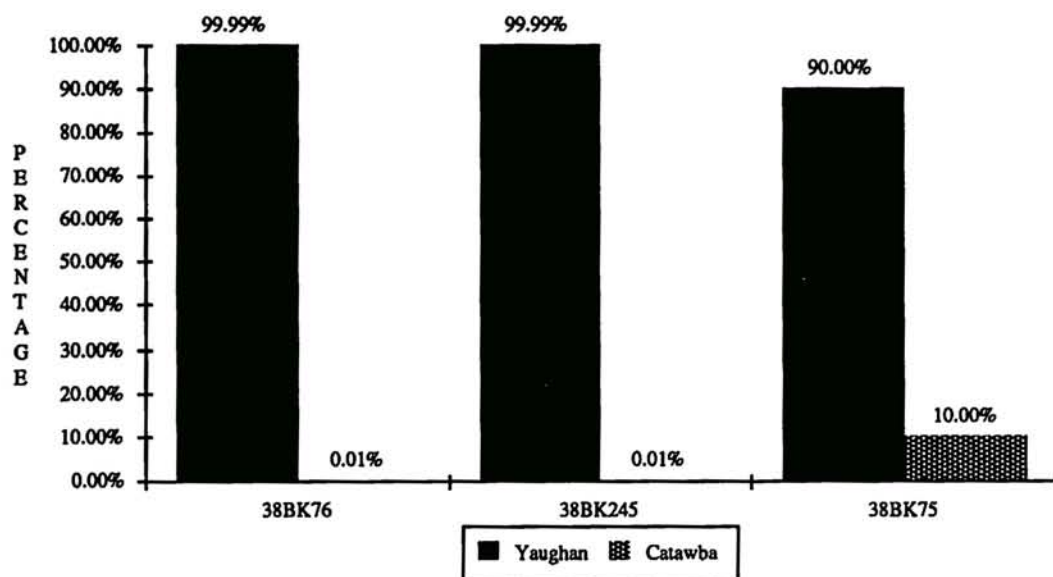


Figure 10.4: Percentages of Colonoware variants Yaughan and Catawba.

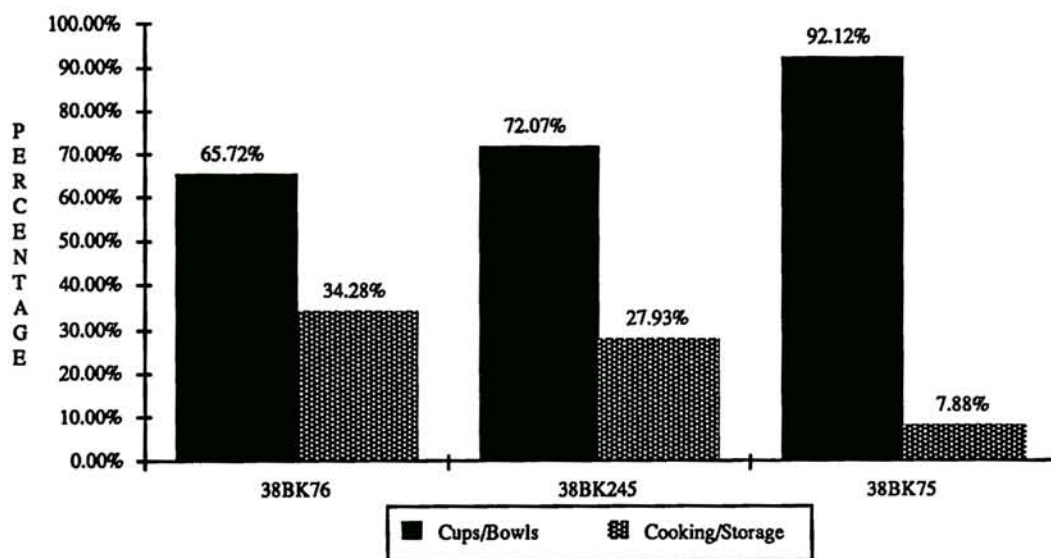


Figure 10.5: Percentages of Colonoware vessel forms.

Table 10.1  
Attributes of Colonoware, Variety Yaughan  
and Colonoware, Variety Catawba\*

	<u>Variety Yaughan</u>	<u>Variety Catawba</u>
Thickness	Average .725 cm, varies up to 1.1 cm, very uneven on individual vessels and even single sherds.	Average .7-1.5 cm thick; regular and even.
Form	Generally open incurving bowls and small flared mouth jars, lips were crudely rounded, or flattened with a finger or stick.	Generally straight sided, open, outflaring bowls, and small well-made jars, lips were tapered and well-finished.
Body	Wide variation in size, amount and type of nonplastics, generally various water-washed sands, oxidation was usually not complete, leaving a dark core.	Limited variety of nonplastics, generally fine particle size and completely oxidized or completely reduced.
Surface	Ranged from crudely smoothed to polished with obvious evidence of the polishing tool, generally interiors of bowls and exteriors of jars were polished, color ranged from black to dark brown to reddish orange, great variation on individual vessels and sherds.	Usually highly polished on interior and exterior of bowls and wide mouthed jars, polish marks were often evident, color ranged from black to gray to buff, little variation on individual sherds, some vessels were intentionally reduced.
Decoration	.3% had decoration on interior of bowls including prefiring notched rims, reed punctate thimble impressed, incised lines; post firing incision in the form of a cross or "x" in a square or a circle occurred on the interior bottoms of a few bowls.	3.5% of Catawba had undulating "day-glo" red painted lines on the exterior of jars and the interior of bowls applied after preliminary or final firing of the vessel; occasionally red dots were placed around the undulating line, or around small regular facets taken out of the interior lip; or both.
Manufacture	Bases occasionally coil made and body was hand modelled, sherds tend to be laminar in cross section, poor control over contour firing temperature and firing time, handles appeared to be attached to the surface of the vessel.	Evidence supports hand modelling, but sample is too small for definite conclusions, firing temperature and time were well controlled, reduction when it occurs was intentional, handles had plugs on the end which were inserted in the wall and smoothed from the inside.

\* Adapted from Wheaton, Friedlander, and Garrow 1983: 229.

cups/bowls to cooking/storage vessels within the three slave quarters. Cooking/storage vessels of Colonoware formed a significant percentage of the assemblage at both 38BK76 and 38BK245. The percentage of cooking/storage vessels to cups/bowls amounted to only 8% on the later 38BK75. The cooking/storage vessels had apparently been all but replaced on 38BK75 by iron pots, indicating that Colonoware vessel forms were replaced by nonlocal artifacts that served the same function(s). This might explain the rapid displacement of Colonowares in the 19th century that has been noted here and by Ferguson (1978:76). At any rate, the second hypothesis formulated for the Yaughan and Curriboo Plantation research was amply supported, namely that Colonowares did decline in importance through time.

#### CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Two distinct Colonoware varieties have been defined from the Yaughan and Curriboo collections. The minority variety, termed "Catawba," was made by Catawba Indian potters and sold to residents of the plantations. The other variety, termed "Yaughan," formed the vast majority of the Colonoware collection. That variety was clearly produced by Afro-American potters within the plantations for their own use. The main period of production and use of the Yaughan variety appears to have been during the 18th century within the study sites, while the frequencies of the Catawba variety increased relative to the Yaughan variety during at least the first quarter of the 19th century. The decline in production and use of the Yaughan variety appears to have been a reflection of the acculturation process within the plantations, which was well underway by the early 19th century. The increased use of the Catawba variety on the study plantations appears to have been linked to the replacement of Colonowares by nonlocally produced ceramics (both Catawba and English refined ceramics).

The research conducted on the Yaughan and Curriboo slave quarters answered a number of questions concerning the manufacture and use of Colonoware ceramics, but many more wait to be addressed by future researchers. A key question that needs to be addressed in the future concerns the ultimate origins of Afro-American made Colonowares. The Yaughan and Curriboo research indicated that the West African archaeological literature is all but mute concerning sites dating from the period of the trans-Atlantic slave trade in West Africa. Further, collections of ceramics available in this country that date from that time period tend to be finely rendered collector's pieces instead of the com-

mon utilitarian ware needed to address the Colonoware origin question. The Yaughan and Curriboo research made a strong, but still circumstantial, case that West Africa was the ultimate origin of the Afro-American made Colonowares, but proof for that assumption must await excavation and research on period sites in West Africa.

There is an increasing body of data that indicates that Afro-American made pottery comparable to Colonoware was produced and used in the Caribbean (cf. Gartley 1979). Recent excavations in San Juan, Puerto Rico, indicate that pottery that is clearly identifiable as Colonoware was used there in the late 18th century (J. Walter Joseph, III, personal communication 1988). Continued research in that area should help illuminate the question of the ultimate origins of Colonoware, as well as providing key information concerning the nature of the acculturative process undergone by African slaves. It is essential that good communication be maintained between scholars conducting research in that area and researchers investigating similar questions on the coast of the southeastern United States. At present the information exchange between scholars in the two areas is spotty and is based either on personal contacts or on published literature that tends to be outdated when it reaches print. The communication problem plagues almost every specialty within archaeology but is particularly acute in young and growing specialties such as Afro-American studies.

The temporal and geographical distribution of Colonoware in the southeast is another question that needs to be systematically addressed. Colonowares, both Indian and Afro-American, have been mistaken for late prehistoric ceramics found in the southeast. Colonowares may prove to be a much more widely distributed phenomenon than is currently recognized.

It appears from materials recovered in Charleston, South Carolina, and curated at the Charleston Museum, and from material recovered at urban sites in Virginia by Noël Hume that forms on rural plantation sites tended to be generalized bowl and jar forms while the urban forms tended to be copies of the refined English forms. Further, a number of the vessel forms noted in Joseph's San Juan excavations were copies of Majolica forms. This urban-rural dichotomy of forms may mean that Afro-American slaves were producing colonowares for sale in urban markets that would appeal to more sophisticated urban tastes, or simply made a greater attempt to emulate Euro-American ceramic culture in urban settings. At any rate the rural-

urban dichotomy of Colonoware vessel forms requires additional research.

The decline and disappearance of Colonowares is yet another question that needs additional research. The investigations at Vaughan and Curriboo indicated that the replacement of Colonowares by nonlocally produced goods was probably very rapid, and was interpreted as support for rapid acculturation in the late 18th and early 19th centuries. That finding appears to be consistent with the lack of Colonowares described for sites dating to the second quarter of the 19th century, but the mechanisms whereby production of Colonowares ceased requires further attention.

Studies of Colonoware ceramics are still in their initial stages in the southeastern United States. At this point we have recognized that Colonowares exist, and that multiple origins for Colonowares can be substantiated. Hopefully, future research will lead to refinements in our knowledge of Colonowares and their role in shaping past and present Afro-American cultural expressions.

#### AUTHORS' NOTES

This paper was submitted in draft on June 12, 1984. It was originally submitted under the senior author's name, and the junior author was subsequently added in recognition of contributions he made during the Vaughan and Curriboo artifact analyses.

Leland Ferguson's paper, which appears in Chapter 11 of this volume, questions the use of the term "Colonoware" as a type name and the use of "Catawba" as a variety name. It is the contention of these authors that "Colonoware" relates to a ceramic ware type made by Afro-American slaves or certain historic Indian groups that is easily recognizable from Virginia south into the Caribbean. "Colonoware" is a term that is well-known and accepted in the literature, and its use as a ware type designator is thus appropriate. Further, the available evidence amply supports the contention that the variety "Catawba" was indeed manufactured and sold by the Catawba Indians of the late 18th and early 19th centuries, and use of "Catawba" as a variety name is both appropriate and desirable. The authors reject the use of any terminology that would serve to obscure the origins or larger affiliations of the ceramics described in this paper and, therefore, reject Ferguson's proposed terms.

#### ACKNOWLEDGMENTS

It is appropriate that this paper is published in a book honoring Bob Stephenson's career with the South Carolina Institute of Archaeology and Anthropology. Bob took an active role in the Vaughan and Curriboo excavations, and was instrumental in insuring that sufficient time and money were available to adequately explore those slave quarters. Many of the interpretations presented would not have been supportable without the extra effort secured as a result of Bob's involvement.

This paper was largely summarized from a report prepared by Amy Friedlander and the author. Amy Friedlander was responsible for the project historical research. Linda France and Barbara Avery Garrow of Garrow & Associates, Inc., reviewed various drafts of this paper. Their critical comments improved the quality of the drafts and pointed out valuable additional lines of inquiry. Many individuals have contributed to the ideas included in this paper. Any errors, omissions, or misinterpretations are, however, the sole responsibility of the authors.

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## Chapter 11

### LOWCOUNTRY PLANTATIONS, THE CATAWBA NATION, AND RIVER BURNISHED POTTERY

Leland G. Ferguson

#### INTRODUCTION

In the excavations of historic sites in the lowcountry of South Carolina, archaeologists have been identifying large collections of hand built, low fired, unglazed pottery generally termed Colonoware (Ferguson 1978). In 1978 I suggested that much of this ware which was then called "Colono-Indian Ware" was probably manufactured on plantations by Afro-American slaves, and this hypothesis has been supported by research at sites such as Spiers Landing (Drucker and Anthony 1979), Yaughan and Curriboo plantations (Wheaton, Friedlander and Garrow 1983), and Hampton plantation (Lewis and Haskell 1980).

Recently lowcountry archaeologists have been recognizing a minority of Colonoware that was probably manufactured by people living in free Indian villages rather than on plantations. The pottery has been isolated because there are easily observable similarities in surface finish, body, decoration, and shape that set this group of ceramics apart from other specimens of Colonoware. Often called "Catawba pottery" for reasons discussed below, these artifacts have been recovered from a variety of late 18th and early 19th century contexts in the coastal plain.

In this paper I would like to critically evaluate our conception of this pottery and offer a name, "River Burnished," as well as an explicit typological description. My goal is to construct an explicit ceramic type, free of ethnic interpretation in its name and description, that may be used to help interpret the complex social interaction in South Carolina during the colonial period.

#### BACKGROUND

In looking at the collections of Colonowares from lowcountry sites over the last eight years, I have noted ceramics in collections from Drayton Hall, Charleston, and the Cooper River which I believe may be connected with the people we now know as the Catawba Nation. Independently, archaeologists working for Soils Systems, Inc. (Wheaton, Friedlander, and Garrow 1983), based on artifacts excavated from slave quarters

at Yaughan and Curriboo plantations, observed similar materials and, for reasons similar to my own, came to the same conclusion. Patrick Garrow and Thomas Wheaton (this volume) have pointed out that the minority collection from Yaughan and Curriboo was thought to be Catawba because,

1. The Catawba were known to have traveled to the coastal plain to sell pottery in the 19th century.
2. The pottery in question from excavations at Yaughan and Curriboo plantations has some similarity to modern Catawba vessels.
3. The pottery is similar to a single specimen in the Charleston Museum that was supposedly purchased at Yaughan Plantation from a Catawba woman in 1805.

I think other collections of ceramics from the coastal plain are related to the Catawba Nation for the same reasons. However, at this point, the connections of this pottery to the Catawba Nation are indirect. There has been no direct comparison of materials found in the lowcountry to those from contemporary sites in the Catawba River Valley—the home of the Catawba Nation—in the piedmont of South Carolina. In fact, there have been no sites identified as belonging to the Catawba Nation excavated by archaeologists.

Although the connection is quite indirect, the tendency of archaeologists, myself included, has been to call this "Catawba pottery." In the original report of excavations at Yaughan and Curriboo, Wheaton, Friedlander, and Garrow (1983: 229) established a "Catawba Type" and a "Colono Type," interpreting the Colono type to have been manufactured by local slaves and the Catawba type to have been manufactured by Catawba Indians. However, these types were defined from a narrow geographical area—two sites adjacent to one another along the Santee River in Berkeley County. Most typological descriptions are based on materials from wider geographical areas than represented by these two adjacent sites. In a later paper Garrow and



Wheaton (this volume) deleted the typological classification and moved to fit the materials from excavations at Yaughan and Curriboo into the type-variety system. They established Yaughan and Catawba varieties of a generalized Colonoware "type" which has never been defined — Colonoware is a broadly based category, like "British ceramics," not an archaeological "type". Thus, the Yaughan and Catawba varieties of Colonoware were established without the existence of a type. In other words, Yaughan and Catawba are now varieties of a type that has not been defined. Such are the normal scientific problems of dealing with site specific collections of an entirely new category of data such as Colonoware.

We now have data from more sites than available to Garrow and his colleagues; and we are now at the point where we need, and can construct, an explicit type definition for some of these ceramics. Specifically, ceramics described as "Catawba variety" by Garrow and Wheaton have a distribution over three counties (Berkeley, Dorchester, and Charleston) in the lowcountry, and we have sufficient information to class them as a ceramic "type." However, I think we should look carefully at the nature of the Catawba Nation and the problems we want to solve before naming and describing these ceramics.

#### THE CATAWBA NATION

Historians and ethnohistorians have demonstrated that the Catawba people were changing during colonial times, and archaeological research is one of the most valuable means available for understanding those changes which included new patterns of interaction with other people in the colony.

In the 16th century Spanish explorers visited the powerful chiefdom of Cofitachequi, located in the Catawba-Wateree Valley (Baker 1974; DePratter, Hudson, and Smith 1983; Hudson, Smith, and DePratter 1984). References were made to Cofitachequi as late as the 1670s; however, when John Lawson wrote of his travel up the valley in 1701 (Lefler 1967) he did not mention this chiefdom. Rather he described a series of towns including those of the Wateree Chickanee (who did not speak the same language as the other towns), the Waxhaws, Wisacks, Esaws, Sugerees, and Kadapaus; those latter towns were likely closely related descendants of the Cofitacheque chiefdom. Through time "Kadapau" (Catawba), the name of the northernmost town mentioned by Lawson, became the name commonly used for all the people of the valley, and this core of people together with the dispossessed

people of other tribes began to be known to the British colonies as the Catawba Nation. Thus, during the early 1700s the Catawba Nation became more than the descendants of the inhabitants of the Catawba River Valley and the older chiefdom of Cofitacheque; it became a nation comprised of a variety of aboriginal people from all over the southeastern portion of North America.

Historian James H. Merrell has recently discussed the "Catawba Experience" in the 18th century and has pointed out that (Merrell 1984a: 548),

*No European observer recorded the means by which nations became mere names and a congeries of groups forged into one people (the Catawba Nation).*

He further states (1984a: 547) that the,

*... Catawbas became a sanctuary for culturally related refugees from throughout the region (and) ... as late as 1743 a visitor could hear more than twenty different dialects spoken by peoples living there, and some bands continued to reside in separate towns under their own leaders.*

In addition to the core of people mentioned by Lawson — the Kadapaus, Wisacks, Sugerees, and Esaws — a list of peoples who came to reside in the Catawba Nation during the 18th century includes (Baker 1975; Merrell 1984a) the Waterees, Congarees, Santees, Saponis, Cussoes, Cheraws, Peepees, Yamassees, Coosas, Enos, Occaneeches, Keyauwees, Chowans, and Nachees! Moreover, in another paper entitled "The Racial Education of the Catawba Indians," Merrell (1984b) has demonstrated that relationships between blacks and the people who made up the Nation were more cordial in the early part of the 18th century than at any time thereafter. Some blacks lived within the Catawba Nation while the Catawbas interacted with slaves on the plantations in the lowcountry.

Society was complex and dynamic during colonial times, and I would like to emphasize Merrell's point that no European recorded the process by which people came into the Catawba Nation — better understanding should rely heavily on archaeological analyses.

#### ANTHROPOLOGICAL PROBLEMS AND A TYPOLOGICAL NAME

Historical and archaeological studies allow us to see the political and quasi-political negotiations that

people in the multi-ethnic, class divided society of South Carolina made with one another as the social fabric of the state was created (see Wolf 1982 and Faris 1984 for discussions of the importance of such studies). Archaeological research can contribute to the understanding of the interaction of the people of free Indian villages with one another as well as with people of other colonial communities such as plantations. This contribution will be effected by establishing the nature of the material connections between the groups, and the study of ceramics which were frequently made and well preserved is an obvious place to start.

The process of ceramics analysis necessary for accomplishing these ends is beginning as we ask the gross question, "Is there pottery in collections from lowcountry plantation sites which is similar to that from the Catawba Nation?" However, as we ask this question we should be aware that our goal is not to classify ceramics but to understand the interaction of people in the past. As discussed earlier, the Catawba Nation took in numerous small Indian groups of the South, and one of the important roles of archaeology may be to shed light on that process of adoption as well as to shed light on the interaction of the Catawba Nation with the people of other communities.

Aspects of the pottery technology of the Catawba Nation as we know it from the 19th century could have been contributed by any of the Indian groups that comprised the Catawba Nation or by Afro-Americans who came to live in the Nation. Thus, we may find pottery similar to that from the Catawba Nation made by people other than members of the Catawba Nation. We may even find pottery like that from the Catawba Nation from sites on the coastal plain that date from early in the 18th century. If we automatically class artifacts that might help us understand this process of amalgamation as "Catawba," then I am afraid we may deal with the problem by assumption and taxonomic fiat rather than by careful analysis of the facts—without helping to learn about the social and political negotiations that created and operated this group. What if we discover that important, diagnostic traits of so-called Catawba pottery were actually taken to the "Nation" by Cheraws, or Santees, or Pedees? What if we discover a significant Afro-American contribution?

Selecting one of the groups that contributed to the formation of the Catawba, I would like to illustrate my point. The Saponis who Lawson visited in 1701 on the Yadkin River in North Carolina moved to Ft. Christanna in eastern Virginia in 1714. When their relation-

ship with the Virginians deteriorated they moved to join the Catawbans in 1729 (Merrell 1984a: 545; Wesley White, personal communication 1985). Archaeologist Mary Beaudry, who excavated Ft. Christanna reported sherds similar to those of the modern Catawba (personal communication 1980), interpreting this as evidence of a relationship between some Indians, probably Saponis living at Ft. Christanna and the Catawbans. As in South Carolina, she had no pottery from the 18th century Catawba towns to compare with her excavated material.

However, we can easily look at this situation "upside down." Since we have no examples of the pottery being made along the Catawba River between 1714 and 1729, we cannot be sure that the pottery was the same as that found at Ft. Christanna. It is possible that the pottery Beaudry saw and has identified as Catawba pottery was being manufactured by Saponi Indians. Such a scenario would have the Saponis taking this style of pottery to the Catawba towns and the later Catawba pottery developing from this Saponi "influence." This is only speculation on a possibility, not an argument that the Saponi significantly influenced Catawba pottery. The point is that without archaeology in the Catawba region we cannot be sure of origins of the Catawba pottery of the late 18th, 19th, and 20th centuries. However, a more important point is that through studies of the pottery we may be able to better understand the origins of the *people* who constituted the Catawba Nation.

Understanding the relationship of pottery to the people who made up the Catawba Nation is clearly an archaeological problem that will not be solved until we have excavated sites in the vicinity of the Catawba towns as well as other sites that were the homes of the people who became members of the Catawba Nation. Such an understanding may be used in various ways to help us monitor the movement and cultural interaction of the small groups of people who made up the Catawba Nation. However, if we begin this work by naming pottery "Catawba" from locations as far removed from the Catawba territory as the towns and plantations of the South Carolina coastal plain, we will be unnecessarily confusing the issue and limiting the potential of our research tools. Artifacts classified in non-ethnic categories may be assigned to anyone we find manufactured or used them, allowing us to follow research in whatever turns it may take.

#### RIVER BURNISHED POTTERY

Drawing on my observations from a variety of

other sites as well as the work of Wheaton, Friedlander, and Garrow (1983), and Garrow and Wheaton (this volume), I am proposing a general description of River Burnished pottery. This is a polythetic type meaning that all of the criteria do not have to be met for inclusion in the category. The traits are listed according to the frequency that they are usually used in assigning specimens to the type.

#### RIVER BURNISHED

##### *Surface finish:*

Burnished with a tool that leaves horizontal marks approximately 1-3 mm wide (Figure 11.1). The burnishing produces a non-uniform luster (see Rye 1981:90). (The rounded shape of these marks suggests burnishing with a smooth stone).

##### *Thickness:*

Side walls are relatively thin ranging from 3-7 mm. The average thickness is approximately 5 mm. Basal sections may be more than 1 cm thick.

##### *Color:*

Many vessels appear to have been intentionally reduced during firing to produce an even, black finish. A variety of colors resulting from reduction (blacks and grays) and oxidation (buff through reddish brown) occur.

##### *Body:*

Fabric consists of fine-grained materials including mica. Major non-plastics are small particles of sand.

##### *Decoration:*

Lips of bowls are often decorated with small facets (Figure 11.2). (Replication experiments indicate that these facets may be produced by a burnishing stone when the vessel is leather hard).

A small number of the vessels are painted with black and red lines and dots. The red paint is sometimes a "day-glo" hue. Painting is usually on the interior rim of bowls and on the exterior shoulder and neck of jars and pitchers.

One vessel, a bowl from Cooper River, has a "J" incised into the fired body on the interior base.

##### *Shape:*

Straightsided, unrestricted bowls with flat bot-

toms (Figure 11.3a-b).

Globular jars with relatively straight necks (Figure 11.3c).

Pitchers with spouts and handles (Figure 11.3d).

##### *Method of manufacture:*

Modelling was used. (Small bowls show profiles that are thicker in the center of the base and thinner at the basal edges (Figure 11.3b). Replication experiments have shown that this effect is reproduced by modelling bowls on a flat surface. The length of the vessel walls is determined by the length of the fingers, and the interior is modelled with the thumbs. The thinner section at the extremities of the base is produced by the thumbs.)

The size of some vessels suggests that coiling was also used.

Handles were put on with plugs which were inserted into holes in the vessel walls and smoothed on the inside.

Vessels are well-fired.

##### *Distribution:*

River Burnished ceramics have been recovered from sites in Dorchester, Charleston, and Berkeley Counties in the lowcountry, with the largest extant collections coming from excavations at Drayton Hall in Dorchester County (Lewis 1978) and Yaughan and Curriboo Plantations in Berkeley County (Wheaton, Friedlander, and Garrow 1983). A small collection of this material was also recovered from excavations at the Brattonville site in York County by Carolina Archaeological Services, Inc. (Ronald Anthony, personal communication 1985).

##### *Date range:*

Late 18th century to early 19th century.

#### CONCLUSION

In conclusion, I would like to emphasize that I am confident along with my colleagues that we have isolated a class of Colonoware that is related to the Catawba Nation. This pottery, which I have chosen to call River Burnished, should be a valuable tool for understanding the interaction of various cultural groups in colonial South Carolina, including the variety of



Figure 11.1: Fragment of a small (7 cm tall) jar showing burnishing facets and dots of painted decoration.



Figure 11.2: Fragment of a flat-bottomed unrestricted bowl (5.8 cm tall) showing decorative facets on interior lip.

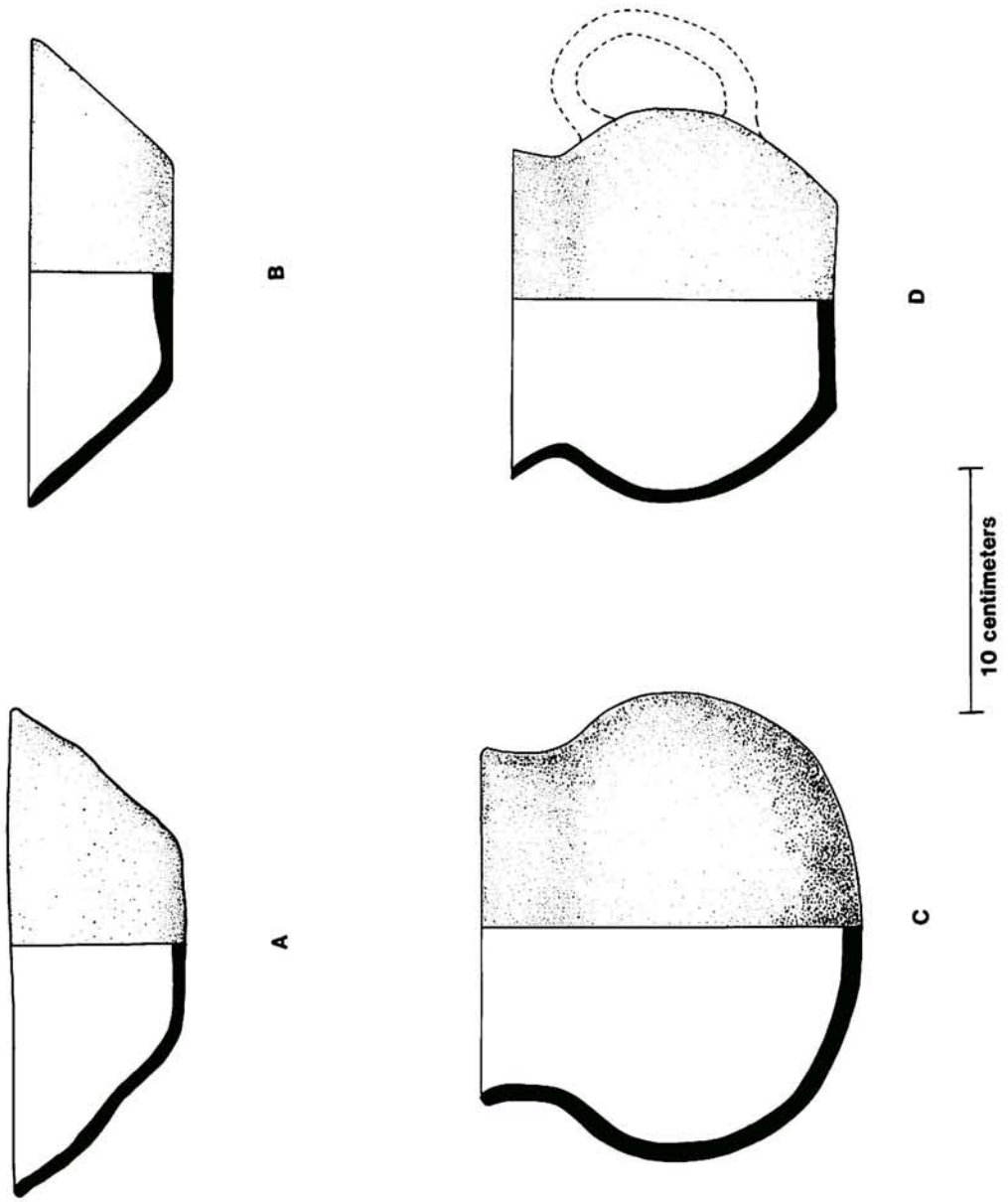


Figure 11.3: River Burnished vessel shapes.

people that lived in free Indian villages, on plantations, and in colonial towns. My admonition is methodological: If we are planning to use artifacts to help interpret political and ethnic negotiations, we should not begin by using the name of the group of people we want to study to define a poorly understood collection of artifacts.

An earlier version of this paper was presented at the Eleventh Annual Conference on South Carolina Archaeology, April 13, 1985.

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## Chapter 12

### AN EXAMINATION OF HISTORIC CERAMIC SERIATION: A CASE STUDY FROM THE SAVANNAH RIVER REGION OF SOUTH CAROLINA

Richard D. Brooks and Glen T. Hanson

#### INTRODUCTION

The intention of this paper is twofold, first to test South's (1972) Mean Ceramic Dating Formula with graphic seriation and, second, utilizing these data to construct a relative chronology for the Savannah River Site (SRS) region of South Carolina. The nature of the SRP study, being over 300 square miles in scope, allows a more regional approach to historic archaeological analysis as compared to site-specific or plantation-oriented historic archaeological study common in the Southeast. The long-term goal of the Savannah River Archaeological Research Program is to locate and evaluate the archaeological resources of the SRS. Situated 25 miles downstream of Augusta, Georgia, along the Savannah River, the SRS contains some 300 square miles, of which 40% (120 square miles) have been surveyed using an environmentally stratified, probabilistic design. As of December 1986, the survey was completed and has recorded some 820 archaeological sites, of which 343 have historic components. In order to examine any historic research domains or questions, a more refined site chronology was required. The Savannah River Archaeological Research Program presents a different view of assigning chronological ranking to historic sites than other regional surveys in the past have.

The data used in this paper were compiled from information gathered at sites located on the SRS, Aiken and Barnwell Counties, South Carolina (Hanson and Brooks 1979 and 1981; Brooks and Hanson 1981 and 1982; Brooks 1979, 1984, and 1988; Hanson, Brooks, and White 1981; and Brooks and Martin 1984).

The temporal position of an archaeological site is as important as its spatial position and artifact assemblage. Without these data, few interpretations would be possible. Most historic artifacts have clear-cut life spans. In some instances, carbon-14 dates from historic site organic material are useful; however, the standard deviation expected for the sites under investigation indicate that radiocarbon dating would not be a valuable tool. Therefore, other traditional approaches to dating sites were considered more useful. Archival research

produced plats, maps, aerial photographs, and court proceedings, data useful not only for chronology, but also for interpreting land-use patterns, site structure, and economic/agricultural history.

The development of a relative chronology for archaeological sites is a prime objective for most archaeologists. The initial ordering of historic sites on the SRS was accomplished using ceramics and glass to obtain maximal range of occupation at historic sites. However, it did not allow for the ordering of the sites into chronological perspective. Prehistoric chronology uses a variety of methods. One useful method has been seriation (Brooks and Hanson 1982), particularly on the SRS where soil conditions have diminished the preservation of datable carbon. Prehistoric archaeology has used seriation quite successfully since it was first introduced by Phillips, Ford, and Griffin (1951).

By necessity historic research on the Savannah River Site is regional in scope and archaeological in nature. South's Mean Ceramic Dating Formula (MCDF) (1972) has sufficed to date individual historic sites where there are large numbers of ceramic materials, but we are more interested in the whole chronological range of each site rather than a specific date.

The seriation method produces results similar to South's MCDF but can be used where the ceramic numbers may not be sufficiently large to use the MCDF with accuracy. This method, as employed herein, is not strictly a seriation as defined by Phillips, Ford, and Griffin (1951) because the dates of the ceramics are already known. The MCDF uses all ceramic types as opposed to general ware categories to obtain its results. The graphic seriation method's use of percentages of ceramic types indicates both single and multiple occupancy and, most importantly, can be used in conjunction with the MCDF to construct a better relative chronology in a regional setting. The MCDF method by itself does not. The MCDF, in effect as it is generally used, gives an absolute date (however, one should use the absolute date only as a relative gauge for the mean date of occupation). According to South (1972 and

1977) the Mean Ceramic Dating Formula is basically a form of the seriation method. However, all conditions and assumptions of seriation (see below) are apparently assumed to be effective when using the MCDF. The conditions and assumptions have not been directly addressed and discussed in the MCDF method. In some instances the MCDF dates occupations when in all likelihood the site was abandoned (i.e. see date relating to 38AK359) or dates them prior to their construction as is the case with at least 38BR273, 38BR274, 38BR277, and 38BR283 (see Brooks 1987). The MCDF can be used to construct a relative chronology similar to seriation. However, one of two methods must be employed. First, using both the earliest ceramic date and the latest ceramic date, an all-encompassing date range is constructed. But this method produces results that are too general. Second, standard deviations can be computed for each site using MCDF.

Deetz and Dethlefsen (1965) applied a seriation method to historic period gravestone motifs to demonstrate the temporal trends in motifs. Deetz (1977: 64-90) examined seriation in historic ceramics to illustrate the chronological sequences in wares. These two discussions provide two of the best examples of seriation applications to historically documented archaeological records.

The seriation method appears to be the answer to the immediate problem of constructing a relative chronology for the SRS region. The ability to use the seriation method will help in answering questions about behavior and material culture development in the Savannah River Site region. Presented below is an examination of the application of the historic ceramics to the seriation method.

Seriation . . . is based on general propositions about behavior patterns and material culture that can be applied and tested in any society, including our own (Rathje 1982: 53).

*Seriation allows a relative ordering of sites from the oldest to the youngest; this information has other applications and will be discussed later. The method has three conditions that must be met before any seriation can be undertaken.*

*Insofar as seriation is a special kind of comparison, the conditions which must be satisfied by the groups to be compared are nothing more than statements of their comparability for the purposes of seriation (Dunnell 1970:*

*311).*

These basic conditions as outlined below are from Phillips, Ford, and Griffin (1951) and Dunnell (1970).

1. All groups included in a seriation must be of comparable duration. Generally the duration must be for a short period of time compared to the entire time range with which we are dealing.
2. All the groups included in a seriation must belong to the same cultural tradition.
3. All groups included in the seriation must come from the same local area.

The first condition of comparable duration means that the artifacts must be of comparable duration. The date ranges for this study are as follows: creamware 1762 to 1820, pearlware 1780 to 1840, and whiteware/ironstone 1813 to present (South 1977 and Noël Hume 1970). These three groups were chosen because they are the most numerous ceramic categories. Earlier ceramic types were not used because they generally number less than five sherds per site and there are few sites where these types are present. The minimum sample size considered by the authors to be adequate for inclusion in the seriation was 10 sherds in any combination of the three types used. Although this sample size is small, it was considered sufficiently representative for preliminary study. The 19 different dated creamware and pearlware decorations plus those of whiteware/ironstone would have made the task of seriation too cumbersome. Only the ware type was relevant for this study.

The second condition is that the groups must belong to the same cultural tradition. The population under study is from the same cultural background; Euro/American. We are looking at the same general sets of values with our population as opposed to East Indian, Asian, or Amerind cultural values and traditions. Generally archaeologists have assumed that these cultural traditions and values are different despite the fact that the artifacts are similar. This presents a major problem that needs to be addressed through archaeology. If these differences are not apparent in the record (Brooks 1988), then there has to be some method developed that can detect these differences. But that will have to be discussed and weighed at a different time.

The third and last condition, that the groups come from the same local area, is also met. These groups



meet this condition in that the study sites are from the same local geographical area.

The above conditions set forth assumptions that affect inferences. The assumptions also help to explain the conclusions that are reached. These are not meant to be absolute, but only reasonable hypotheses for determining the chronology and cultural history of the area. These assumptions are based on those from Phillips, Ford, and Griffin (1951), Ford (1962), and Dunnell (1970).

The first assumption is that the distribution of population was relatively stable in the study area. Plotted positions of the historic sites by ceramic period do not appear to indicate that the population was anything other than stable with a slowly growing population base.

The second assumption is that the sites themselves were occupied for only short periods as compared to the entire time span under review. There are exceptions to this, but they are few in number and can be explained generally as ancestral homes of the oldest families in the area.

The third assumption is that cultural traditions of the area probably changed gradually rather than by means of mass migration of culturally different peoples. A check of the manuscript population census indicates that this area has been inhabited by basically the same families since the 1790s and probably earlier. The earliest records of the area (land grants and deeds) indicate that though the early land owners were from diverse backgrounds, they apparently did not reside on the properties, as there is little material evidence of historic sites dating to the period 1735 to 1760. Since no evidence exists for settlement by groups not using English manufactured ceramics, this assumption seems valid. Although this area was supposedly first settled by Swiss immigrants, their material acquisition network in the colonial system was English. On the other hand, several different European countries, most notably France and Denmark, were manufacturing creamwares, pearlwares, and whitewares that are nearly indistinguishable from English manufactured items. This also is a relatively unexplored region in historic archaeology, perhaps best studied by historians and ceramic experts.

The fourth assumption is that our techniques have been successful in obtaining samples that represent continuous segments of time throughout the survey

area, and that these contain sufficient sized collections to provide a reliable perspective of chronological occupation range. Given the regional survey design there is no question regarding the continuous nature of the sample. The adequacy of the collection sample (>10) must be evaluated through continued comparative study of survey and excavation data sets.

If the ceramics we have chosen are documented, they are representative of cultural change through time and expected patterns of popularity are represented. These patterns are indicated by gradual increase of the relative numbers in a group to a peak popularity, then by a gradual decline in popularity until it completely disappears from the record (see South 1972 and 1977 for further explanation of this). We are using three different ceramic types because this will occur in the first two types of ceramics, since the third has yet to be replaced in the archaeological record.

Further, we assume that the popularity and use of any of these ceramics was proportional to its production levels. The overlapping time ranges of the ceramics indicates that the change from one ware type to the next was not abrupt but gradual (see South 1972 and 1977); this then allows the methods of seriation to be employed to order other sites in a relative chronology.

#### METHODOLOGY

All samples of ceramics were drawn from SRS historic sites which have been surface collected, sub-surface tested, and/or intensively excavated. All subtypes of wares were grouped into the larger ware classes to allow for a more consistent comparison.

Table 12.1 presents the results of applying South's MCDF to 51 historic archaeological sites on the SRS. Included in the table are standard deviations, inferred date ranges, and collection type. In Table 12.1 the column marked "Collection Type" refers to the method of artifact collection, S = surface collection, T = testing, and E = excavation units.

As will be apparent from Table 12.1, there is a discrepancy with the dates as presented by South (1977). Since whiteware/ironstone is still being manufactured today and the sites under investigation are known not to have been occupied after 1950, ironstone and whiteware were combined and given a corrected mean date of 1881.5 (1813 to 1950). Even this corrected date is not sufficiently accurate, as sites 38BR273, 277, and 283 date to 1880 using the MCDF method but are known not to have been constructed until ca. 1910.

**Table 12.1**  
**Mean Ceramic Dates**

Site	Collection Type	Mean Ceramic Date	Standard deviation	Inferred Date Range ( $\pm 1$ s.d.)	Total Number Ceramics
38BR291	E	1786.90	25.9	1761 - 1813	58
38BR269	E	1805.10	9.2	1795 - 1814	45
38BR416	T	1807.80	6.7	1801 - 1815	13
38AK141	S	1810.60	21.7	1789 - 1832	12
38AK274	E	1810.70	17.4	1793 - 1828	41
38BR403	E	1810.70	20.6	1790 - 1831	268
38AK97	S	1811.90	12.4	1799 - 1824	10
38BR442	E	1812.40	24.5	1788 - 1837	222
38AK321	S	1816.00	28.5	1788 - 1845	13
38AK383	S	1816.20	26.3	1790 - 1843	22
38BR419	T	1816.80	30.3	1787 - 1847	34
38AK107	T	1820.20	32.5	1788 - 1853	19
38AK268	T	1820.30	33.0	1787 - 1853	32
38BR179	S	1820.50	35.3	1785 - 1856	12
38BR294	E	1820.60	26.2	1794 - 1847	130
38BR434	T	1823.90	35.6	1788 - 1860	290
38BR326	T	1824.10	41.6	1783 - 1866	98
38BR31	E	1831.30	38.9	1792 - 1870	42
38AK357	T	1833.50	35.9	1798 - 1869	193
38BR62	S	1833.90	37.5	1796 - 1871	21
38BR175	T	1835.10	40.6	1795 - 1876	167
38AK359	S	1835.10	43.4	1792 - 1879	15
38BR314	S	1836.90	37.5	1799 - 1874	24
38BR490	T	1837.20	37.8	1799 - 1875	26
38BR320	T	1840.30	41.3	1799 - 1882	14
38AK158	E	1846.80	35.0	1812 - 1882	18
38BR44	S	1849.30	33.4	1816 - 1883	17
38AK62	E	1857.00	30.3	1818 - 1896	47
38BR266	T	1860.30	35.3	1825 - 1896	30
38BR96	T	1861.70	32.7	1829 - 1894	43
38AK299	S	1863.10	33.8	1829 - 1897	41
38BR321	S	1863.50	32.3	1831 - 1896	17
38AK140	S	1863.80	29.3	1834 - 1893	20
38BR40	S	1863.90	27.2	1837 - 1891	16
38AK119	E	1866.50	31.9	1835 - 1898	79
38BR202	T	1867.10	27.9	1839 - 1895	104
38AK275	E	1867.20	29.3	1838 - 1896	392
38BR425	S	1871.00	26.4	1845 - 1897	22
38BR67	S	1871.90	25.5	1846 - 1897	32
38BR19	S	1871.90	25.1	1847 - 1897	24
38BR333	S	1872.70	24.3	1848 - 1897	26
38BR285	S	1875.60	20.3	1855 - 1896	13
38AK139	S	1876.60	16.8	1860 - 1893	13
38BR324	S	1876.70	18.6	1858 - 1895	232
38BR47	S	1877.30	15.7	1862 - 1893	15
38AK323	T	1877.60	13.9	1864 - 1893	25
38BR256	S	1878.40	15.5	1863 - 1894	46
38AK219	S	1879.20	12.9	1866 - 1892	55
38BR279	T	1879.90	11.0	1869 - 1891	93
38BR273	E	1880.00	11.2	1869 - 1891	451
38BR277	E	1880.90	7.0	1874 - 1888	469

The first step in the seriation was to select from the total number of historic sites a suitable sample for the study. A listing of the historic sites with ceramics of all types was examined. The next step was to isolate those sites that had at least 10 ceramics in any combination of creamware, pearlware, and whiteware/ironstone. We then removed sites that consisted wholly of whiteware/ironstone because they reflected only the latest historic occupation and would have no basis for comparison in the study. Initially, all of the different styles of creamware and pearlware were used in the seriation, but this became too cumbersome and obscured temporal trends. It was at this point that the generic ware types were adopted. Percentages of each ware type were calculated using the total number of ceramics from each site (Table 12.2). These data were transferred to traditional graph paper strips for use in graphic seriation ordering.

In Table 12.2, in the column marked "Inferred Function," the letter M refers to multiple occupancy, while S refers to single occupancy. Examination of Table 12.2 of ordered sites by the seriation method, and noting the percentages for creamware, pearlware, and whiteware/ironstone, gives a better picture of occupational history and time range than the MCDF, because the MCDF presents a specific point in time as opposed to a percentage ranking with seriation. Table 12.1 shows the ordering of the same sites using the MCDF. The MCDF provides an absolute ranking rather than a relative ranking, and care must be taken when using the MCDF because it is a sample MEAN (i.e., a measure of central tendency). To best characterize the date and range at a site, the sample standard deviations (i.e., measures of dispersion) should be reported. This addition allows the reader to examine the nature of the sample distribution and thus understand the reliability of the mean as an accurate measure of central tendency (cf., radiocarbon date reporting standards).

To contrast the graphic seriation and evaluate it in reference to South's MCDF (1972), the mean ceramic dates for the seriation site samples were calculated and the sites were ordered accordingly (Table 12.1). Table 12.1 also shows the results from calculating one standard deviation for each site and the resultant date range from the s.d. Figure 12.2 graphically displays the MCDF and the date ranges within one standard deviation. Table 12.3 presents the comparison of the ranked MCDs and the seriation ordering. In Table 12.3 the column marked *di* represents the difference between the MCD rank and the seriation rank.

In order to evaluate the rank order correlation of the

two methods, Spearman's rho was calculated, resulting in a rho of .992 and an associated significance level of .01 (Blalock 1972: 416-418).

Spearman's rho (rs)  $\frac{6\sum di^2}{n^3-n}$

$$(n=51) \quad rs = 1 - \frac{6\sum di^2}{n^3-n}$$

$$\frac{6(169)}{132600}$$

$$rs = 1 - \frac{1014}{132600}$$

$$rs = .992$$

$$\text{sig.} > .005$$

These results support the overall conformance between the mean ceramic and graphic seriation methods. South (personal communication 1985) says that the MCDF is "an expression of the seriation method and replicates the seriation results." Although there are differences between the two methods, the results confirm one another. The MCDF is a calculated grouped mean for grouped dates (cf., Blalock 1972); the graphic seriation is not a statistic. Further, it can be concluded that the graphic seriation method with the present sample of data will replicate the MCDF results. South says that "what it illustrates is the validity of the MCDF formula as an expression of the seriation method."

By looking at the percentages, inferences about occupational components are possible. For example, 38BR294 had few creamware and whiteware/ironstone ceramics, the majority being pearlware. From this we can infer that the site represents a single occupational period following the decline of major creamware popularity and prior to the adoption of whiteware/ironstone, ca. 1820.

Site 38AK359 had two distinct occupations: 1) during the use of creamware (1762 to 1820), and 2) during the use of whiteware/ironstone (1813 to present). The low occurrence of pearlware, a common ceramic between 1780 and 1840, indicates a period of apparent limited occupation or abandonment. By contrast, both the the MCD for 38AK359 (1835.1) and the seriation rank would suggest that the site had its central occupation during the popularity of pearlware when the percentage data for the type indicate otherwise. Neither the MCDF or the seriation method give accurate pictures of sites that have periods of abandonment.

Figure 12.1 presents a chronological ordering of the sample sites based on the MCD with one standard deviation bar to indicate the confidence levels for the dates. As stated above, the relative orderings of the sites in time are basically similar to graphic seriation

**Table 12.2**  
**Ceramic Seriation Rank**

Site	Percent Creamware	Percent Pearlware	Percent Whiteware	Inferred Function	Seriation Rank
38BR291	82.80%	10.30%	6.90%	S	1
38BR269	20.00%	80.00%	0.00%	S	2
38BR416	7.70%	92.30%	0.00%	S	3
38AK97	0.00%	100.00%	0.00%	S	4
38AK274	19.50%	78.10%	2.40%	S	5
38BR403	16.40%	77.30%	6.30%	S	6
38AK141	8.30%	83.40%	8.30%	S	7
38BR442	23.80%	66.70%	9.50%	S	8
38BR419	14.70%	67.70%	17.60%	S	9
38BR294	7.70%	79.20%	13.10%	S	10
38AK383	4.50%	81.90%	13.60%	S	11
38AK321	15.40%	69.20%	15.40%	M	12
38AK107	21.00%	58.00%	21.00%	M	13
38AK268	15.60%	62.50%	21.90%	S	14
38BR179	33.30%	41.70%	25.00%	M	15
38AK357	11.40%	63.20%	25.40%	M	16
38BR434	19.00%	54.10%	26.90%	M	17
38BR31	16.70%	47.60%	35.70%	M	18
38BR62	9.50%	52.40%	38.10%	M	19
38BR314	0.00%	58.30%	41.70%	S	20
38BR490	7.70%	50.00%	42.30%	M	21
38BR175	23.40%	33.50%	43.10%	M	22
38AK359	40.00%	13.30%	46.70%	M	23
38BR326	9.20%	43.90%	46.90%	M	24
38BR320	21.40%	28.60%	50.00%	M	25
38AK158	0.00%	50.00%	50.00%	S	26
38BR44	0.00%	47.10%	52.90%	S	27
38BR266	6.70%	20.00%	73.30%	M	28
38BR96	4.70%	20.90%	74.40%	M	29
38AK62	8.50%	17.00%	74.50%	M	30
38AK140	5.00%	20.00%	75.00%	M	31
38BR40	0.00%	25.00%	75.00%	S	32
38BR321	0.00%	23.50%	76.50%	S	33
38AK299	2.40%	19.50%	78.10%	S	34
38AK275	1.80%	17.30%	80.90%	S	35
38BR202	4.80%	13.50%	81.70%	M	36
38AK119	0.00%	17.70%	82.30%	S	37
38BR425	9.10%	4.50%	86.40%	M	38
38BR67	3.10%	9.40%	87.50%	S	39
38BR19	0.00%	12.50%	87.50%	S	40
38BR333	0.00%	11.50%	88.50%	S	41
38BR285	0.00%	7.70%	92.30%	S	42
38AK139	0.00%	7.70%	92.30%	S	43
38BR47	0.00%	6.70%	93.30%	S	44
38BR324	2.60%	3.40%	94.00%	S	45
38BR256	0.00%	4.30%	95.70%	S	46
38AK323	0.00%	4.00%	96.00%	S	47
38BR279	0.00%	2.20%	97.80%	S	48
38AK219	1.80%	0.00%	98.20%	S	49
38BR273	1.30%	0.40%	98.30%	S	50
38BR277	0.00%	0.80%	99.20%	S	51

**Table 12.3**  
**Rank Order Correlation**

Site	MCD Rank	Seriation Rank	di	di2
38BR291	1	1	0	0
38BR269	2	2	0	0
38BR416	3	3	0	0
38AK141	4	7	3	9
38AK274	5	5	0	0
38BR403	6	6	0	0
38AK97	7	4	3	9
38BR442	8	8	0	0
38AK321	9	12	3	9
38AK383	10	11	1	1
38BR419	11	9	2	4
38AK107	12	13	1	1
38AK268	13	14	1	1
38BR179	14	15	1	1
38BR294	15	10	5	25
38BR434	16	17	1	1
38BR326	17	24	7	49
38BR31	18	18	0	0
38AK357	19	16	0	0
38BR62	20	19	1	1
38BR175	21	22	1	1
38AK359	22	23	1	1
38BR314	23	20	3	9
38BR490	24	21	3	9
38BR320	25	25	0	0
38AK158	26	26	0	0
38BR44	27	27	0	0
38AK62	28	30	2	4
38BR266	29	28	1	1
38BR96	30	29	1	1
38AK299	31	34	3	9
38BR321	32	33	1	1
38AK140	33	31	2	4
38BR40	34	32	2	4
38AK119	35	37	2	4
38BR202	36	36	0	0
38AK275	37	35	2	4
38BR425	38	38	0	0
38BR67	39	39	0	0
38BR19	40	40	0	0
38BR333	41	41	0	0
38BR285	42	42	0	0
38AK139	43	43	0	0
38BR324	44	45	1	1
38BR47	45	44	1	1
38AK323	46	47	1	1
38BR256	47	46	1	1
38AK219	48	49	1	1
38BR279	49	48	1	1
38BR273	50	50	0	0
38BR277	51	51	0	0

results. Of particular interest in the figure is the broad range of dates that fall within one standard deviation of the MCD. In most cases the range within one standard deviation of the date covers a period of between 40 and 80 years, hardly the precision implied by reported MCDs calculated to two significant figures. To further illustrate this point we compared the one standard deviation range for 38BR320 with the other 50 sites in the sample. Only one mean date (38BR291) falls outside of the range for this site; all site date ranges overlap with it! This example serves to illustrate the potential for spurious accuracy in attributing Mean Ceramic Dates to archaeological sites calculated to two significant figures. The MCDF method is simply a grouped mean calculation which measures central tendency in a sample. Statistical means are usually reported in conjunction with standard deviations to indicate the range of dispersion about the mean and as such should be reported with a standard deviation. Although similar in raw data and results, using a ranked order chronology, the seriation method does not imply statistical reliability or accuracy. Seriation orders sites using percentages of certain (any overlapping datable ceramics) ceramic classes; it does not imply single year dates to sites.

The tables and calculations above were constructed during 1983. Since then several surveys have taken place and four sites have been added to the seriation ranking (Table 12.4). Also added to the ranking were sites that had only whiteware ceramics in their artifact collection. Generally the ranking has not changed drastically and probably moves more in line with South's MCD ranking in Table 12.1. The only sites not included in the list of sites with more than 10 ceramics

are again those that have ceramics that were manufactured prior to creamware, or are stonewares that date from 1800 to 1950, with date ranges too large to be reliably placed within the ranking. The problem inherent with Table 12.4 is the positions of those sites with only whiteware ceramics. Their ranking position places them after all other sites. However, whiteware dates from 1813 (South 1977), but without a more reliable dating system for whiteware ceramics, it is impossible to place them more accurately.

Given the many processes effecting the deposit and formation of archaeological records, we believe, as does South (1977), that the MCDF with standard deviation should be the standard reporting method. On the other hand, the graphic seriation method has the strength of providing an indication of single and multiple occupation. Its application in regional studies may be the greatest advantage of the method. We have here attempted to explore the value of the graphic seriation method in contrast to the MCDF method for placing historic archaeological sites in time using a large sample of historic sites spanning 200 years. As with any scientific method, the true test awaits the application to other data sets under varying conditions.

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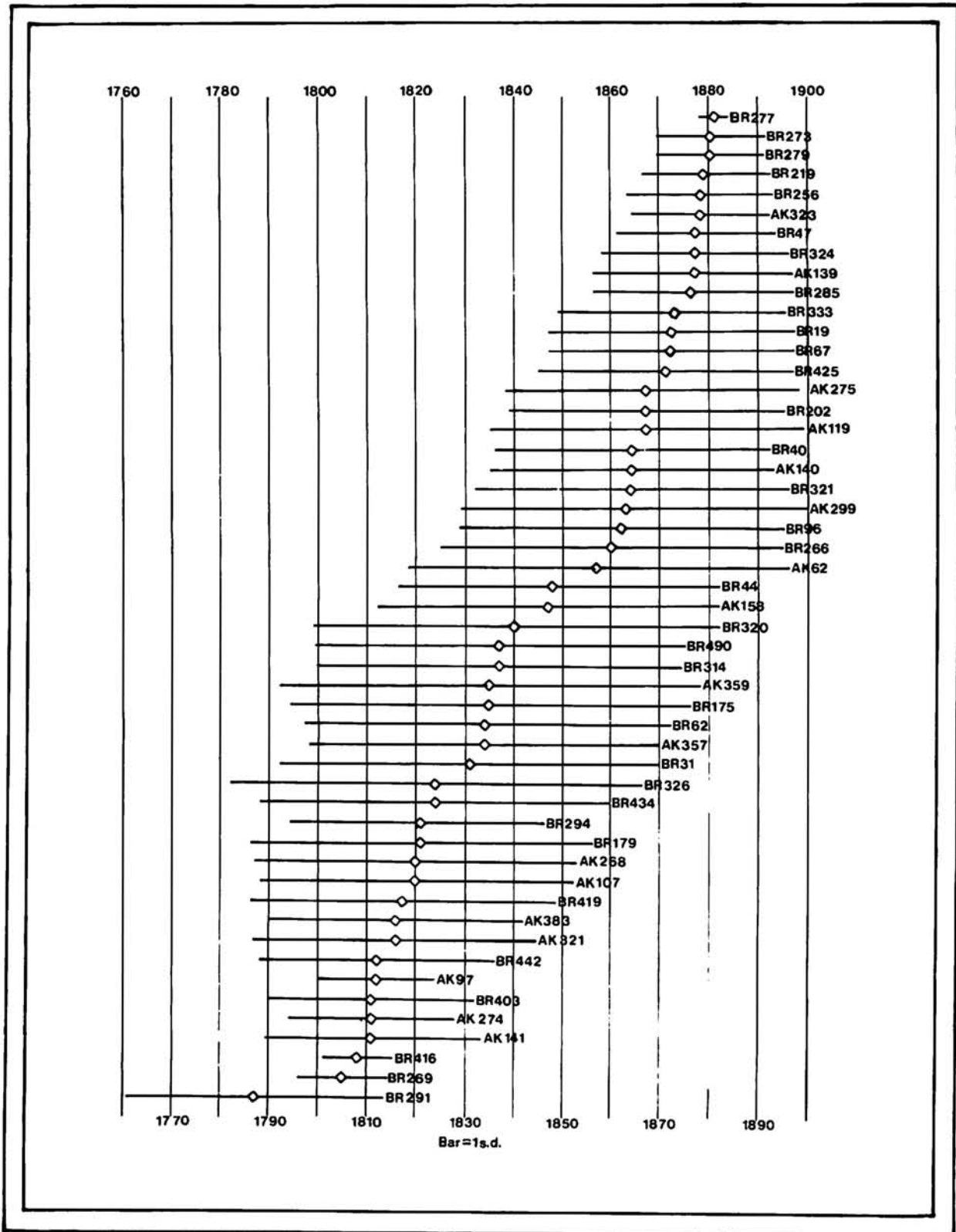


Figure 12.1: Indicates the relative position of the 51 archaeological sites, using the MCDF and calculated standard deviation.

**Table 12.4**  
**1987 Historic Site Seriation Rank**

Site Number	Creamware	Pearlware	Whiteware/ Ironstone	Total Ceramics	Percent Creamware	Percent Pearlware	Percent Whiteware	Seriation Rank
38BR291	130	6	4	140	92.8	4.3	2.8	1
38BR269	9	36	0	45	20.0	80.0	0.0	2
38BR416	1	12	0	13	7.7	92.3	0.0	3
38AK97	0	11	0	11	0.0	100.0	0.0	4
38AK274	8	32	1	41	19.5	78.1	2.4	5
38BR403	44	207	17	268	23.8	66.7	9.5	6
38AK141	1	10	1	12	8.3	83.4	8.3	7
38BR442	54	147	21	222	23.8	66.7	9.5	8
38BR419	5	23	6	34	14.7	67.7	17.6	9
38BR294	10	103	17	132	7.7	79.2	13.1	10
38AK383	1	18	3	22	4.5	81.9	13.6	11
38AK321	2	9	2	13	15.4	69.2	15.4	12
38AK107	4	11	4	19	21.0	58.0	21.0	13
38AK268	5	20	7	32	15.6	62.5	21.9	14
38BR179	4	5	3	12	33.3	41.7	25.0	15
38AK357	22	122	49	193	11.4	63.2	25.4	16
38BR434	55	157	78	290	19.0	54.1	26.9	17
38AK272	2	8	6	16	12.5	50.0	37.5	18
38BR31	7	20	15	42	16.7	47.6	35.7	19
38BR62	2	11	8	21	16.7	47.6	35.7	20
38BR314	0	14	10	24	0.0	58.3	41.7	21
38BR490	2	13	11	26	7.7	50.0	42.3	22
38BR175	39	56	72	167	23.4	33.5	43.1	23
38AK359	6	2	7	15	40.0	13.3	46.7	24
38BR326	9	43	46	98	9.2	43.9	46.9	25
38BR320	3	4	7	14	21.4	28.6	50.0	26
38AK158	0	9	9	18	0.0	50.0	50.0	27
38BR44	0	8	9	17	0.0	47.1	52.9	28
38BR266	2	6	22	30	6.7	20.0	73.3	29
38BR96	2	9	32	44	4.7	20.9	74.4	30
38AK62	4	8	35	47	8.5	17.0	74.5	31
38AK140	1	5	15	21	5.0	20.0	75.0	32
38BR40	0	4	12	16	0.0	25.0	75.0	33
38BR321	0	4	13	17	0.0	23.5	76.5	34
38AK299	1	8	32	41	2.4	19.5	78.1	35
38AK275	7	68	317	392	1.8	17.3	80.9	36
38BR202	5	14	85	104	4.8	13.5	81.7	37
38AK119	0	14	66	80	0.0	17.7	82.3	38
38AK68	0	2	10	12	0.0	16.6	83.4	39
38BR425	2	1	19	22	9.1	4.5	86.4	40
38BR67	1	3	28	32	3.1	9.4	87.5	41
38BR19	0	3	21	24	0.0	12.5	87.5	42
38BR333	0	3	23	26	0.0	11.5	88.5	43
38BR285	0	1	12	13	0.0	7.7	92.3	44
38AK139	0	1	12	13	0.0	7.7	92.3	45
38BR47	0	1	14	15	0.0	6.7	93.3	46
38BR524	0	1	15	16	0.0	6.2	93.8	47



**Table 12.4**  
**1987 Historic Site Seriation Rank**  
 (continued)

Site Number	Creamware	Pearlware	Whiteware/ Ironstone	Total Ceramics	Percent Creamware	Percent Pearlware	Percent Whiteware	Seriation Rank
38BR324	6	8	218	232	2.6	3.4	94.0	48
38BR256	0	2	44	46	0.0	4.3	95.7	49
38AK323	0	2	23	25	0.0	4.0	96.0	50
38BR279	0	2	91	93	0.0	2.2	97.8	51
38AK219	1	1	54	56	1.8	1.8	96.4	52
38BR494	0	22	1274	1296	0.0	1.7	98.3	53
38BR273	6	2	443	451	1.3	0.4	98.3	54
38BR277	0	4	1523	1527	0.0	0.3	99.7	55
38AK67	0	0	10	10	0.0	0.0	100.0	
38BR206	0	0	10	10	0.0	0.0	100.0	
38BR529	0	0	10	10	0.0	0.0	100.0	
38BR41	0	0	11	11	0.0	0.0	100.0	
38BR328	0	0	11	11	0.0	0.0	100.0	
38AK94	0	0	12	12	0.0	0.0	100.0	
38BR255	0	0	13	13	0.0	0.0	100.0	
38BR327	0	0	13	13	0.0	0.0	100.0	
38BR189	0	0	14	14	0.0	0.0	100.0	
38BR254	0	0	15	15	0.0	0.0	100.0	
38BR263	0	0	18	18	0.0	0.0	100.0	
38BR275	0	0	18	18	0.0	0.0	100.0	
38AK73	0	0	21	21	0.0	0.0	100.0	
38BR272	0	0	28	28	0.0	0.0	100.0	
38BR274	0	0	29	29	0.0	0.0	100.0	
38BR278	0	0	29	29	0.0	0.0	100.0	
38AK261	0	0	30	30	0.0	0.0	100.0	
38AK296	0	0	30	30	0.0	0.0	100.0	
38BR276	0	0	38	38	0.0	0.0	100.0	
38BR283	0	0	56	56	0.0	0.0	100.0	

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## Chapter 13

### APPROACHES TO ARCHAEOLOGICAL INVESTIGATION OF CHARLESTON, SOUTH CAROLINA

Martha A. Zierden and Jeanne A. Calhoun

#### INTRODUCTION

The involvement of the Charleston Museum in archaeological research in Charleston, South Carolina, parallels the development of urban archaeology throughout the country. The investigations began with a few isolated projects. A number of research efforts were initiated in Charleston in 1980 - 1981, and these served to bring the city into the mainstream of urban archaeology. The program initiated in 1973 by the Charleston Museum currently features ongoing research on a number of issues, under the framework of a general research design constructed by an archaeologist and a historian. Outgrowths of the program include publication, exhibition, and education programs designed to make results of archaeological excavations available to a broad sector of the general public.

Founded in 1670, Charleston had become a major marketing center for the southern English colonies by the early 18th century. Although the city continued to dominate regional trade throughout the antebellum period, Charleston's economic decline began in the years preceding the Civil War and continued throughout the early 20th century. These years of depression, plus a legacy of respect for all things past, led to early and extensive efforts in historic preservation; interest and protective efforts by the city have recently begun to include archaeological resources. For these reasons, Charleston contains an excellent data base for examining the processes of urban growth through archaeological research and a relatively positive atmosphere in which to do it. This paper summarizes the history and archaeological potential of Charleston, the excavation projects conducted to date, and the methodological and theoretical approaches used in these projects. The paper also includes a brief discussion of research results and public interpretation efforts.

#### BACKGROUND

The Carolina colony was founded in 1670 by a group of wealthy British investors who had received grants of land in North America from the crown. Due to Spanish threats from the south, the port at Charleston

was chosen over the more desirable Port Royal near Beaufort. The first colonists settled on the west bank of the Ashley River in a low swampy area. In 1680, the settlement was moved to Oyster Point, the peninsula formed by the confluence of the Ashley and Cooper Rivers. Not only was this site more defensible, but the deep water and relatively high bluffs along the Cooper River were more suited to the building of a port town. The Lord Proprietors agreed that the new location was "ideally situated for trade" and instructed the Governor to lay out a town according to a plan called the Grand Model (Mathews 1934:153). This plan divided the peninsula into the deep, narrow lots characteristic of 17th century Irish towns colonized by the English (Reps 1965:177). The earliest settlement was in the area bounded by Water, Meeting, Cumberland, and East Bay streets.

The colony attracted a diverse group of settlers. A large number of the early immigrants were planters' younger sons from the overcrowded British Caribbean colonies, principally Barbados. Many of these men soon became the leaders of the new colony. Many of the Barbadians brought with them slaves from Africa who had been "seasoned" by their experiences in raising staple plantation crops on the islands (Dunn 1972). Another major ethnic group was the Huguenot refugees, who fled France in large numbers following the revocation of the Edict of Nantes in 1685. The Huguenots were soon absorbed into the mainstream of Carolina society through membership in the Anglican church and intermarriage with members of the dominant English society (Andrews 1937:241; Butler 1983; Friedlander 1979; Weir 1983). Excavations at Huguenot sites have demonstrated little to no visible differences between Anglican material assemblages and those of Huguenot occupants (Wheaton *et al.* 1983; Zierden *et al.* 1986).

The land grant system developed by the Lord Proprietors made large tracts of land available to settlers (Andrews 1937: 214), a policy which encouraged the development of large plantations. The colonists experimented with a variety of crops, including indigo,

naval stores, rice, hemp, silkworms, grapes, and food-stuffs. The most profitable product of early 18th century Carolina, and the one which led to Charleston's transformation from a frontier settlement to a port city of central importance, was deerskins, obtained through trade with the Indians.

The Indian trade began as an informal, loosely organized effort by individual planters with neighboring Indian groups. Expansion of the trade, and the displacement of Indian groups following the Yamasee War in 1714 - 1715, led to a more organized trade effort and the rise of an urban-based merchant class to manage the colony's commerce (Calhoun *et al.* 1985:185; Earle and Hoffman 1977:37).

The profitability of the deerskin trade was soon matched by that derived from the development of rice as a staple crop. By the middle of the 18th century, rice had become the economic mainstay of the colony (Earle and Hoffman 1977:38). As profit from these products increased, Charleston's role as an economic and social center jelled. Other factors responsible for the transformation of Charleston from a frontier settlement to the fourth largest colonial city include: replacement of the inefficient proprietary government with royal rule; development of the township plan and settlement of the backcountry, and resulting trade with the expanded frontier; reduction of Spanish, pirate, and Indian threats; and rapid development of the plantation economy following the successful cultivation of rice (Rogers 1980; Weir 1983).

A new class of merchants rose to meet the needs of the increasingly complex economy of the city. English and Scottish factors who had formerly returned to their homeland with their wealth began to remain in the city and reinvest their earnings. The city soon spread beyond its original fortified boundaries, expanding south, north, and principally, west. The waterfront, East Bay, Broad Street, Elliot Street, and Tradd Street developed as the core of the mercantile community. Archaeological excavations in this portion of the city reveal the intensive, constricted use of land in this area (Zierden and Calhoun 1984). This area was occupied by the Charleston merchants; urban based, they were active in community affairs and were visibly prosperous. Together with the wealthy planters, who also had extensive social and economic ties to the city, they formed the apex of society in Charleston. Other economic groups included less prosperous merchants, artisans, laborers, and slaves (Figure 13.1).

The labor-intensive nature of plantation agriculture

resulted in a dramatic increase in the importation of African slaves, either directly from Africa or from "seasoning" on Caribbean plantations. Besides being accustomed to the subtropical climate and more resistant to malaria, Africans knew how to use indigenous flora and fauna; more critically, they possessed skills in rice cultivation and other tasks essential to the plantation. Although most of the Africans were intended for plantation labor, many bondsmen and women lived and worked in the city. Together with a substantial population of free blacks, these slaves formed an important part of the urban population.

The urban compound often contained quarters for slaves; yet given a chance to "live out" away from the watchful eye of the master, a slave usually took it. The Charleston Neck above Calhoun Street became the home for many of these slaves. The greater amount of personal liberty enjoyed by slaves "living out" encouraged economic initiative and the accumulation of personal possessions. Urban slaves were also often "hired out" to others, on both a long-term and short-term basis. The hiring-out system, which broadened the possibilities for using slave labor, also increased the slaves' ability to elude control; slave hire combined the fluidity of the wage system with the restraints of bondage. Urban slaves were also often afforded the opportunity to occasionally "hire out" their own time and earn money, however small the amount. These activities suggest that urban slaves had more opportunities for economic advancement and were less dependent on their masters for material goods than were plantation laborers (Rosengarten *et al.* 1987; Wade 1964; Zierden and Calhoun 1984:14-15).

Free blacks lived in Charleston throughout the 18th and 19th centuries. Members of this anomalous class, approximately 8% of the city's population, could buy and sell real estate, choose a trade, run a business, own slaves, hire slave or free workers, and form fraternal organizations. Within limits set by white society, they could educate their children and practice their religion. Within this group, the wealthy, free Negro elite numbered some 500 people and constituted an aristocracy of wealth, color, and status, bound together in a web of kinship. In many ways, Charleston's free black elite was a reflection of white society in their aspirations, property relations, and ideas about hierarchy. Yet their actions, particularly their economic success, appeared subversive to whites, and free blacks were barred from a secure status in the dominant society (Rosengarten *et al.* 1987; Zierden and Calhoun 1984). For these reasons, urban free black sites are expected to exhibit



similar sociotechnic items as white households but, at the same time, reflect their African-American heritage in artifact categories that are culturally conservative (Deagan 1983; Reitz 1981).

As the 18th century progressed, the city prospered and physical expansion continued. By the beginning of the antebellum period, areas of specialized occupation had appeared. Merchants continued to cluster near the center of the city at the intersection of Meeting and Broad streets. Planters, more interested in spacious lawns and healthy breezes, chose lots south of Broad Street and along the riverfronts on the Neck. The poor were often integrated with the rich; in many areas of the city, prestigious homes were located on wide, major thoroughfares, while lower-class white and black homes were crowded onto adjoining alleys and back roads. Streetfronts, especially those in the Neck, were also a mosaic of white, black, and Native Americans, rich and poor. Racially segregated neighborhoods were a product of the 20th century. Though many of them lived below Calhoun Street, slaves and especially free blacks did tend to cluster on the Charleston Neck, away from the scrutiny of whites living in the southern end of the peninsula (Calhoun and Zierden 1984:55; Radford 1974:153, 308).

Specialized land use also began to appear in the 19th century. Retail commercial activity followed the northward spread of the city, and the center of such business activity moved from Broad and Tradd to Meeting and King streets, and the new market area. Wholesale activity remained focused along the waterfront on East Bay Street (Calhoun and Zierden 1984). The Neck emerged as the location of choice for Charleston's burgeoning industries; the South Carolina Railroad entered the city in the blocks between Meeting and King streets, while the Northeastern Railroad was built along the Cooper riverfront. Open spaces, lower real estate values, relaxed building restrictions, deep water harbors, and proximity to the railways attracted large-scale manufacturing enterprises, including iron foundries, car manufacturers, and a gas works. These industries also attracted a new laboring class, Irish and German immigrants; these new residents competed for jobs with blacks, slave and free. Lumber and rice mills appeared along the marshy expanses of the Ashley River. These and other low-lying areas were gradually filled in to avoid "disease traps" and create viable real estate. Such deposits have been encountered archaeologically in several portions of the city (Zierden, Calhoun, and Pinckney 1983).

The city's economic decline which began in the

antebellum period, symbolized by the removal of the capital to Columbia in 1788, was sealed by the effects of secession and the Civil War; this trend has only recently been reversed. The Civil War resulted in economic devastation for Charleston, as it did for most of the south. The war also created a new order of things, as former slaves became citizens, voters, and taxpayers. Charleston regained a black majority after emancipation, due to in-migration; the Neck experienced a housing shortage followed by a building boom. During the late 19th century, the city tackled drainage problems and other health hazards; the keeping of livestock, the existence of poorly drained lots, and the overabundance of privy vaults. Citizens many years before had begun to build cisterns to collect rainwater, as the groundwater was contaminated from the close proximity of wells and privies. During these years of economic depression, Charleston's eagerness to install running water sewerage systems was tempered by a lack of funds. Charleston entered the 20th century behind other southern municipalities.

Today Charleston and the lowcountry are developing at a tremendous rate. This growth, coupled with the strong preservation ethic in the city, has resulted in revitalization efforts within the historic city, combining new development with adaptive reuse of historic structures. These revitalization efforts have provided the opportunity for many of the recent archaeological projects in Charleston.

#### THE DATA BASE

At the present time, data are available from 12 sites within the historic city, the majority of which were excavated in the 1980s. With three exceptions, these projects are clustered between Broad Street and Beaufain Street, in what would have been the northern half of the original city. The projects and the data they contributed are discussed individually below (Figure 13.2).

1) The first, and most extensive, excavations in the city were conducted at the Heyward-Washington house from 1973-1977 by Dr. Elaine Herold. Located on Church Street, the property may have been occupied as early as the 17th century. Excavations focused on the interior of the kitchen, the privy, and the backyard area. Materials recovered included extensive data on the early 18th-century occupation by John Milner, a craftsman, the late 18th-century occupation by the Heyward family, wealthy and influential community members, and the early 19th-century occupation by the Grimke family (Herold 1978).

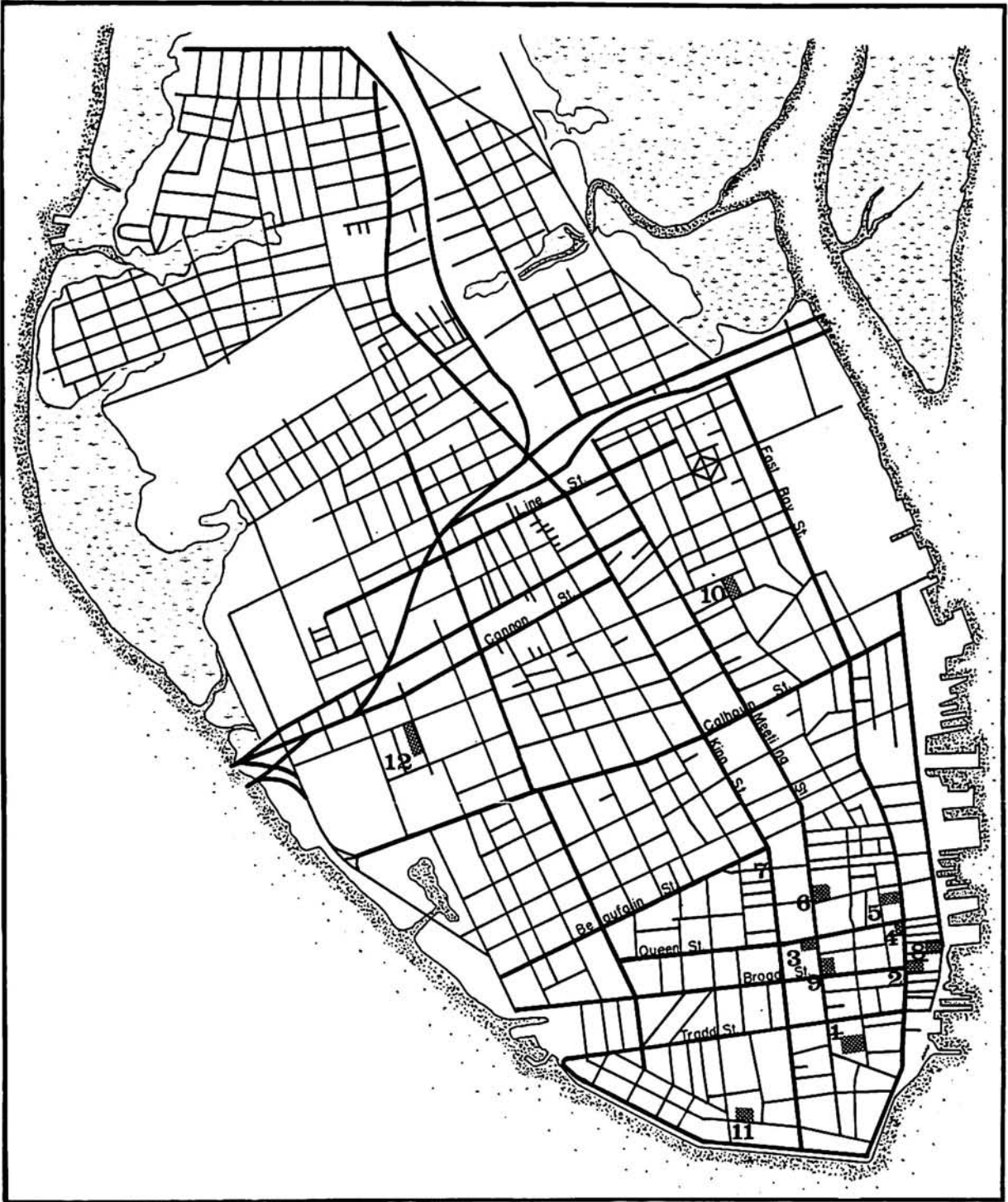


Figure 13.2: Location of sites excavated in Charleston.



2) Excavations were conducted by Herold during renovation of the Exchange Building in 1979. These followed previous excavations which had been conducted in the cellar by John Miller in 1965. The Exchange Building, located at the foot of Broad Street, was built in 1771 and was the focus of commercial activity in the city. Prior to this, the site was the location of the Half Moon Battery, part of the original sea wall and fortifications. A guard house was located on this battery in the early 18th century. Excavations resulted in the recovery of an extensive collection of 18th-century material, representing refuse thrown over the sea-wall and, later, refuse generated from waterfront activities, including storage for shipping and coopering (Herold 1981b). Excavations in the building's interior in 1986 revealed further evidence of on-site activity (Zierden and Hacker 1986).

3) The Meeting Street Office Building site represents a portion of the city peripheral to the 18th century commercial district, but the central focus of 19th century commercial district. The site appears to have been occupied by the early 18th century, however, excavations conducted by Herold focused on the early 19th century occupations by two merchants of different financial status (Herold 1981a).

4) McCrady's Longroom and Tavern, located on East Bay Street and Unity Alley, is an example of a support service in the area of the colonial city's most valuable real estate. As was characteristic of many 18th century properties, the lot served a variety of functions until a tavern was built in 1778. McCrady added a longroom to the rear in 1788, and the structure continued to serve as a tavern throughout the 19th century. The business apparently catered to an elite clientele and also served as the home of the McCrady family and at least some of their slaves (Zierden *et al.* 1982).

5) Lodge Alley is typical of the dank, narrow passages in the colonial city. Located between East Bay and State streets, this alley was the home of lower-class citizens, many of whom rented their homes. Proveniences dating from the 1740s through the 1840s contained quantities of materials, suggesting that the alley served as a convenient location for refuse disposal.

As part of the same project, three units were excavated in the rear courtyard of an adjacent property at 38 State Street. This property was occupied by craftsmen, probably members of the middle class. Excavations in the back yard resulted in the recovery of a quantity of materials relating to jewelry smithing. These materials

were recovered in situ from an area which evidently burned in the late 18th century (Zierden, Calhoun, and Paysinger 1983).

6) The First Trident site was located just outside the original city walls on the northern edge of the 18th century city. This peripheral location was ideal for crafts which required more space than was usually afforded by urban lots, and it was here that a tannery was apparently in operation in the mid-18th century. During this period, the site consisted of a narrow strip of high ground bordering on an expanse of marsh, which was gradually filled. By the early 19th century, the location was more central and the site was occupied by a relatively wealthy citizen, probably a merchant (Zierden, Calhoun, and Pinckney 1983).

7) The Charleston Place site consists of the block bounded by Meeting, Market, King, and Hassell streets. This block was peripheral to the 18th century city, but was central to the 19th century business district (Calhoun and Zierden 1984). The late 18th century to 19th century occupation of the block was characterized by dual function sites occupied by a variety of merchants and craftsmen. Testing and data recovery was conducted by the University of Tennessee-Chattanooga (Honerkamp *et al.* 1982), followed by salvage excavations by the Charleston Museum (Zierden and Hacker 1987).

8) Atlantic Wharf is located on the east side of East Bay Street at South Atlantic Wharf Street across from McCrady's Tavern. This area is typical of the urban waterfront, in that the entire block consists of man-made land; East Bay Street ran along the original water's edge. The area was gradually filled as commercial activity and the docks were extended further into the harbor (Zierden and Calhoun 1984). The units evidenced several fill activities which formed the site. The majority of the cultural materials were recovered from deposits dating from 1780 to 1820. This refuse may have been generated on site or dumped from nearby properties (Zierden and Calhoun n.d.).

9) The 18th century Beef Market was located at the northeast corner of Broad and Meeting streets. The site was originally set aside as a "public market" in 1680 and functioned as a market until it burned in 1796. The lot continued in a public function throughout the 19th and 20th centuries. Excavation of a single unit represents preliminary efforts to examine the role of the market system in the urban environment. Proveniences from both the market and post-market periods were recovered. The 18th century proveniences provided



Figure 13.3: Stratigraphic profile from the Beef Market site, exhibiting the superimposed zone deposits which characterized the site. The profile measures 4.0 feet.

extensive evidence of market activity (Calhoun *et al.* 1984; Figure 13.3).

10) The Aiken-Rhett site on Judith and Elizabeth streets, is an example of a planter's townhouse located in the antebellum suburbs. Built in 1817, the site contains a number of standing structures, including main house, kitchen, stables, chicken coop, and privies. The house was occupied by William Aiken, Jr., governor of the state and one of the wealthiest citizens in Charleston, from 1831 to 1882; it remained in the family until 1975. Excavations at the Aiken-Rhett house were designed to assess the archaeological component for inclusion in the National Register of Historic Places. Proveniences from the period of William Aiken's occupation were recovered (Zierden, Calhoun, and Hacker 1986; Figure 13.4).

11) The Gibbes house at 64 South Battery was located on the edge of town when it was built in 1772. The site contains a wooden double house, with brick and stone kitchen, stables, and privy to the rear. Built by William Gibbes, a wealthy merchant, the property was confiscated and used as a hospital by the British in 1780. The property changed hands many times in the 19th and 20th centuries but retained its original configuration. Three units were excavated in a portion of the rear yard slated for swimming pool construction (Zierden *et al.* 1987).

12) The President Street site consists of the block front between Doughty and Bee streets. This narrow strip of high land was part of the marshy tract used for sawmills by Daniel Cannon in the late 18th century. After 1800, the block developed as a residential neighborhood occupied primarily by middle-class white citizens. Excavations were conducted prior to construction of the Medical University of South Carolina's new Institute of Psychiatry (Zierden and Raynor 1988).

#### ARCHAEOLOGICAL RESULTS

The central role of Charleston in the economic development of the southern United States, its rapid growth as an urban center in the colonial period and later stagnation, and the cosmopolitan nature of its population combine to make the city a suitable data base for examining several issues pertinent to historical archaeology and urban studies. Several of these were proposed as part of a general research design for the City of Charleston (Zierden and Calhoun 1984), while others were developed by scholars working in Charleston and other cities (Cressey *et al.* 1982; Honerkamp and Council 1984; Reitz 1986). While these

issues are essentially archaeological in nature, they were formulated on the basis of extensive historical research. The proposed research questions approach archaeological research on a variety of levels. Urban archaeology is a relatively new field of interest, and many of the processes responsible for the formation of the urban archaeological record are poorly understood. For this reason, some of the research questions address such basic issues as site formation, clarity, and lot element patterning. Other questions address processual issues of human behavior and their reflection in archaeological patterning. Four emphases can be recognized in recent archaeological projects: descriptive studies, artifact studies, behavioral studies, and public interpretation programs.

The extensive and varied material culture of Charleston is a reflection of the cosmopolitan nature of the community and of the city's central role in a complex economic and trade network. There are often new artifact types recovered which are rarely encountered in other sites. Most notable are slave tags, examined by Dr. Theresa Singleton. These artifacts, copper badges worn or carried by slaves who were hired out, have only been recovered in the Charleston area and are one of the few identifiable artifacts of urban slavery. The resulting examination of the documentation associated with slave badges and slave hire provided many new insights into urban slavery in Charleston (Singleton 1984).

Other material culture studies have focused on more familiar artifact types, varieties of which have been recovered in Charleston. These include locally painted ceramics (Singleton 1982), pearlware varieties (Cupstid 1987; Herold 1981a; Zierden and Hacker 1987), colonowares (Ferguson 1980, this volume; Calhoun *et al.* 1984), and Caribbean ceramics (Zierden and Calhoun n.d.). The number and variety of craft and commercial enterprises operating in colonial and antebellum Charleston also have provided data for descriptive studies on rarely encountered craft enterprises. Examples include items connected with coopering enterprises (Herold 1981b), clay cones used in sugar refining (Herold 1981b; Zierden 1985b), and crucibles and other artifacts used in assaying and goldsmithing (Zierden, Calhoun, and Paysinger 1983). Descriptive studies of these materials, augmented by historical research, provide baseline data useful to historical archaeologists working on comparable sites throughout the country.

As is typical of early historical archaeological studies, initial projects in Charleston were descriptive in



Figure 13.4: View of the back yard of the Aiken-Rhett site. The structure to the left is stables and groomsmen quarters; the building on the right served as a kitchen, with slave quarters above. Excavations focused on the rear portion of the yard behind these outbuildings.

nature, designed to describe the range of material culture recovered in Charleston and the nature of the urban archaeological record. While many of these were conducted under a Cultural Resource Management framework and were of a limited nature (Herold 1981a, 1981b), others were much broader in scope (Herold 1978). These studies were particularistic in focus, designed to gather information on the lifestyles of 18th and 19th century Charlestonians and have provided a broad basis for later behavioral studies; such particularistic examinations of past lifestyles remain an important goal of present studies. These data also aid in architectural restoration and provide the information necessary for programs in public interpretation.

Basic to the interpretation of the archaeological record in Charleston is a greater understanding of the cultural and natural processes responsible for its formation (see Schiffer 1977). An archaeological site basically consists of a natural environmental setting which has been modified by the activities of humans who occupied the site. Specifically of interest are those activities which introduced materials into the ground. Once in the ground, they can be redistributed or removed (Honerkamp *et al.* 1982:102). At urban historical sites, the archaeological record is often a complex combination of all three events (Honerkamp and Fairbanks 1984).

Michael Schiffer was the first to address these issues in a formalized manner (1977, 1983). Schiffer identified three major processes by which materials enter the archaeological record: loss, discard, and abandonment. Discard and loss are the most common and often result in secondary refuse discarded in a locus different from that in which it was originally used. Abandonment is the result of an accidental event, such as a fire, and often results in primary, *in situ* refuse.

Once placed in the ground as a result of these processes, cultural materials may be redistributed. Such redistribution activities appear to be common on urban sites, both in Charleston and elsewhere, and have presented interpretive problems that archaeologists have just begun to address (Brown 1987; Dickens 1982; Garrow 1985; Honerkamp and Council 1984; Honerkamp and Fairbanks 1984). These researchers have warned that constant redistribution is characteristic of the intensive occupation of the urban site, and thus the development of methodologies necessary to interpret these redeposited proveniences is essential to the understanding of the urban site.

In addition to being redistributed, archaeological

deposits may be removed from the site and redeposited elsewhere. A major portion of the archaeological record in Charleston, such as the waterfronts, is the result of this activity. Careful examination of the documentary and archaeological record is necessary to more fully understand the site formation processes resulting in the archaeological record of Charleston. This, in turn, will result in a more accurate interpretation of these data.

A question relevant to many sites in Charleston is the reflection of site function in the archaeological record. Many, indeed possibly a majority, of the structures in Charleston served a dual function as both residences and businesses. In response to the demands of Charleston's commercial system, restrictions of the urban landscape, and a lack of transportation, the commercial core of the city was subject to intensive occupation characterized by long, narrow lots, multistoried buildings, and a dual residential-commercial function for these buildings (Calhoun *et al.* 1982; Honerkamp *et al.* 1982). This model characterized the commercial core of both the colonial and antebellum periods.

South's (1977) quantification and pattern recognition methodology has been used to examine site function in Charleston. Research at a number of dual-function sites suggests that craft enterprises, generating at least some by-products, are often reflected archaeologically (Honerkamp 1982; Zierden, Calhoun, and Paysinger 1983; Zierden, Calhoun, and Pinckney 1983). In contrast, the archaeological assemblages of sites whose commercial function was retail tend to be overwhelmingly domestic. Retail commercial activity, in contrast to craft activity, involves a lateral transfer rather than production of goods, an activity unlikely to generate recognizable discarded by-products (Honerkamp *et al.* 1982:143; Lewis 1977:177; Zierden, Calhoun, and Pinckney 1983:62).

Subsequent research in Charleston indicates that in certain cases, commercially related materials may be present in the archaeological record as a result of different types of site formation processes. Archaeological deposits that are the result of abandonment activities may contain evidence of commercial activity (Herold 1981b; Zierden, Calhoun, and Pinckney 1983; Zierden and Hacker 1987). Examples of such activities include the destruction of a structure due to fire or storm and a major cleanup following these destructive events, or following the transfer of ownership of property. These activities are reflected by such archaeological events as burned *in situ* deposits (Herold 1981b; Zi-

erden, Calhoun, and Paysinger 1983) or privy fill (Bryant 1984; Lewis and Haskell 1981; Zierden and Hacker 1987). The presence and frequency of such deposits in Charleston suggest that several factors, including disasters or changing economic status, may have resulted in relatively frequent moving or rebuilding at the same site.

One of the first anthropological issues to be examined was that of socioeconomic status, which has been a recent focus of historical archaeology in general and urban studies in particular (Cressey *et al.* 1982; Deagan 1983; Otto 1975; Spencer-Wood and Riley 1981). Status studies in Charleston were anchored by the documentary record, which provided information on occupation, income, and affiliation of site occupants (Herold 1981a). In cases where the identity of specific site occupants was unknown, information on the status and occupation of neighborhood residents was inferred from models proposed through archival research (Calhoun and Zierden 1984; Calhoun *et al.* 1982; Zierden and Calhoun 1987).

The relative socioeconomic status of Charleston inhabitants may be reflected in the settlement pattern (location of site), housing, material items, and diet. These issues were examined using data from the suspected high-status McCrady's Longroom site, the low-status Lodge Alley site, and sites where the status of occupants was mixed, including the First Trident and Meeting Street Office Building sites. These studies support the data derived from other studies in the Southeast. Specifically, status is reflected in ceramic function and origin (Miller 1980), as well as glass and ceramic containers used in food consumption and preparation (Deagan 1983; Lewis 1978; Otto 1977).

Status may also be reflected in diet (Honerkamp 1982; Otto 1975; Schultz and Gust 1983; Reitz and Cumbaa 1983); for example, high status may be reflected in a close adherence to traditional foodways in a New World setting, in a diet that is expensive to maintain, or in dietary diversity (Reitz 1987). Preliminary studies in Charleston (Reitz in Zierden, Calhoun and Pinckney 1983) and other urban centers (Reitz in Honerkamp *et al.* 1983; Schultz and Gust 1983) suggest that status may be reflected in cuts or types of meat.

The investigation of socioeconomic status in Charleston was greatly advanced with investigations of the Aiken-Rhett and Gibbes sites (Zierden, Calhoun, and Hacker 1986; Zierden *et al.* 1987). Original structures are standing on both sites, and they exhibit the original boundaries. Owner and occupant were the same, and

extensive documentary information was available. The data from these two sites were similar in almost every respect, and both the faunal and cultural remains reflected the high status of the occupants. This status was reflected, for example, in relatively large percentages of table glass, oriental porcelain, and transfer-printed ceramics; in large percentages of clothing, personal, and furniture items; and in a higher percentage of architectural materials. These trends mirrored the pattern found at Drayton Hall plantation in the lowcountry (Lewis 1985) and at many other high-status sites (Spencer-Wood 1987). High status was also reflected in dietary diversity, specifically in the increased presence of such wild species as fish, turtles, and birds, and a large number of caprines (Reitz 1987). The cultural remains also mirrored the domestic-only function of the site, reflected in a relatively low percentage of activities items. These documentarily anchored data were used to reassess the poorly documented data from the dual-function sites, with generally good results (Zierden and Calhoun 1987).

Studies in Charleston also suggest that status is reflected in site location. This is demonstrated by the relatively low status of the Lodge Alley inhabitants along the alley and of the colonial residents of the First Trident site on the city's periphery. It is also reflected in the location of the high-status McCrady's Longroom on a major street in the core of the commercial area. These studies in Charleston have produced results comparable to those from other sites in the Southeast (Deagan 1982).

Research at suburban townhouse sites also suggests that status is reflected in lot size and spatial arrangement. The long, narrow lots of the city tended to be a standard depth, but the tracts varied considerably in width and were often subdivided longitudinally. Street frontage was the valued commodity, and the width of the lot reflected the buying power of the owner (Rosengarten *et al.* 1987: Chapter 2; Zierden 1987:69). Out-buildings were more numerous on upper-status sites and were more substantial and more specialized. Lower-status residents, in contrast, often shared facilities such as wells and privies with their neighbors.

Increasing attention is being focused on the study of subsistence strategies of historic populations through the utilization of faunal and floral remains recovered from historic sites, and such studies are central to research in Charleston. Faunal and floral remains have been used to address a variety of questions concerning historic subsistence strategies, including cultural conservatism, adaptation to local environmental condi-

tions, ethnic affiliation, and social variability.

Recent research on subsistence practices on the Southeastern coastal plain has been aimed at delineating a regional pattern of animal utilization through the analysis of vertebrate faunal remains from a variety of sites (Reitz 1979; Reitz and Honerkamp 1983, 1984). The resulting pattern is characterized by a heavy reliance on beef and the utilization of a variety of wild species indigenous to the local environment. In contrast, the use of domestic pig and caprines is quite limited. This archaeological model is in contrast to the documentary evidence, which suggests heavy dependence on pork (Genovese 1974; Gray 1933; Hilliard 1972). Results of floral studies from comparable sites are very preliminary, and a synthetic model is not available. From the present data, it is expected that a similar dependence on both wild and domestic species will be revealed.

Recent urban investigations suggest a rural/urban dichotomy on historic sites in the Southeast, based on the ratio of wild to domestic fauna (Reitz 1984). The study of urban sites in Charleston and other Southeastern cities has shown a heavier dependence on domestic fauna, particularly cow, with a decreased reliance on fish. Preliminary results from ethnobotanical analysis suggest that wild plant foods are also rare (Trinkley in Zierden *et al.* 1982; Zierden and Trinkley 1984). Research suggests that the source of these differences may have been the function of the market in urban foodways. Preliminary investigations at Charleston's Beef Market produced a faunal assemblage that reflects many of the trends found on urban domestic sites. This suggests that the market was a major source of meat for urban citizens. It also appears that the market was not used exclusively for the sale of beef. Variations in percentages among the residential sites may reflect the degree of access enjoyed by residents at each of the sites to meat from the market (i.e., socioeconomic status) (Calhoun *et al.* 1984). Continued research at both the market site and at residential/commercial sites will be useful in developing a more complete understanding of urban subsistence strategies.

Behavioral studies have addressed many of the proposed research questions, with the ultimate goal of understanding adaptation to the urban environment (Zierden and Calhoun 1986). Examination of artifact patterning, settlement patterning, site formation processes, and subsistence strategies have indicated that Charleston's citizens were forced to adapt to conditions not necessarily shared by their rural neighbors. Factors such as topography, a limited amount of space,

and a subtropical climate resulted in adaptive strategies unique to the urban situation. The multiple use of buildings, patterned lot use, and intermixing of ethnic and social groups resulted from adaptation to problems exacerbated by crowded conditions. These crowded conditions also led to an amplification of such problems as fire and health considerations. To meet these needs, services were increasingly centralized and transferred from private to municipal management (Dickens and Bowen 1980; Honerkamp and Council 1984).

An understanding of spatial patterning is also essential to interpretation of the urban site, both on a site-specific and city-wide level. The urban equivalent of the plantation, or rural farmstead site, is the urban compound. Many of the same structures and activity areas dispersed across the rural site were also crammed onto the constricted urban lot. Elements of the rural compound include maximal use of real estate, long narrow lots to maximize street frontage, frontage of the main structure directly on the street, smaller structures or additions to the rear, often including kitchen, slave quarters, privy, work and livestock sheds within a fenced perimeter, and extensive reuse of backlot elements as trash repositories (Honerkamp *et al.* 1982; Calhoun *et al.* 1982).

Urban compounds were designed to make the most efficient use of available land. Crowded conditions and the resulting health considerations resulted in refuse disposal practices unique to the urban environment. The backyard area was the locus of refuse disposal for the compound. Although some of the refuse appears to have been scattered on the ground as sheet midden, much of it was deposited into large subsurface features. Crowded conditions also resulted in refuse being deposited off-site in any convenient space, including open, unpaved lots (Calhoun *et al.* 1984) and alleys (Zierden, Calhoun, and Paysinger 1983). Quantities of materials were also evidently dumped into creeks and lowlying marshy areas (Zierden, Calhoun, and Pinckney 1983; Zierden and Calhoun n.d.; Rosengarten *et al.* 1987).

Spatial patterning on a city-wide level also reflects urban adaptation. From the earliest days of the colony, "desirable" land was perceived as being scarce and at a premium. This is reflected in the clustering of merchants and artisans in the core of the city, relegation of the poor and undesirable to the periphery and to back alleys, and the gradual filling of lowlying areas (Calhoun *et al.* 1985). The relative value of real estate, the economic function of the city, and health considerations also played an important role in the locational

choices of various social groups, as demonstrated earlier.

The above interpretations have resulted from archaeological excavations conducted at 12 sites in downtown Charleston and the examination of several issues pertinent to the growth and development of the city. Some of the adaptive strategies of 18th and 19th century urban citizens have been revealed through the examination of spatial patterning, artifact patterning, subsistence strategies, site function, and site formation processes (Zierden and Calhoun 1986). Research began with mixed commercial-residential sites, occupied by a variety of owners and tenants engaged in a range of craft and mercantile enterprises. These sites clustered in the commercial core, between Beaufain and Broad streets. In recent years, the data base has been expanded to include residential-only households located on the periphery and in antebellum suburbs. Research is also focusing on sites occupied by black Charlestonians, slave and free, and on other 19th century laborers. Continued excavations in Charleston will provide additional details and interpretation of the behavior of the city's residents.

#### PUBLIC INVOLVEMENT

Archaeological interpretations derived from the ongoing excavation projects are used in public interpretation programs sponsored by the Museum. These include exhibits, education programs, and publications. Archaeological interpretations as well as materials are used in the exhibit halls, which focus on the history and natural history of the lowcountry (Zierden 1984b). In certain places, archaeological exhibits are separate from other exhibits of historical objects. In other cases, archaeological materials have been combined with historical documents and decorative art objects to present a common theme. Publications include technical reports and articles, popular leaflets, and flyers for children (Calhoun 1983; Calhoun *et al.* 1986; Grimes *et al.* 1987; Honerkamp and Zierden 1989).

Of particular interest is the education program designed for children. Offered to area school children through the Education Department, the class features an illustrated lecture describing the basics of historical archaeology, followed by simulated excavation and laboratory experience (Zierden and King 1983, 1985). Artifacts are discussed in terms of how they may be used to interpret daily life in Charleston. This program has recently been expanded to include involvement by the students in actual excavation, following the class-

room lecture. This program was piloted during recent excavations at the Museum's Aiken-Rhett house (Zierden *et al.* 1986). After the classroom lecture, the students visited the site, where they observed the work in progress, under the guidance of the Museum teacher. They were then allowed to participate in screening, in which they recovered artifacts representative of the time period being examined. These were then brought back to the classroom for a lively "hands on" discussion of site interpretation. We hope to continue this type of program in the future.

Public involvement in a rather unusual form was part of another recent project (Zierden and Raynor 1988). A cooperative excavation project between the Museum and the Medical University of South Carolina involved the use of psychiatric inpatients as field and lab crew. The project allowed excavation of a site about to be destroyed by construction. It also provided an innovative therapy program designed to teach teamwork, community service, and local history. The extensive press coverage generated by this project emphasized the community service provided by this project as well as the research aspects. Such programs make archaeology an integral part of both Museum and community affairs.

#### CONCLUSIONS

The development of archaeological research in Charleston parallels the development of historical archaeology in general and urban archaeology in particular (Deagan 1984; Dickens 1982; Zierden 1984a). Initial efforts were directed at defining the data base and general stratigraphy of the city. These goals were gradually broadened to include city-wide archival research, preparation of a research design to guide future projects, and the use of excavated data to address questions of current anthropological interest.

Presently, the data from ongoing projects are used to derive basic statements on adaptation to the urban environment. Data from rural as well as urban sites are used to address the issues of site function, spatial patterning, social variability, and artifact patterning, as they relate to adaptive strategies unique to the urban environment. The extensive material culture of Charleston provides the data needed for baseline artifact studies useful to historical archaeologists throughout the country. Finally, the incorporation of public interpretation programs into ongoing research conducted by the Museum ensures a broad base of support for future research endeavors.



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## Chapter 14

### SETTLEMENT FUNCTION AND ARCHAEOLOGICAL PATTERNING IN A HISTORIC URBAN CONTEXT: THE WOODROW WILSON HOUSE IN COLUMBIA, SOUTH CAROLINA<sup>1</sup>

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#### INTRODUCTION

Archaeology has been traditionally an integral tool in the study of past settlements. Material evidence from its investigations has provided information regarding not only the location of structures and other architectural features, but also the nature and distribution of activities within the settlement. Patterns of structure and activity occurrence define the layout of a settlement and reflect its function as an element within a wider socio-economic system. An understanding of the functional significance of these patterns is an extremely useful research tool. A knowledge of archaeological patterning can assist not only in identifying and exploring the roles of past settlements, but may also provide information crucial to assessing the settlements' roles in a larger regional context. Studies of patterning are also, of course, important to the accurate restoration and interpretation of past settlement sites.

The results of recent archaeological investigations at the Woodrow Wilson boyhood home (38RD65) in Columbia, South Carolina, may be used to demonstrate the utility of employing archaeological data in the analysis of urban settlements of the late 19th century. This work, carried out in the summer of 1983, had several goals.<sup>2</sup> First, it was intended to assist the Historic Columbia Foundation in the interpretation of this historic site. Although the house had been maintained as a monument to the twenty-eighth President of the United States, little had been done to interpret the site on which it stood. The yard formed an integral part of the 19th century settlement centered on the Wilson house, and its investigation was seen as important in gaining an understanding of the nature and distribution of activities carried out there.

On a broader level, the archaeological investigations were intended to explore questions about general yard layout and composition in an urban setting. Yard layout is tied to the organization of activities and reflects the manner in which the inhabitants of a settlement adapt the available space to their needs. It was anticipated that archaeological investigations at the

Wilson house site would reveal material patterning characteristic of settlements with similar economic and social functions. Archaeological patterning at the site was assumed to reflect the spatial organization of activities at middle-class urban domestic settlements of the late 19th century.

In order to examine settlement patterning at the Wilson house site, a model of urban domestic settlement may be constructed on the basis of comparative archaeological information and documentary data pertaining specifically to the site. Using this model, it should be possible to postulate the occurrence of archaeological patterns linked to the layout and composition of activities known to have existed here. The degree to which such patterning is present will demonstrate not only the importance of material analyses in the study of settlement form and function, but will also show the utility of this particular archaeological model in the future examination of urban domestic sites.

#### THE HISTORICAL DEVELOPMENT OF THE WILSON HOUSE SITE

The Wilson house presently occupies an acre site in the southwest quarter of a city block bounded by Taylor, Barnwell, Hampton, and Henderson streets in Columbia, South Carolina (Figure 14.1). The 4-acre block was one of those laid out in the initial survey of the city in 1786 (City of Columbia 1786). During the next century the tract passed through several hands.<sup>3</sup> By 1850 this land had been subdivided into four lots of one acre each. The lot in the southwest corner of the block was owned by J. Fisher in that year (Jackson 1850). Nineteen years later the lot was in the possession of J. P. Adams (Lee 1869). The lot had been transferred to John Waties by 1870, and in November of the same year, Waties sold his lot to the Rev. Joseph R. Wilson (Deed/Nov. 16, 1870/RCRCCRM/C/F-225). Apparently the property was unimproved at this time, because the following spring Wilson entered into a contract with R. W. Johnson, a builder, for the construction of a dwelling house and kitchen at a cost of \$7,000 (Deed/March 30, 1871/RCRCCRM/C/G-6). The

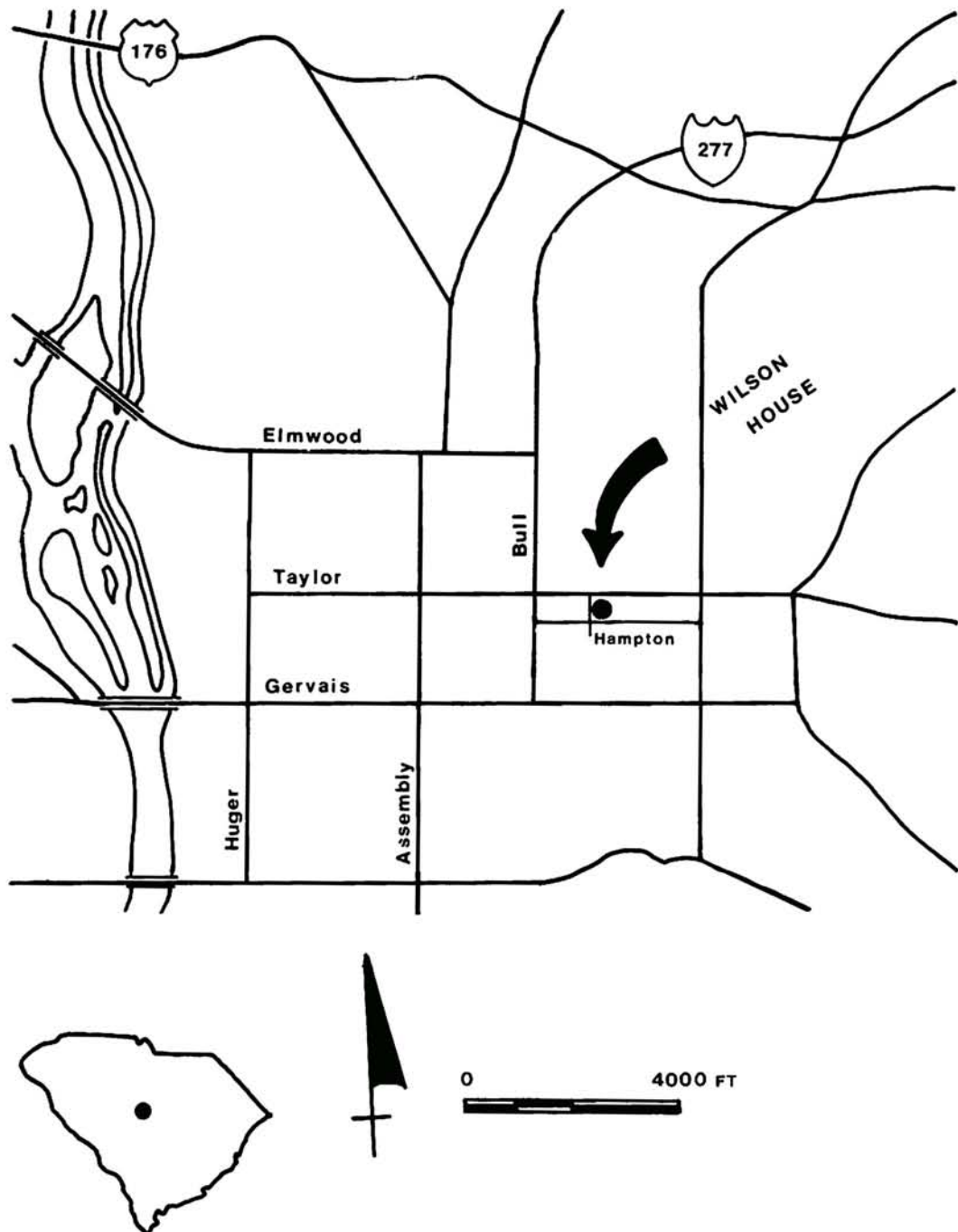


Figure 14.1: Location of the Woodrow Wilson Boyhood Home in Columbia, South Carolina.

contract specified that both buildings be roofed with shingles and that the kitchen be set on brick piers. The house was scheduled for completion in October of 1871. The Rev. Wilson had come to Columbia in September 1870 to assume a position as Professor of Pastoral and Evangelic Theology and Sacred Rhetoric at Columbia Theological Seminary located at 1616 Blanding Street, only a block from the site of his new house. Shortly after his arrival he also became pastor of the First Presbyterian Church (Davis 1970: 28; *Columbia [S.C.] State* 1969). Wilson's family included his wife and four children. Fourteen-year-old Thomas Woodrow Wilson, who would later become President of the United States, was the family's third child.

The Wilson family lived in Columbia only five years. In 1875 they moved to Wilmington, and the house was sold the following year to Laura S. Gillespie (Sept. 26, 1876/RCRCRMC/K-560). Little information concerning the house and yard at the time of the Wilson occupation is available. An 1872 bird's eye view of Columbia shows the house together with a small outbuilding located behind it to the northwest. Two parallel rows of bushes or hedges lie to the east of the house perpendicular to Henderson Street (Drie 1872). A contemporary account suggests that the property was also fenced at this time and divided into front and back yards. Roses, tea olives, crepe myrtle, japonica, and other shrubs were planted in the front yard, implying its use as a decorative garden area (Anonymous MS/HCFE).

The Wilson house property<sup>4</sup> again changed hands in 1896, this time being purchased by J. M. Van Metre. The Van Metre occupation lasted for 22 years, and this family's accounts provide the first detailed information on the property. Mrs. John S. Dunbar, who lived in the house as a child, described its layout and composition (Interview/Feb. 13, 1969/HCFE).

At that time the Wilson house property consisted of at least four separate structures. These were the house and kitchen, which were connected by a wide breezeway, a barn lying behind in the backyard, and a privy. Because the barn was used to stable horses for Van Metre's furniture vans, it may have been constructed by him and postdate the Wilson occupation of the site. The privy, used by the Van Metre's servants, was situated "behind the tall hedge" in the backyard.

Three of these structures appear on the 1904 Sanborn Map Company's insurance map of Columbia (Figure 14.2). It reveals a two-story frame house and kitchen connected by a single-story breezeway. A one

and one-half story stable lying to the rear of the house along the north property boundary was the only other structure present. An identical layout is shown on the insurance map made six years later (Sanborn Map Company 1910).

Fences and gates were also mentioned in the Dunbar interview, and their placement provides clues to yard layout and composition. The front yard was apparently enclosed by a white picket fence. This fence extended along the Henderson Street side of the property to a point even with the rear of the house. This rear yard was enclosed by a six-foot high board fence (Figure 14.3) and divided into a backyard with a lot behind it. Entrance to the front yard was gained through a gate at the corner of Hampton and Henderson streets, and Mrs. Dunbar recalled separate gates opening onto Henderson Street from the backyard and lot.

The division of the rear yard into a backyard and lot implies that this area was divided by the wire fence that ran east to west across the property, intersecting the kitchen at its northern end. A gate connecting the backyard and lot was situated just west of this building. The front and backyards were separated by a high board fence on the west side of the house and a cherry laurel hedge to the east (Figure 14.3).

General activities associated with the three yards are suggested by the Dunbar interview. As before, the front yard appears to have remained a decorative area containing trees and flower beds. Access to the front of the house was gained by a walkway from the corner gate to the front porch.

The backyard was divided by the kitchen and breezeway. Its western portion contained a cut flower garden surrounded by stone block. A walkway leading from the gate on Henderson Street to the kitchen breezeway passed between this garden and the house. The eastern backyard was devoted, at least in part, to a vegetable garden. The servants' privy may have been behind the cherry laurel hedge that bordered this portion of the backyard.

The lot in the rear of the backyard may have been a specialized activity area devoted to maintaining horses and equipment devoted to the Van Metre moving business. This was the location of the stable shown in the 1904 and 1910 Sanborn maps and would be the site of another such structure in subsequent years.

In the fall of 1911, J. M. Van Metre sold the southeastern portion of his property as a residential lot to





William P. Houseal. This tract consisted of a rectangular parcel of land measuring 150 feet north to south and 48 feet east to west. The following January, Houseal moved an existing house onto the property (Vera Houseal/Interview/Sept. 9, 1967/HCFE). This house and the lot on which it stood are shown clearly on the 1919 Sanborn map of Columbia (Figure 14.4).

In addition to the Houseal house, several other changes to the Wilson house property appear on the 1919 map. The stable located at the northern property boundary had been removed and apparently replaced by a larger structure situated directly behind the kitchen. This one-story building occupied the southern portion of the lot behind the backyard. A second stable was constructed just north of the northeast corner of the property, and the map suggests that the Van Metre tract was extended to include the land on which it rested. Access to this stable would have been gained through the open area at the north end of the lot (Sanborn Map Company 1919).

The Van Metres occupied the Wilson house property until 1928 when it was sold to the Auditorium Board of Trustees (Deed/Sept. 13, 1928/RCRCCRM/ DD-97), an organization authorized by the South Carolina Legislature to purchase a site for the erection of an auditorium for Richland County (Act 1000/Mar. 10, 1928/SCRGAABJR: 1994). The imminent destruction of Woodrow Wilson's boyhood home aroused protests from many individuals and organizations within the state and resulted in the purchase of the house by the State Department of the American Legion and the American Legion Auxiliary Unit for Richland County (Anonymous MS/HCFE; Vera Houseal/Interview/Sept. 9, 1978/HCFE).

The following spring a bill was passed by the General Assembly providing for the purchase and maintenance of the Wilson house property and the conversion of the house to a memorial museum under the auspices of the State Historical Commission (Act 531/Mar. 6, 1929/SCRGAABJR: 961) Although the legislature appropriated funds to cover only half the purchase price of \$35,000, the remainder was soon acquired by public subscription (Anonymous MS/HCFE). On June 21, 1929, all of the original Wilson property except the Houseal lot was transferred to the state of South Carolina (Deed/RCRCCRM/ DG-59). The house itself was purchased by the state from the American Legion and American Legion Auxiliary the following year (Report/1930/ SCRGAARR).

A plan of the property made by the Tomlinson

Engineering Company at the time of the purchase (Figure 14.5) reveals that only the house and kitchen remained and apparently no fences subdivided the property (Plat/June 20, 1929/RCRCCRM/ DG-59). The kitchen building apparently did not survive long after the state's purchase of the Wilson property although the kitchen was occupied briefly by a caretaker (A.D. McKinnan to Historical Commission of South Carolina/Jun. 14, 1929/HCFE; Mrs. John J. Dunbar Sr./Interview/Feb. 13, 1969/HCFE).

Few records exist pertaining to the Wilson property after its purchase by the state. Custody of the house was transferred to the American Legion and American Legion Auxiliary in 1921 (Act 876/Apr. 12, 1932 as amended by Act 391/May 19, 1933/SCRGAABJR: 551), and the property was modified to enhance its role as a museum and shrine. During this time the yard underwent extensive modification. Surviving records show that in 1929 two tons of stone and 9,000 bricks for landscaping were delivered to the site (Receipts/1929/ WWHP). The custodian's report of 1933 indicates that much of the property had already been modified to include lawns, flower beds, shrubs, and brick-lined walks. A new front walk leading to Hampton Street replaced the diagonal path, and a fence was put up on three sides of the property. In order to care for extensive new plantings, water spigots had also been installed throughout the yard (Yearly Report of the Custodian/ WWM/Jan. 1, 1934/WWHP).

In 1966, the state of South Carolina transferred the Wilson house and property to the Richland County Historic Preservation Commission (Deed/ Jan. 24, 1966/RCRCCRM/ D-47). The site is presently administered by the Historic Columbia Foundation which plans to interpret the site as it was at the time of the Wilson occupation. The archaeological work on which this paper is based was carried out to assist in the preparation of a master plan for site development.

#### ARCHAEOLOGY AT WILSON HOUSE SITE: MODELS OF FORM AND FUNCTION

Although documents and interviews tell us much about the Wilson property and its evolution over the last century, little is known about the Wilson period itself. These sources shed only a dim light on the activities of the site's inhabitants and leave unanswered many questions regarding the socioeconomic role of the settlement within the larger community. These inadequacies necessitate the consideration of evidence provided by the archaeological record.

The archaeological investigations at the Wilson house

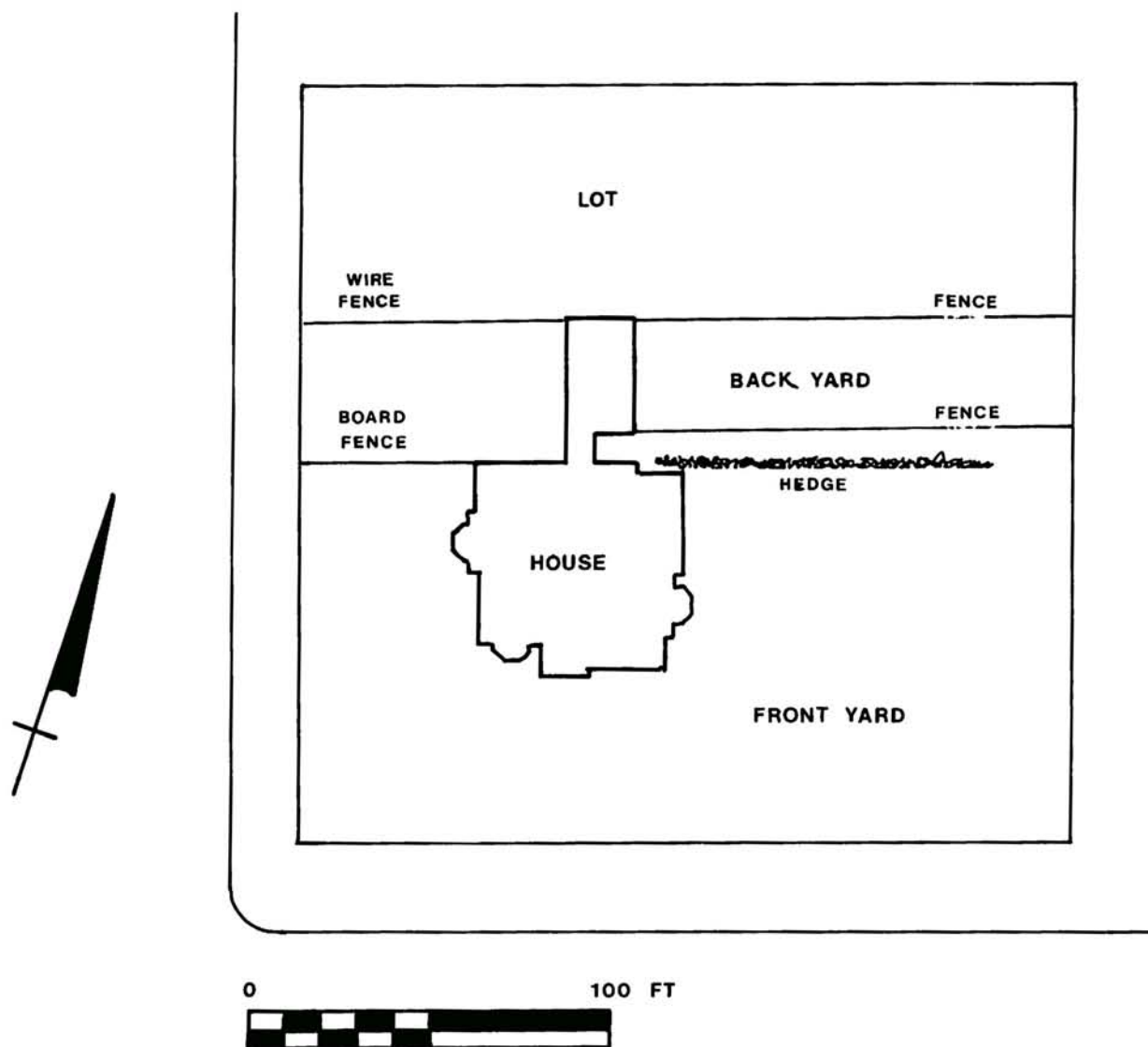


Figure 14.3: Reconstruction of the Wilson house yard during the early period of the Van Metre residency, ca. 1900. (Source: HCFF)

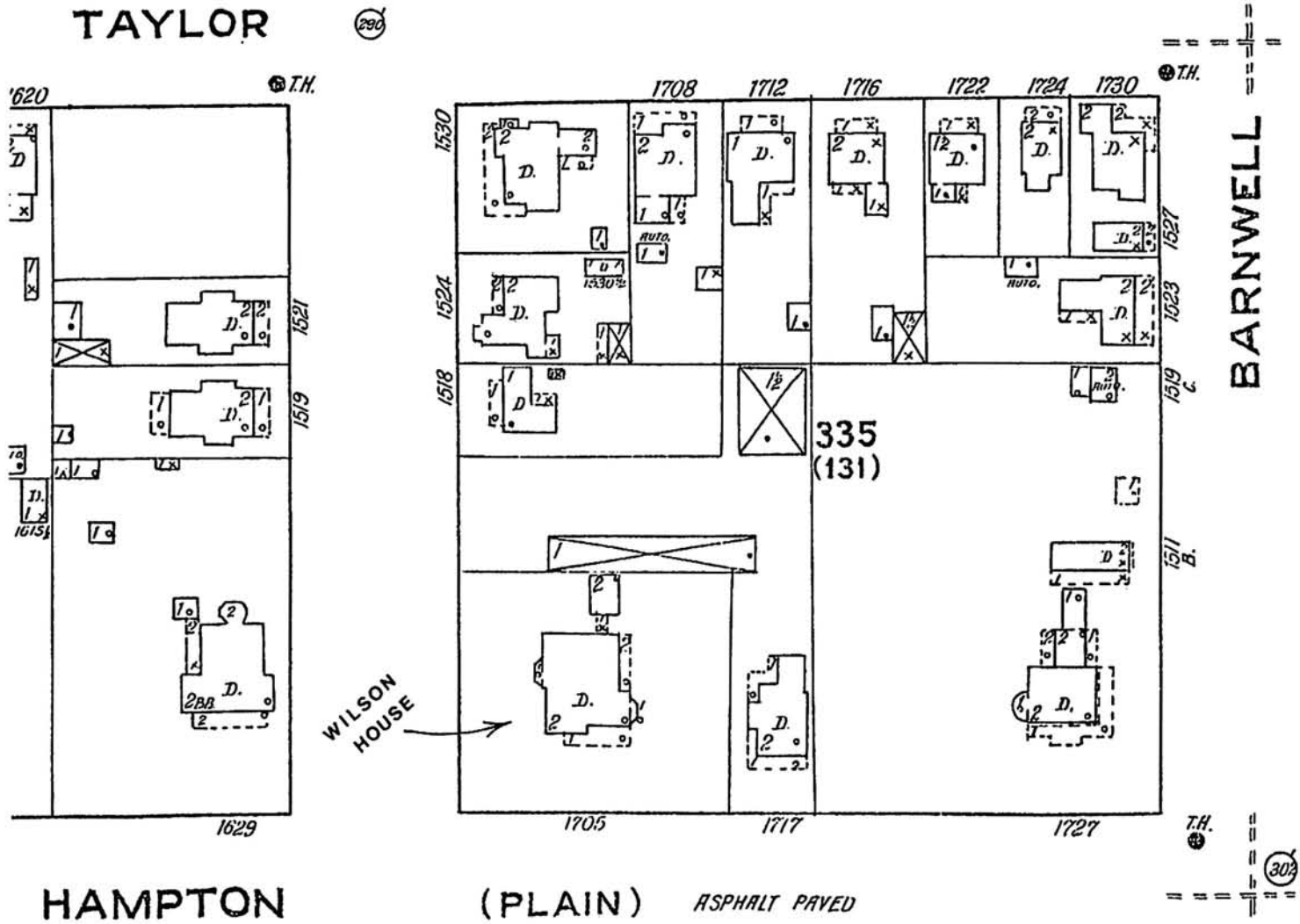


Figure 14.4: Detail of the 1919 Sanborn map of Columbia showing the layout of the Wilson house site.

site were directed at examining settlement patterning there in order to answer a variety of questions about yard layout and content. Such patterning is linked directly to the organization of activities carried out around the principal structure and is likely to reflect the site's function as a settlement type.

In order to investigate the nature of a settlement's composition and its change through time, it is useful to employ comparative models describing and explaining the relationship between layout and content and function. A settlement model may be constructed from observations obtained from well-documented historical contexts assumed to be comparable to that which may have existed at the site under consideration. Through the use of analogy it is possible to predict those activities that will be present at a site with a particular function, as well as the spatial distribution of those activities at the site. Variation resulting from social and economic factors may also be included in order to permit the model to account for change through time. A model of urban yard composition may be summarized by setting forth a set of activities and their spatial relationships that are associated with urban residential settlements and specifying the range of potential variation within such settlements.

#### A MODEL OF URBAN RESIDENCE SETTLEMENT

As its name implies an urban residence settlement is largely the site of domestic activities centered around a dwelling house. Activities present are likely to consist of only those necessary to maintain a household and its resident servants. It would usually not include the specialized activity components found in nondomestic urban sites.<sup>5</sup> The distribution of domestic activities should reflect an efficient arrangement as well as traditional forms of yard layout employed by the society occupying the site (cf. P. Lewis 1975: 1-2).

The Wilson house site was occupied by middle-class Americans of British or northern European extraction. Consequently, the settlement they created should be typical of those inhabited by similar people in the second half of the 19th century. In the urban South, middle- and upper-class residences were the site of several types of activities. First, they served to house the family and provide a place for social entertainment (Taylor 1942: 36). These activities would generally have been confined to the dwelling house or the lawn, and gardens, except for the preparation of food which often took place in a detached kitchen, a feature common to larger southern houses from the second half of the 18th century until the early 1900s (Kimball 1922:

71; Taylor 1942: 10-11). Second, certain activities related to the household would be situated in structures located to the rear of the house. These activities might include food storage, processing, and preparation, equipment storage, and accommodation of domestic animals, including those used for transportation. Buildings to house these activities, such as kitchens, root cellars, smokehouses, tool or equipment sheds, carriage houses or garages, stables, privies, and servants' quarters are also likely to be present (Taylor 1942: 36). Third, access to various parts of the residential settlement would have been provided by walkways or driveways connecting them to a street which passed to the front of the house. Finally, gardens producing both edible and decorative products were often placed on urban lots if space was available, with the latter being placed in the more conspicuous locations. The property as a whole was usually surrounded by fences or walls to create privacy and restrict access from the outside (Leiding 1921: 3-4; Taylor 1942: 35).

A crucial factor in urban settlement design is space, which can vary considerably but never permits the expansion possible on the rural landscape. As a result, yard activities and their associated structures must be placed in a limited space and be arranged to provide adequate room and access. In British-American urban settlements from the colonial period onward, domestic household activities and the structures in which they are housed have generally been arranged in linear or geometric fashion to the rear of the dwelling house. They are generally situated within a short distance of the house, adjacent to the backyard. If space is limited, they may be clustered along property boundaries in order to maximize yard space (Garrow and Kellar 1982: 7).

Documentary and oral sources have revealed that the Wilson house settlement conformed to the patterning predicted in the urban settlement model until the second decade of the 20th century when the property was subdivided and ceased to be used strictly for residential purposes. It included a dwelling house with a front yard composed of a lawn and decorative planting, a backyard containing a kitchen, privy, and gardens, and a rear lot in which stables and at least one other outbuilding were erected at different times.<sup>6</sup> The most complete historical information relates to the settlement's existence after 1900. While it is likely that this latter patterning reflects the site's layout and content of the preceding years, accurate and detailed information about the 19th century occupation, including the Wilson family period, must also rely on a study of material remains.

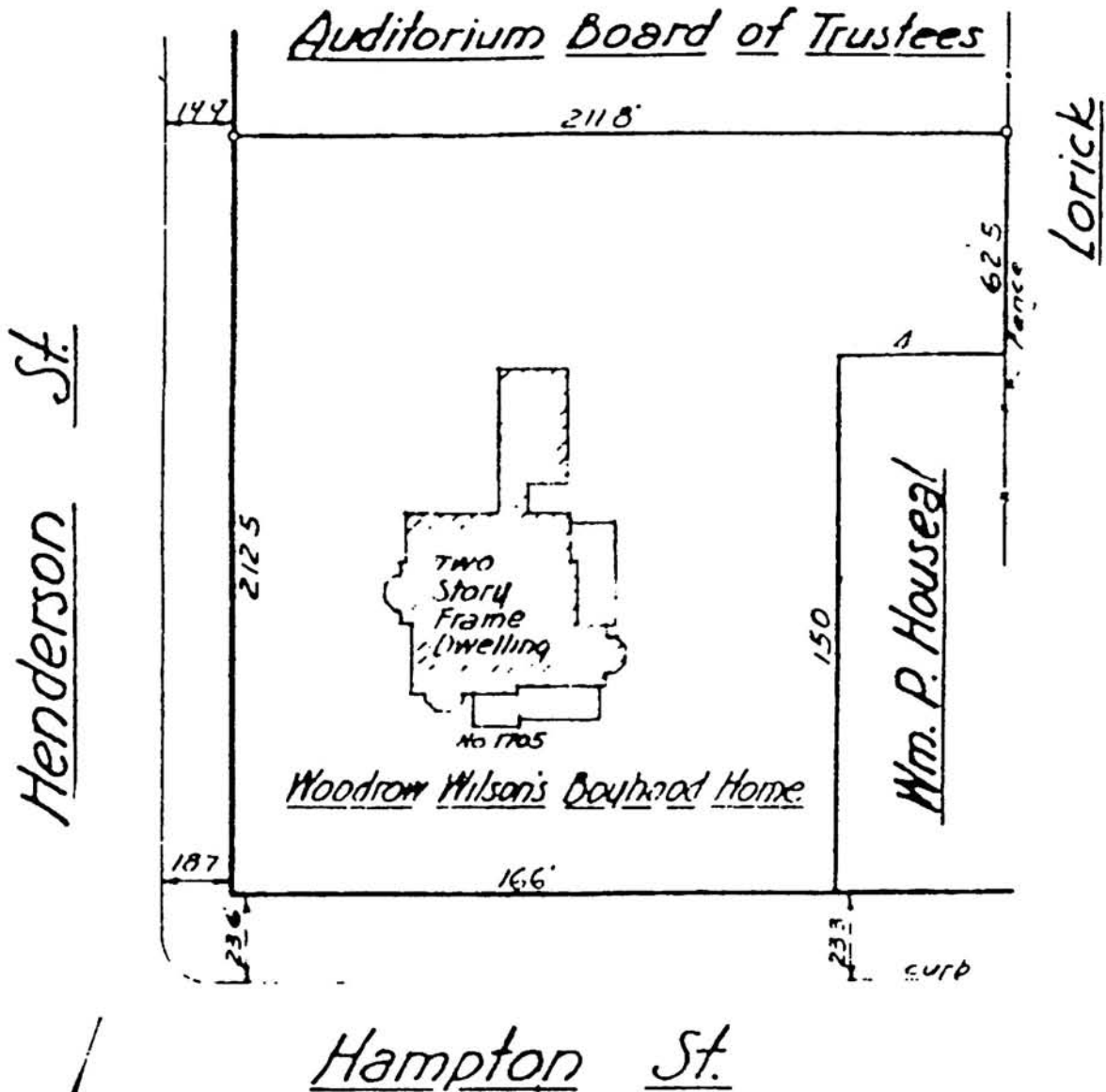


Figure 14.5: Plat of the Wilson house property in 1929 by the Tomlinson Engineering Company.

To investigate settlement patterning at the Wilson house site, it is necessary to examine a number of hypotheses, each of which is linked to a particular characteristic of the model just described. For each hypothesis several archaeological test implications will be deduced. These specify the form the archaeological record is expected to take if the hypotheses are valid. If the material data support the hypotheses of the urban residence model, they will not only reaffirm the assumed early function of the site, but also provide details about the actual layout and composition of the 19th-century settlement there.

#### ARCHAEOLOGICAL HYPOTHESES AND TEST IMPLICATIONS

The archaeological record at the Wilson house site is an accumulation of material representing activities that occurred there from at least as early as the 1871 Wilson occupation to the present. If undisturbed, it should be capable of providing information about all the historic occupations of this site. Although focused on the 19th-century occupation, archaeological investigations cannot ignore evidence of the site's subsequent development. Consequently, archaeological hypotheses are intended to examine all domestic occupations of the Wilson house site.

Because the archaeological record represents the by-product of all past activities at a site, our ability to interpret this record is reliant upon our identification of these activities. This, in turn, is dependent upon an understanding of the processes by which the archaeological record was formed, as well as those that may have affected it prior to its recovery. Archaeologists assume that human activities are patterned; that is, the same arrangements of tools, time, and work are repeated because of underlying cultural rules about the way things should be done. Since activities often include tools and/or the modification of materials through the performance of work, it is also assumed that they are sometimes reflected in the archaeological record. The recognition of artifact patterns, then, is the key to reconstructing human activities. Furthermore, different patterns are assumed to reflect different activities, although the pattern of a particular human activity is not so easy to identify.

People seldom just drop things where they were used, contrary to the wishes and hopes of all archaeologists. Some things are, in fact, "trampled" underfoot, but others are tossed outside or carried to a dump; some things are treasured and seldom, if at all, find their way into the archaeological record, but others have little

value and are thrown away readily, over-representing their importance; "small" things tend to be trampled into the ground close to where they were originally used, but "large" things are kicked aside or carried away from their original place of use; and so forth. All of these disturbances make it difficult to recognize a pattern that could be used to identify and reconstruct ancient or not-so-ancient human activities, and problems of differential preservation and natural disturbances make it even more difficult. Consequently, mistakes of identification are easily made; garbage can lie (see Schiffer 1976). Verification, then, is no less a problem to archaeologists than to historians working with the documentary record.

Schiffer (1976: 14-16) defined two kinds of processes that affect the "transformation" of human activities into the archaeological record: cultural and natural. Both played a role in the formation of the archaeological record at the Wilson house. Discard, loss, and abandonment are the three cultural processes most likely to be involved. Briefly, discard is the deposition of waste material. It may accumulate at its location of use as primary refuse or be deposited elsewhere as secondary refuse (Schiffer 1976: 30-31). Secondary deposition may vary in terms of distance from the location of use depending upon the size and nature of the material deposited (South 1977: 179). Loss involves the inadvertent deposition of items and may vary with the object's size, portability, and function (Schiffer 1976: 32-33). Finally, the process of abandonment is the accumulation of artifacts that remain in a given area following its abandonment. Abandoned material may include the *de facto* refuse of production or habitation that is left behind because it is inefficient or impossible to remove it to a new site (Schiffer 1976: 33-34). An important type of abandonment refuse is architectural in nature, consisting not only of standing remains but also material that has accumulated as the result of the construction, repair, or demolition of structures (Green 1961: 53). Abandonment may also modify other cultural formation processes such as discard, resulting in the development of refuse disposal patterns different than those associated with an activity area still in use (Schiffer 1976: 33; South 1977: 61).

Natural processes of transformation affect the archaeological record following deposition. They consist of such obvious processes as the deterioration of organic materials and the oxidation of metals as well as those occurring as a result of subsequent construction, land modification, or other activities that would disturb the context of the archaeological materials after

their deposition. Because the Wilson house site has been subjected to landscaping projects over the past 50 years, natural processes have played a role in its present condition.

A knowledge of the archaeological transformation processes plays an important role in predicting the form the material record is likely to take if a given hypothesis about past behavior is true. For each of the following hypotheses, test implications incorporating the effort of such transformations will specify the anticipated form the archaeological record should take. The degree to which an examination of material evidence corroborates our expectations will reveal not only the degree to which the Wilson house site is typical of contemporary settlements but also the precise form the settlement took and how it changed through time.

#### *Hypothesis 1*

The Wilson house site should exhibit evidence of a substantial occupation dating back to the third quarter of the 19th century. Evidence of this should appear in the form of datable artifacts, the use ranges of which should cover this period. Preferably these artifacts should include items used in architecture as well as portable artifacts that would have accumulated as a result of yard activities.

#### *Hypothesis 2*

The area to the rear of the house should be the site of out-buildings where domestic activities related to the household were carried out. These should be discernible archaeologically in the following manner.

1. Concentrations of structurally related artifacts and architectural features should occur to the north of the Wilson house. Documentary evidence has identified at least five structures in this area (kitchen, two stables, privy, unidentified outbuilding) at different times.
2. Evidence for the outbuildings should indicate their arrangement in a yard area to the rear of the house. The orientation of the yard should correspond to that of the house. Structures should be situated where indicated by documentary and oral sources.
3. Archaeological evidence should also identify structures not associated with the Wilson house settlement. The Houseal house of 1912 is the most obvious example of such a structure and

represents a contemporary separate occupation. Structures from earlier occupations predating the 1970s should also be revealed.

#### *Hypothesis 3*

The three yards (front, back, and lot) discussed in documentary and oral sources, or other undocumented yard combinations, may be recognizable archaeologically at the Wilson house site. Yard boundaries should be indicated by several material variables.

1. Fence lines dividing the Wilson house yards are mentioned in historical sources and should be discernible archaeologically.
2. Because each of the yards possessed a markedly different function, the nature and intensity of activities carried out there should have varied considerably. Likewise, the archaeological record these activities produced is likely to be different in each yard. Differential yard function has been shown to be reflected in the composition of the sheet refuse deposited there (Moir 1982-1983). It is anticipated that the distribution of certain classes of artifacts associated with such refuse will reveal the extent of the yards at the Wilson house site.

#### *Hypothesis 4*

Routes of access into and within the settlement are necessary to provide access to and movement within all parts of the site. The existence of such routes is likely to be discernible archaeologically by the occurrence of linear pavements, borders, or packed earth courses leading into the yards from roads at its borders and between the yards. Routes should include those indicated by historical sources and include others suggested by the layout of the settlement.

Four hypotheses describing the Wilson house site as a 19th century urban domestic settlement have been set forth, together with archaeological implications specifying conditions anticipated in the archaeological record. The extent to which the data obtained in the archaeological excavations conform to the implications will determine to what degree elements of form, layout, and content typical of urban domestic settlement are present in the archaeological record at the Wilson house site. Archaeological analyses should also enable us to answer additional questions pertaining to this settlement in particular and to confirm the validity of documentary and oral statements regarding its past.



## EXPLORING THE ARCHAEOLOGICAL RECORD AT THE WILSON HOUSE SITE

### *Methodological Framework*

The archaeological investigations at the Woodrow Wilson house site were intended to answer questions about the form and nature of the historic occupation there. To accomplish this task, a methodology was employed that would examine as wide an area of the site as possible. The discovery phase of archaeology at the Wilson house site required the use of an exploration technique designed to gather a representative sample of archaeological materials distributed over the area surveyed. To achieve a maximum dispersal of the sample units within this area, a stratified systematic sampling technique was chosen (Haggett 1966: 196-198). This technique is effective for revealing overall artifact patterning because it avoids a clustering of sample units and assures that no parts of the survey area are left unsampled. The site was divided into a series of grid squares (strata) based upon the coordinates of the site grid and then sampling a smaller unit within each stratum. The smaller units were located at equal distances along both axes of the grid; however, the base point was staggered for each alternate row of strata. The relative sizes of the units involved determine the percentage of the site sampled. At the Wilson house site strata of 25 x 25 feet were sampled with 3 x 3 foot units, producing a sample of about 1.5%.

The portion of the Wilson house site sampled lay to the north and east of the standing house (Figure 14.6). The sample was designed to examine the area that would have constituted the rear and side yards of the house. This area is L-shaped and extends across the northern end of the Wilson lot and southward to a maximum distance of 150 feet. It encompasses an area totalling 25,000 square feet divided into 40 strata. In addition to the sampling, limited exploratory excavations were carried out in the front yard of the Wilson house in search of walkways. These are also shown in Figure 14.6.

### *Hypothesis 1: Dates of the Site's Occupation*

The Wilson house site is known to have been occupied at least as early as 1871, when the Rev. John R. Wilson erected the present house there. Evidence of an occupation stretching from this time to the present should be found in the archaeological record. Ownership records, however, date from the late 18th century and the material remains may reveal an earlier occupation. If a prehistoric occupation was present, evidence of this should also be apparent.

An estimate of the settlement's range of occupation may be ascertained by comparing the ranges of datable artifacts recovered in the archaeological investigations. On the basis of a cumulative deposit containing material that accumulated from the beginning to the end of the occupation, a minimum chronological range for such an occupation may be estimated. The *terminus post quem* may be assumed to be no later than the closing date of the use range of the earliest artifact and the *terminus ante quem* no earlier than the introduction date of the most recent artifacts.

A comparison of data ranges of artifacts recovered at the Wilson house site reveals that the site was likely to have been occupied from around 1870 to 1966, a period corresponding closely to that described in documented sources. A virtual absence of artifacts typical of the 18th and early 19th centuries indicates that the property lay vacant during this time and that the post-Civil War Wilson occupation represents its initial development as a residential lot. No prehistoric artifacts were found in any of the excavations, implying that the site was uninhabited prior to this time as well.

The bulk of the datable artifacts from the Wilson house site were in use before 1940, indicating that the deposition was probably heaviest, and the occupation most intensive, during that time. This period nearly conforms to that when the Wilson house is known to have been occupied as a residence. Because the archaeological data fit so closely with our expectations regarding chronology, it is likely that these data comprise a representative sample of the material record produced during this time and are capable of yielding accurate information relating to the questions to be posed below.

### *Hypothesis 2: The Location of Outbuildings*

As a typical 19th century urban residence, the Wilson house would have required a number of outbuildings in which to carry out various domestic activities. The distribution of structures on the site is likely to be recognizable archaeologically and should conform to several conditions specified in the second hypothesis. First, it is anticipated that the outbuildings will be concentrated to the rear of the house. Second, they should be arranged around an open yard, the axis of which conforms to that of the house. The archaeological evidence should reveal the location of structures mentioned in documentary and oral accounts as well as others that were not recorded. Structures not associated with the Wilson house settlement, in particular the Houseal house of 1912, should be clearly

discernible in the material record.

The existence and arrangement of outbuildings may be discerned by the distribution of structural artifacts in the archaeological record and by the presence of intact architectural remains. Three types of structural artifacts—brick, nails, and window glass—are likely to accumulate as a result of the destruction or decay of buildings. These materials represent abandonment refuse consisting of items that were integral parts of a structure and which would remain after the building's destruction or removal. The distribution of these artifacts has been useful elsewhere in determining the locations of vanished structures of which there is no visible surface evidence (see for eg. Lewis 1976, 1978, 1979; Lewis and Hardesty 1979; Moir 1983). The artifact classes considered here are brick, nails, and window glass. Combined estimated SYMAP distributions of these three classes across the site are shown in Figure 14.7.

An examination of these distributions reveals several concentrations, all but one of which lie to the rear of the Wilson house. A large concentration is present adjacent to the house. This corresponds to the known location of the kitchen. The concentration of all three artifact classes here is anticipated for a domestic frame building set on brick piers. Three of the test pits, Pits 19, 27, and 28, encountered intact brick foundation bases of a structure 20 feet wide, the approximate width of the kitchen.

Just to the north of the kitchen a linear concentration of mainly nails is present, representing the remains of a wooden structure lying adjacent to the kitchen. This building is characterized by an absence of window glass and brick, and is likely to represent the stable built here between 1910 and 1919. The structure seems not to have had a permanent foundation and is likely to have left no intact architectural remains.

Beneath the rubble of the stable, the southern edge of an unlined cellar was encountered in Pit 20. The fill of the cellar is capped by a layer of mortar rubble and a pavement of brick bats which sealed the contents of this architectural feature from the layers of construction debris above it. This cellar represents a structure that clearly antedated the frame stable building and was filled in to level the ground to permit the latter's construction. The cellar is not documented; however, its material contents suggest a filling date in the 1890s. Its discovery reveals an additional early outbuilding at the Wilson house settlement.

A fourth structure near the western boundary of the rear yard is indicated by a concentration of nails and window glass. It lies in the approximate position of the outbuilding shown on the 1982 bird's eye view of Columbia and may represent this structure. A shallow gravel-filled depression in Pit 9 may represent the drip line formed by runoff from the roof of this building.

Finally, a concentration of window glass and brick in the southeast portion of the sample area appears to mark the remains of the House house. Architectural remains, consisting of an articulated brick wall in Pit 40 and partially decomposed boards in Pit 36, further attest to the presence of a frame structure in this location.

The archaeological evidence accounted for all but two of the documented structures at the Wilson house site. One of the missing structures is the stable at the north edge of the property. An examination of the stratigraphy at the site has revealed that this area has been graded, however, removing any material remains located there. Apparently all evidence of this building has been destroyed.

The second structure is a privy purported to have been situated behind a hedge that apparently stretched eastward from the northeast corner of the house. Because of the relatively small size of such a structure, its detection lay beyond the capability of the present sampling strategy which was designed to examine larger scale patterning.

If one views the arrangement of the structures revealed by archaeology, a pattern of yard layout emerges. Because of the relatively short time period involved in the entire occupation and an absence of closely datable sealed archaeological contexts for almost all of the structures, settlement patterning at any given time can be ascertained only by combining archaeological data with that supplied by other historical sources.

A turn-of-the-century yard would appear to have consisted of four structures situated to the rear of the Wilson house (Figure 14.8). These include the kitchen, a cellar, a stable, and a fourth outbuilding of unknown use. At least two of these structures (the kitchen and outbuilding) and probably a third (the cellar) were in existence during the Wilson occupation. They were arranged around a central yard lying to the west and north of the kitchen. This pattern conforms to that typical of urban domestic sites and confirms and

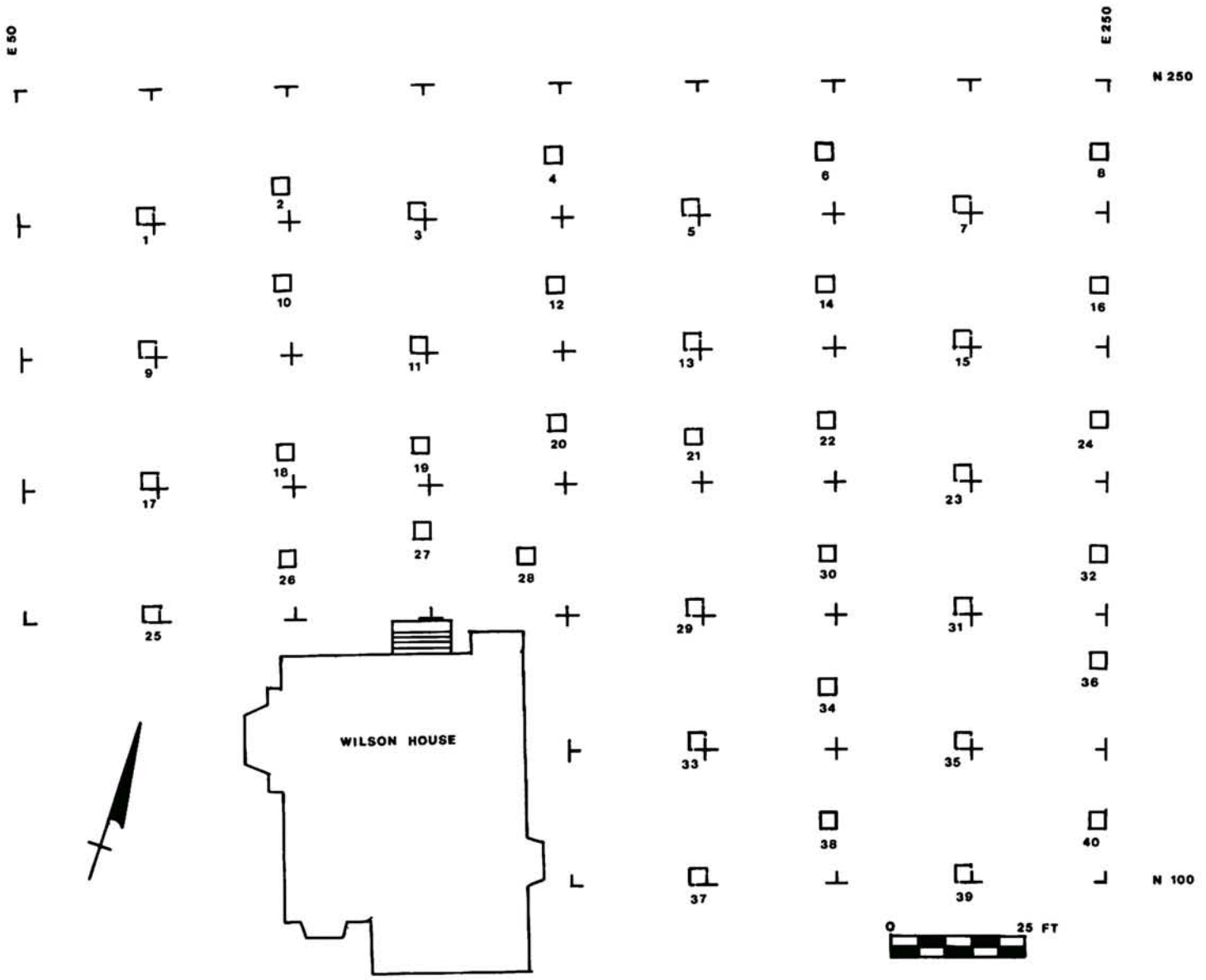


Figure 14.6: Plan of the 1983 archaeological investigations at the Wilson house site.

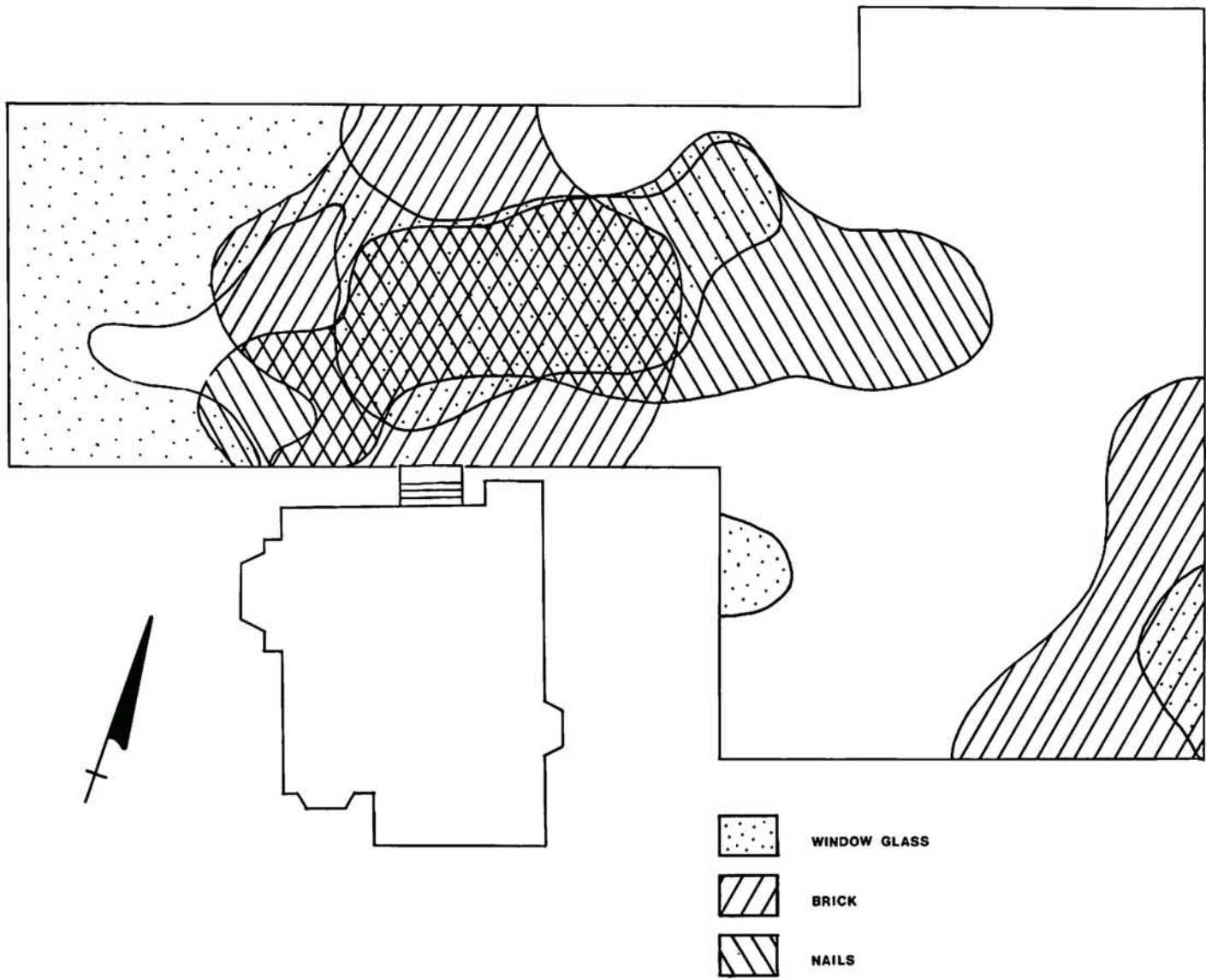


Figure 14.7: Combined distribution of structural artifacts at the Wilson house site.

amplifies the patterning derived from documentary and oral sources. The layout of the structural remains also provides a basis on which to direct more intensive archaeological investigations aimed at more precisely defining structural form and content. Structural patterning is, however, only one aspect of yard layout. The yards and activity areas of which they were a part are likewise an integral element in settlement composition and will be examined next.

*Hypothesis 3: Yards and Activity areas at the Wilson House Site*

Documentary and oral evidence have indicated that during the Van Metre occupation (1896-1928) the property was divided into three distinct yards. Yard layout may be examined archaeologically by observing variables linked more closely with the distribution of activities in the historic settlement. Perhaps the most direct way of recognizing divisions of space is by locating barriers separating one area from another. Such barriers may take many forms, but at the Wilson house site historical sources indicate fences and hedges formed the most common types. Because the Wilson house appears to have been extensively landscaped in various ways for a half century, it is unlikely that intact hedges of the 19th century remained intact.

Although the sampling scheme was not designed to reveal features as small as fence lines, several postholes with postmolds were discovered at the Wilson house site. These were located in Pits 18 and 19, which are aligned directly west of the north end of the kitchen (Figure 14.6). Oral sources indicate that a wire fence was placed here during the Van Metre period to divide the backyard from the lot.

Yard boundaries may also be defined by the refuse produced by activities carried out there. Perhaps the most pervasive and easily recognizable form of discard found in yards is sheet refuse. This results from the scatter of refuse material that accumulates in the vicinity of a settlement and is likely to reflect a number of processes of discard and redeposition. Moir (1982, 1983) has observed that sheet refuse as a method of disposal is pervasive on rural settlements in North America from colonial times well into the present century. Although the reasons for maintaining such a traditional form are uncertain, its decline appears to be associated with the availability of transport to relocate refuse that had formerly been discarded close at hand. Sheet refuse does not consist entirely of secondary refuse discarded from one or a few central points; it also includes primary refuse deposited at its point of crea-

tion. The generation of sheet refuse may be seen as a reflection of the types of activities performed and the technology available to carry them out as it is of the availability of a means to remove the refuse elsewhere. Thus, a decline in sheet refuse formation may be indicative of shifting patterns of production as well as transport.

If sheet refuse formation is partially related to settlement function and activity composition, it is likely to persist where traditional tasks continue to be performed. One might anticipate the occurrence of sheet refuse in rural, and even urban, settlements before the introduction of city services such as garbage collection. Regular refuse pickup did not occur in Columbia before the 1930s, and although central dumps were in use before this time, urban yards are likely to have remained the site of much domestic discard. Domestic activities would have produced refuse associated with the production, processing, and storage of food and other household items as well as the accommodation of animals and equipment used in transport. Such activities are similar to those carried out in the immediate yard of 19th-century farms (*Rural Carolinian* 1870: 444-446; Downing 1850: 221-223; Nigel 1970: 53) and are likely to have generated similar patterns of sheet refuse.

Moir's (1982, 1983) studies of sheet refuse on rural farmsteads in east Texas revealed distinct and recognizable discard patterning at these sites. On the basis of overall artifact distribution he identified four yard types commonly found on rural settlements. They are the *subactive yard* beneath the house, the *immediate active yard* extending outward from 20 to 30 feet from the house, the *outer active yard* lying beyond this up to a distance of 50 feet, and finally, the *peripheral yard* extending to an indefinite distance. The active yards immediately surrounds the house and its outbuildings, while the peripheral yard contains the remainder of the farm structures as well as stock pens, trash areas, and cultivated fields (Moir 1983: 323-326).

The active yard on rural settlements is expected to encompass the domestic activities associated with the house. The peripheral yard, on the other hand, contains many specialized activities related to nondomestic aspects of the settlements' functions. If we assume that activities carried out in the active yard of farms were similar to those that took place in contemporary urban domestic settlements with access to comparable yard space, then the archaeological patterning that characterizes the active yards of both should be similar.

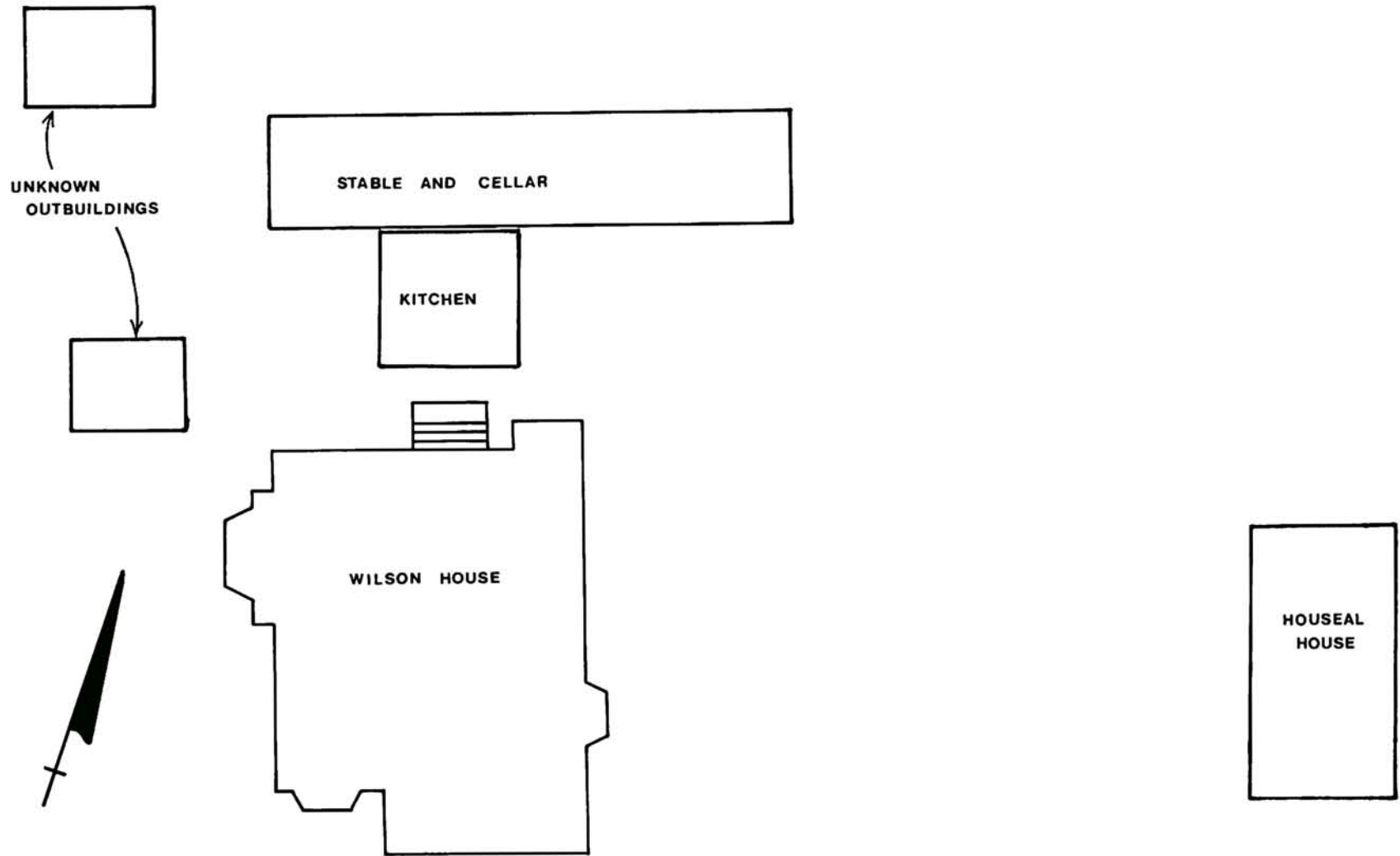


Figure 14.8: Conjectural plan of structures at the Wilson house site based on archaeological evidence.

Likewise, the presence of areas of specialized or other nondomestic activity should be recognizable on the basis of changes in archaeological patterning.

Documentary evidence and oral sources have identified three yards at the Wilson house site: the *front yard* bordering Hampton Street and extending to the sides of the house, the *back yard* stretching to the rear of the kitchen, and the *lot* continuing from here to the property boundary. Land use on the east side of the property, the boundary which lies 120 feet from the house, is uncertain. Much of this area appears to have been left vacant before 1912, and it may have been peripheral to yard activity until the placement of the Houseal house there in that year. At this time a second series of yards would have been formed around this new structure. The limited space available on the Houseal narrow lot, however, would have restricted the development of its yards (See Figure 14.4).

Material evidence should reveal the yards at the Wilson house as well as the later Houseal house. These yards are likely to be defined on the basis of the distribution of artifact classes known to be associated with different yard types on rural sites. Moir (1983) found that the spatial patterning of several artifacts is useful in defining the nature and extent of such yards. Of particular importance are ceramics, an item that accumulates in great quantities because of its fragility and inability to be recycled. Two classes of ceramic artifacts vary with yard function. Ceramic tablewares (plates, cups, saucers, and other serving and eating wares) have been found to be concentrated in the outer active yard. Their occurrence in lesser numbers or absence in the inner active and peripheral yards suggests their deliberate deposition here. The distribution of fragments of utilitarian stonewares (crocks, churns, jugs, bowls, etc.), on the other hand, occurs more frequently in the peripheral yard (Moir 1983: 330-333).

An examination of the distributions of ceramic tablewares and utilitarian stonewares at the Wilson house site reveals distinct patterning. Ceramic tablewares occur in the greatest numbers in a band stretching from the western edge of the property to its western boundary (Figure 14.9). This concentration corresponds to the edge of the backyard and lot and also encompasses the area of the kitchen. The eastern portion of the concentration lies to the rear of the Houseal house site and is likely to be associated with this structure.

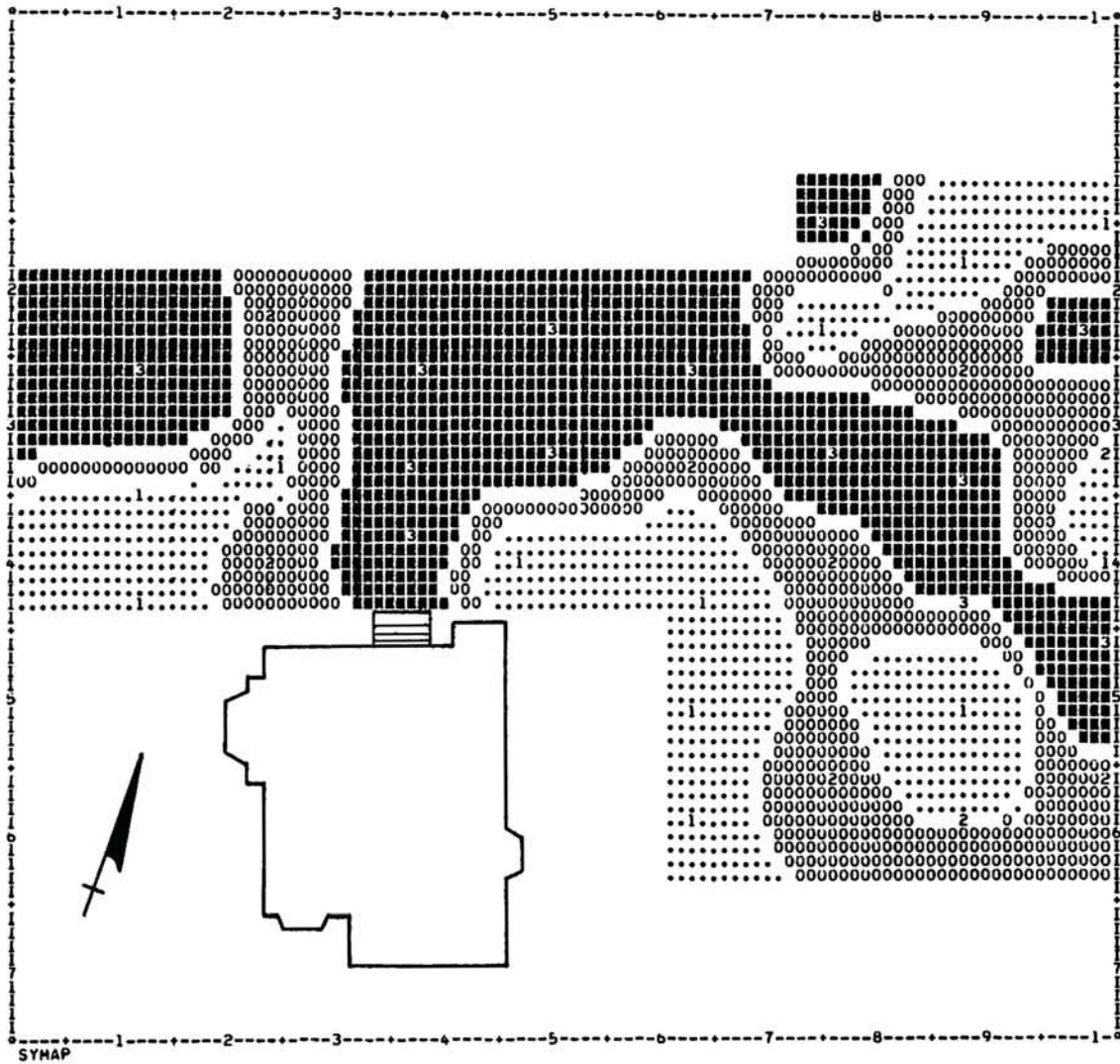
The distribution of ceramic tablewares permits the definition of an inner active yard extending about 30

feet to the rear of the Wilson house. An outer active yard lies beyond this, occupying the southern portion of the lot as well as the northern edge of the backyard. The form and location of the inner and outer active yards suggest that the Wilson house backyard was an activity area kept essentially clean of sheet refuse, the bulk of which was deposited at or beyond its periphery. An exception to this is, of course, the kitchen. The preparation of food in and the transfer of tablewares to and from this building made an accumulation of refuse inevitable here. Stored kitchen items, discarded when the structure was demolished, would have added to this refuse deposit.

The presence of a concentration of ceramic tablewares extending outward from the rear of the Houseal house suggests that the inner and outer active yards were compressed by the relatively small size of the Houseal property (Figure 14.10). The inner active yard appears to have lain to the west and north of the house, with an outer active yard in the northwest corner of the property. The dense occurrence of ceramic tablewares in the immediate vicinity of the house may also indicate the presence of a kitchen at this location. Kitchens were usually situated in ells such as that protruding from the rear of the Houseal house. The concentration of ceramic tablewares here may reflect kitchen activity refuse similar to that found in association with the Wilson house kitchen.

Peripheral yards also appear on the Wilson property. Figure 14.11 shows the distribution of utilitarian stonewares at the site. Several concentrations of the artifacts are discernible. One lies north of the Wilson house and extends outward from a distance of about 50 feet. It is confined to the lot and appears to coincide with the outer edge of the outer active yard defined earlier. This peripheral yard is undoubtedly associated with the Wilson house. Two other peripheral yard areas, found northeast and east of the Wilson house, may also represent activity areas linked to its occupants. The position of one near the eastern boundary of the property may represent a continuation of the peripheral yard to the west of it, however, this yard and that to the south of it may also be associated with the Houseal house in that they lie on or just outside the boundaries of this property.

The distribution of specific artifact classes at the Wilson house site has revealed the existence of yard types similar to those found at the sites of contemporary rural dwellings. The similarities imply a similar organization and placement of activities associated with the domestic function of these structures. At the



#00U0R0# WILSON BOYHOOD HOME  
 STRATIFIED SYSTEMATIC SUBSURFACE SAMPLF  
 CERAMIC TABLEWARE

DATA VALUE EXTREMES ARE        0.0        41.00

ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL  
 (\*MAXIMUM\* INCLUDED IN HIGHEST LEVEL ONLY)

MINIMUM	0.0	10.00	15.00
MAXIMUM	10.00	25.00	41.00

PERCENTAGE OF TOTAL ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL

24.39	12.20	63.41
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FREQUENCY DISTRIBUTION OF DATA POINT VALUES IN EACH LEVEL

LEVEL	2	3
SYMBOLS	0000000000	#####
	0000000000	#####
	0000200000	#####
	0000000000	#####
	0000000000	#####
FREQ.	12	13

Figure 14.9: Distribution of ceramic tablewares by count at the Wilson House site.



Wilson house the boundaries of the inner active yard correspond to those of the back yard mentioned in documentary and oral sources. The latter's common boundary with the lot behind forms the outer active yard and is marked by an increase in the deposition of sheet refuse typical of such areas. The back yard and lot were separated by a fence which undoubtedly served to delimit the former as an area used for gardens and household activities and restricts the deposition of refuse there. The lot, on the other hand, would have contained other yard activities, the operation of which did not demand a refuse-free environment. The proximity of the lot to the back yard would have made it a convenient deposition area for back yard refuse. Indeed, parts of the lot appear to have constituted a peripheral yard. This location, outside the most intensively used parts of the property, would have encouraged refuse deposition. The construction of the Houseal house in 1912 appears to have superimposed a second series of yards on a portion of the Wilson property. Because of the limited size of the Houseal tract, however, these yards are confined to a relatively small area and do not appear to overlap those of the Wilson house.

Archaeological evidence has shown that the yards described during the Van Metre period are likely to have established a layout that characterized the Wilson house site throughout its existence as a domestic settlement. The distribution of these yards suggests an organization of activities typical of domestic settlements of the late 19th century. Although it is not possible to identify specific activities and delimit their boundaries at this stage of the archaeological investigations, general yard patterning and other material evidence permits a preliminary definition of settlement patterning at the Wilson house site.

#### *Hypothesis 4: Routes of Access at the Wilson House Site*

A domestic settlement must provide access to all of its parts as well as access to the outside. Such routes of access, because of their habitual use, are likely to be discernible archaeologically. Documentary and oral evidence indicates that several such routes existed at the Wilson house, including walkways leading to its front entrance facing Hampton Street and a side entrance to its lot from Henderson Street. Because of the necessity for movement within the backyard and lot, paths or driveways are anticipated here as well. Internal yard paths should also be evident to the rear of the Houseal house. Material evidence likely to characterize routes of access include alterations in the structure

of the soil and the presence of paving materials. No compacted surfaces were located in the sample area, perhaps because of the disturbed nature of much of this yard. Pavements were discerned by tracing the distribution of loose paving materials across the site.

The most common type of paving material consisted of clinkers, the by-product of coal-burning stoves, heaters, and fireplaces. These materials were scattered over nearly the entire site, but occurred in concentrations in some areas. The distribution of clinkers is shown in Figure 14.12. It reveals several routes in the rear yard of the Wilson house site. One appears to enter the property from Henderson Street, running eastward along the southern edge of the lot. A second route also enters from Henderson Street and appears to be a path entering the backyard and extending as far as the kitchen. Both routes are mentioned in oral sources describing the property during the Van Metre period.

Dating the pavements is difficult, because of mixing in the upper layers of soil. The presence of a layer of clinkers extending to the base of the cultural deposits, however, suggests that the pavements date from the early occupation of the Wilson house site. Concentrations of clinkers were found in the fill of the cellar uncovered in Pit 20, revealing that these materials were present on the surrounding lot surface before 1900 when the cellar was filled. The presence of a clinker layer overlying the cellar fill also indicates that this pavement was maintained after this time as well. The pavements apparently fell into disuse with the conversion of the house to a museum in the late 1920s, and they are presently covered with turf and, in some cases, parking lot gravel.

A third paved area lies to the rear of the Houseal house in the vicinity of the heaviest refuse deposition. It presumably marks internal routes of access within the yard of that structure and is likely to have been laid down after 1912.

Archaeological investigations designed to uncover evidence of front yard walks were conducted separately from the sampling of the rear yard. Oral and documentary sources indicated a walk once extended from the front porch of the house to the corner of Hampton and Henderson streets and the trenches were laid out so as to intersect the line of walks passing through this area. Trenches, extending across the southwest corner of the yard, revealed evidence of a front walk consisting of a concentration of clay and pebbles in the sandy soil just below the surface. The line of this

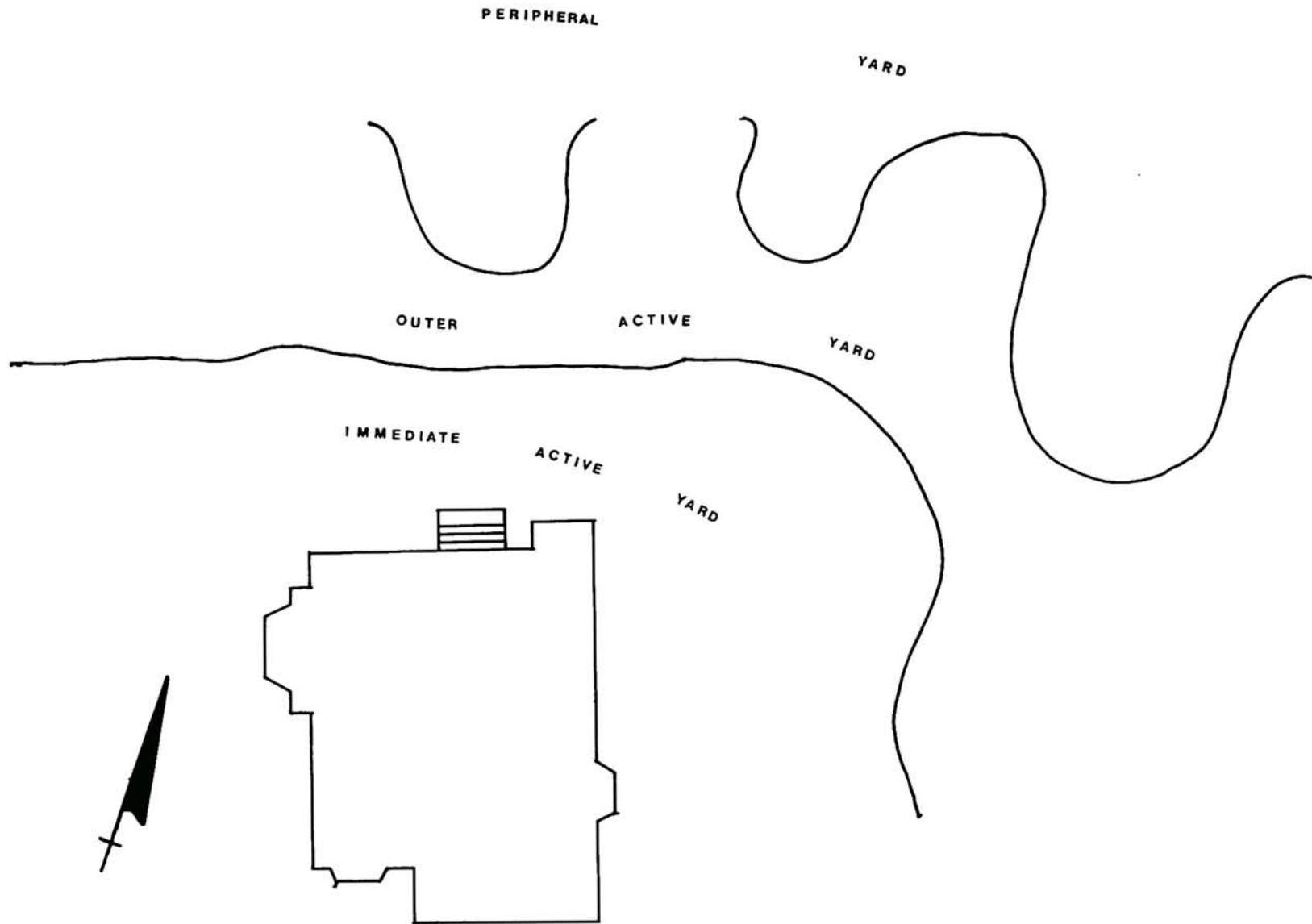
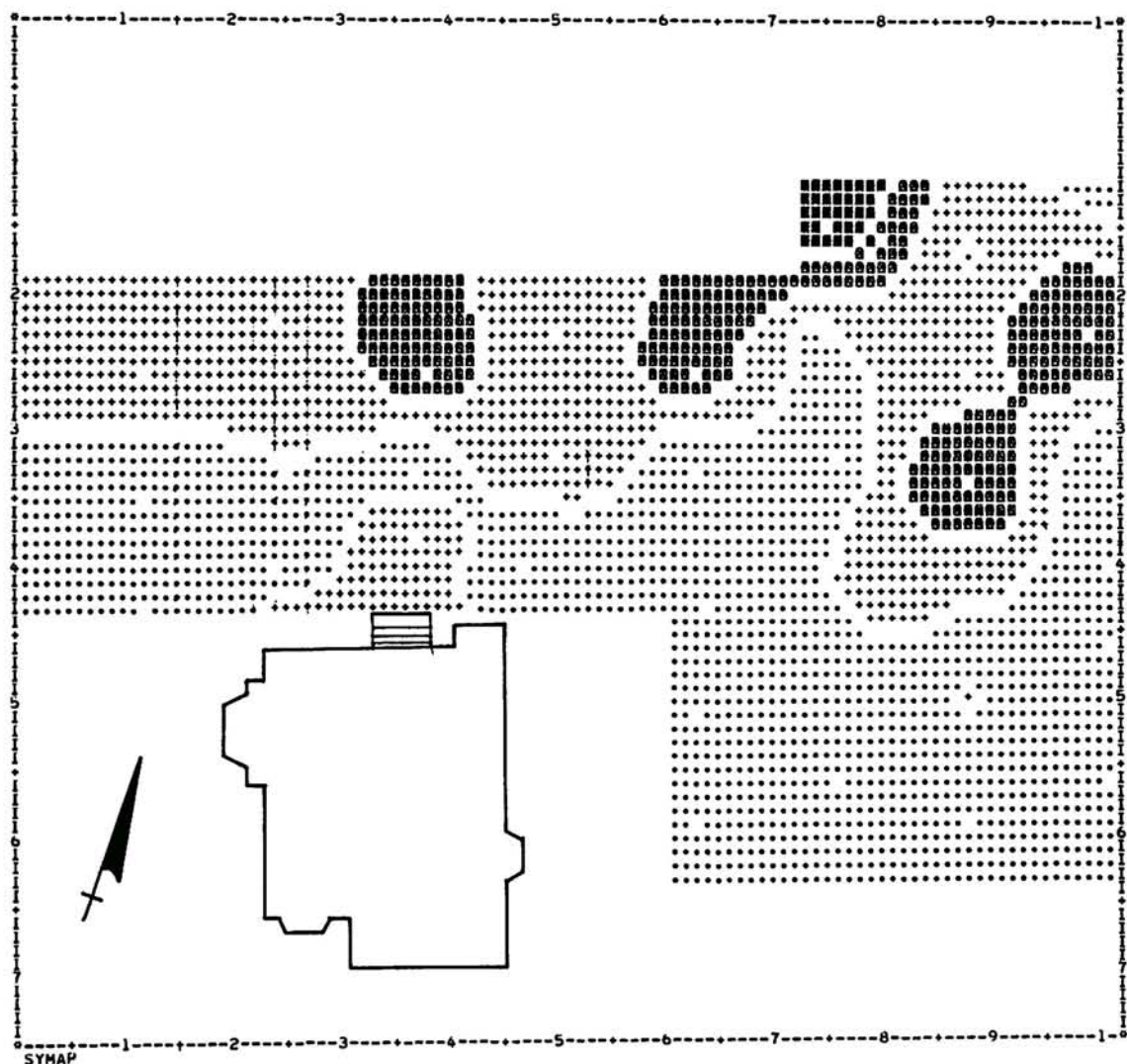


Figure 14.10: Conjectural plan of yards at the Wilson House site based on archaeological evidence.

14. Settlement Function and Archaeological Patterning at the Woodrow Wilson House



WOODROW WILSON BOYHOOD HOME

STRATIFIED SYSTEMATIC SUBSURFACE SAMPLE

UTILITARIAN STONEWARE

DATA VALUE EXTREMES ARE            0.0            9.00

ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL  
(\*MAXIMUM\* INCLUDED IN HIGHEST LEVEL ONLY)

	BELOW	1.00	2.78	6.33
MINIMUM		1.00	2.78	6.33
MAXIMUM	1.00	2.78	6.33	9.00

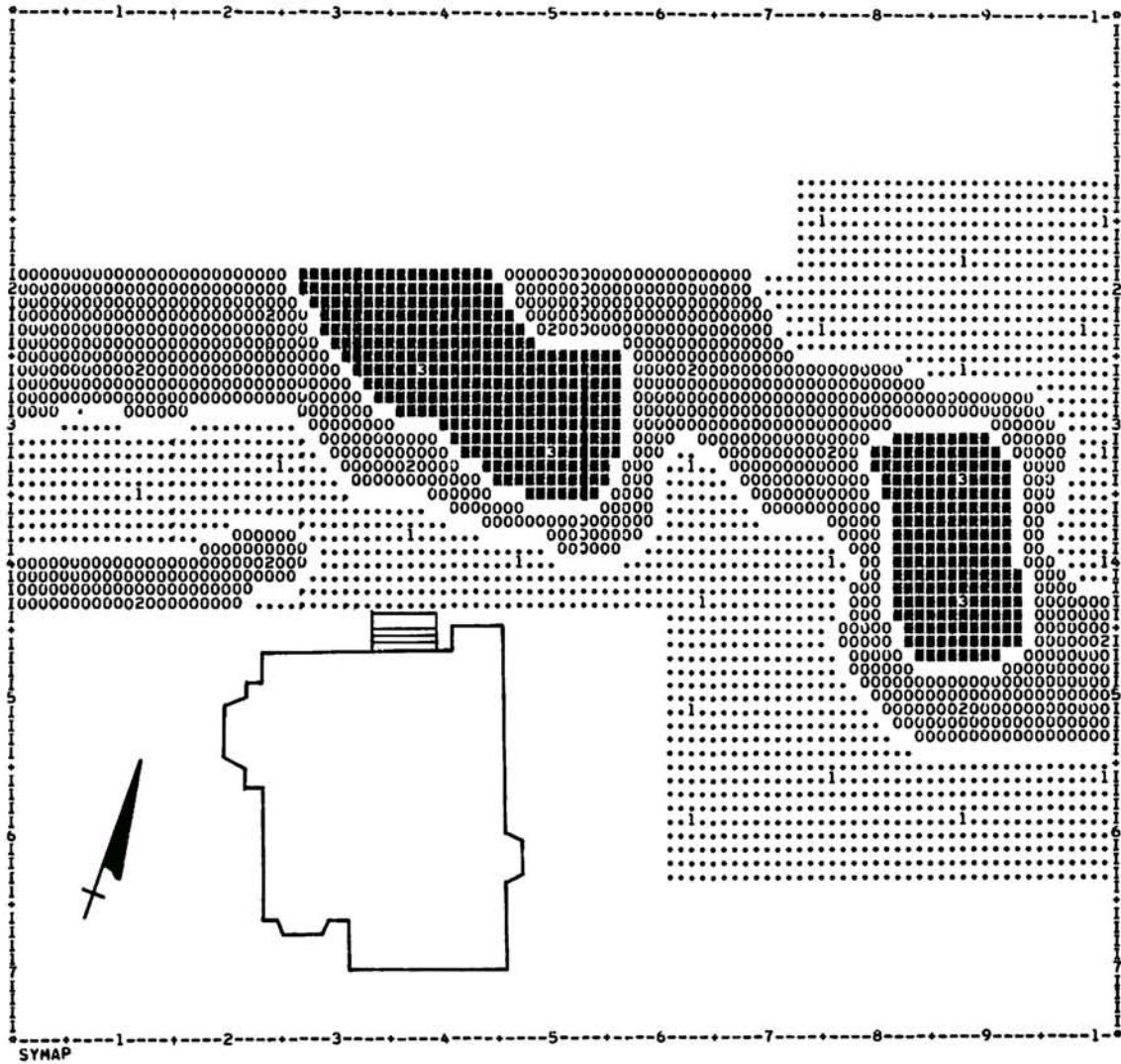
PERCENTAGE OF TOTAL ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL

	22.22	44.44	33.33
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FREQUENCY DISTRIBUTION OF DATA POINT VALUES IN EACH LEVEL

LEVEL	L	1	2	3
SYMBOLS	.....	+++++	#####	#####
FREQ.	15	14	5	1

Figure 14.11: Distribution of utilitarian stonewares by count at the Wilson house site.



WOODROW WILSON BOYHOOD HOME  
 STRATIFIED SYSTEMATIC SUBSURFACE SAMPLE  
 CLINKERS

DATA VALUE EXTREMES ARE            1.00            86.00

ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL  
 ('MAXIMUM' INCLUDED IN HIGHEST LEVEL ONLY)

MINIMUM	1.00	18.00	43.50
MAXIMUM	18.00	43.50	86.00

PERCENTAGE OF TOTAL ABSOLUTE VALUE RANGE APPLYING TO EACH LEVEL

20.00	30.00	50.00
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FREQUENCY DISTRIBUTION OF DATA POINT VALUES IN EACH LEVEL

LEVEL	1	2	3
SYMBOLS	00000000	00000000	00000000
FREQ.	21	10	4

Figure 14.12: Distribution of clinkers by count at the Wilson house site.

walk indicates a path that would have formed a straight line from the Wilson house porch to a point on Henderson Street near its intersection with Hampton Street. The line of the path conforms to that mentioned in documentary sources and the absence of additional walks implies that this was the only front yard access route prior to the construction of the 1931 walkway.

Archaeological evidence gathered in the sampling excavations in the rear of the Wilson house and exploratory trenching in its front yard have revealed routes of access leading to the front yard, backyard, and lot. They also showed a paved area permitting access to all parts of the settlement behind the house. A similar paved area was found to the rear of the Houseal house. These results confirm the placement of access routes mentioned in documentary and oral sources and reveal the locations of others heretofore unknown. Routes of access played an important role in linking the elements within a domestic settlement as well as tying to the larger urban community in which it exists. Those at the Wilson house illustrate clearly the layout of such routes anticipated on urban domestic sites and, in so doing, identify patterning typical of such settlements.

#### CONCLUSIONS

Archaeological investigations carried out at the Wilson house site explored the settlement's form, layout, and content. This work was intended to gain descriptive information about this particular site, but also to provide comparative data with which to evaluate a model of late 19th century, urban domestic settlement. The model describes the form, layout, and content of such settlements and provided a basis from which to predict archaeological patterning likely to be found on their sites. Four archaeological hypotheses regarding the site's composition were developed from the model and documentary and oral evidence pertaining to the Wilson house settlement. Test implications were then deduced specifying the form the archaeological data would be likely to take. The hypotheses were concerned with the temporal limits of the occupation, building locations, yard form and boundaries, and routes of access into and within the Wilson house site.

Archaeological data revealed that the site was occupied from the second half of the 19th century to the present, with the bulk of the occupation falling before 1930. The Wilson presence of 1870 is likely to mark the initial historic occupation of the site. Its continued use as a domestic settlement for the next six decades is also reflected in the archaeological record. Archaeological data accounted for four documented structures in the

area behind the Wilson house. These structures are the kitchen built in 1871, an outbuilding shown on an 1872 panoramic view, and a stable built between 1910 and 1919. Soil removal along the northern boundary of the site presumably destroyed evidence of another stable. Another previously unknown structure, a cellar filled in during the 1890s, was also revealed by the excavations.

The spatial arrangement of structures to the rear of the dwelling house conformed to a layout typical of contemporary urban settlements. This layout reflected an efficient arrangement of domestic and other activities necessary for maintaining a substantial household. Closely related to the placement of structures was the distribution of yard activities. The identification of specific activities was beyond the scope of the initial archaeological excavations; however, the patterning of certain artifact classes permitted the identification of general activity areas called yards. Their contents suggest the broad type of activity carried out within them.

Evidence was sought for the three types of yards that are commonly found on 19th century domestic sites: an inner active yard near the house which is kept relatively clear of refuse, an outer active yard beyond it where much household debris is deposited, and a peripheral yard containing refuse from activities occurring farther from the house. At the Wilson house an inner active yard was found to correspond to a documented backyard containing the kitchen and gardens. At the outer edge of the backyard and extending into the lot beyond was an outer active yard. Evidence of peripheral yard areas was found to the north and east, further from the house and beyond its cluster of yard structures.

Yard boundaries were defined further by the presence of pavements identifying routes of access into and within the settlement. Paths to the house front as well as to the backyard and lot were found archaeologically. Their locations corroborated documentary and oral information and identified the precise locations of the yards.

In demonstrating the presence of yard activity patterning similar to that described in the model of urban domestic settlement, this study has shown that the Wilson house site possesses elements of layout, content, and organization common to other contemporary settlements of similar function. The function of a settlement is reflected in the nature of the activities

carried out there and by the processes through which the by-products of these activities reach the archaeological record. Material patterning produced as a result of past activities is thus tied to settlement function and, as here at the Wilson house site, is capable of identifying the class of settlement present.

The functionally related patterning at the Wilson house site was produced by the accumulation of sheet refuse, a phenomenon produced by the operation of various household activities common to both urban and rural domestic settlements in the late 19th century. These activities and their accompanying disposal processes have not been dealt with here because of the general scope of this archaeological study. If we are to isolate material related directly to urban domestic settlements alone, however, it will be necessary to carry out investigations at identifying both the content and spatial distribution of the disposal aspect of the household activities associated with these settlements. Only then will it be possible to model the types of archaeological patterning produced at such sites. Patterns of sheet refuse disposal indicate clearly that the broad structure and organization on historic domestic settlements is recognizable archaeologically. Functionally oriented studies designed to explore the nature and distribution of the activities behind this patterning hold the key to identifying particular settlement types on the basis of the material alone.

#### ENDNOTES

1. Original manuscript received in October 1984. Revisions received June 1988.
2. The project was sponsored by the Historic Columbia Foundation and funded by a grant from the South Carolina Committee for the Humanities. Support was also provided by the South Carolina Institute of Archaeology and Anthropology of the University of South Carolina.
3. It is impossible to establish a comprehensive record of transfer for this property prior to 1865 because Richland County records were destroyed during the American Civil War.
4. The term "Wilson house property" will be used throughout this discussion to refer to the tract purchased originally by the Rev. J. R. Wilson in 1870.
5. In a detailed discussion of similar patterns of urban residence in the 19th century South, Stewart-Abernathy (1986) has used the term "urban farmstead" to

emphasize the subsistence-related activities occurring in such settlements and the relationship between such activities and the settlements' layout and composition.

6. Changes in the Wilson house settlement before 1920 parallel those that affected urban residence settlements generally during the late 19th and early 20th centuries. As a result of trends involving an increase in residential infilling, more restrictive property zoning, the greater availability of public utilities and waste removal, improved public transportation, and a revolution in food preparation and distribution (Stewart-Abernathy 1986:12-13), such settlements evolved from complexes encompassing a variety of diverse activities to sites possessing a much more restricted residential function or a specialized non-domestic role.

#### LIST OF ABBREVIATIONS

HCFF	Historic Columbia Foundation Files
RCRCCRM	Richland County, Records of the Clerk of Court as Register of Mesne Conveyance
SCRGAABJR	South Carolina, Records of the General Assembly, Acts, Bills, and Joint Resolutions
SCRGARR	South Carolina, Records of the General Assembly, Reports and Resolutions
WWHP	Woodrow Wilson Home Papers
WWMM	Woodrow Wilson Memorial Museum

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## Chapter 15

### THE LAW AND THE AMATEUR IN RESOURCE MANAGEMENT

Alan Albright

#### PREFACE

The following paper was given by the author at a conference entitled, "Alaskan Marine Archeological Workshop," held on May 17-19, 1983, in Sitka, Alaska. It was published in the same year as part of the *Proceedings of the Alaskan Marine Archeological Workshop*, Alaska Sea Grant Report 83-9, edited by Steve J. Langdon. The purpose of the conference was to bring together historians, anthropologists, archaeologists, and other scientists in order to assist the state of Alaska develop an underwater resource management plan that would suit that state's particular prehistoric and historic environment.

Although this paper was written for the above mentioned conference, the philosophy and procedures explained herein apply as well today as they did then.

#### INTRODUCTION

Working with amateurs in the management of a state's underwater archaeological resources is a concept, which if used intelligently within the framework of practical considerations, ethical requirements, and long-range goals, can pay dividends far in excess of the money, time, and energy expended. When I accepted the position as Underwater Archaeologist on the staff of the South Carolina Institute of Archaeology and Anthropology at the University of South Carolina in July of 1973, I was given the responsibility of discovering, assessing and managing the State's underwater archaeological resources using as a guideline a law that had been on the books for six years, but that had been almost totally ignored by the sport diving community. The law was written by a lawyer, on behalf of himself, a shrimp boat captain, and a sport diver. Their purpose was to gain legal protection over a Civil War blockade runner they had recently discovered and wished to excavate. What they began, in writing this law, has evolved over the years into a set of practical guidelines for both the state and its citizens to follow in managing South Carolina's underwater archaeological resources.

In order for a resource management law to accomplish the aim for which it was written, it is first

necessary to establish a philosophy compatible with the state's long-range goals. This philosophy becomes the underlying guide in management of the resources through the law. I use the word philosophy very broadly to encompass such concepts as premises, attitudes, and other principles that give thrust, meaning, and direction to the law. In the 10 years I have been involved in resource management, I have become convinced that the philosophy behind the administration of the law is the bedrock on which the law itself should be developed.

It is specifically for that reason that I cannot offer a definitive plan of operation for the development of a law for the management of Alaska's underwater archaeological resources. Rather, I will first suggest a philosophy of working with amateurs that can be adapted to your particular requirements and be reflected in your law, a philosophy that stresses education over law enforcement, cooperation over confrontation, and that has as a goal the acceptance of responsibility by the sport divers for a major share of the management of their own underwater archaeological resources. This is accomplished by working within the law under the direction of the state. The premises which follow, when taken together, form a philosophical statement of intent and direction in resource management from which a law can be developed.

#### PREMISES

*People are basically good and tend to obey the law.* Successful societies are built on laws. The news media constantly bring to our attention the results of personal, national, and international lawlessness but seldom give equal coverage to the daily, ordinary, and routinely expected acts of civil obedience that surround us. Most of us will live out our lives with only a few serious encounters with lawlessness. The preponderance of personal activities is non-destructive and within the law.

*Cooperation is more effective than confrontation and threats of law enforcement.* Cooperation is more effective, economical, and gets the job done better. For

the resource manager it is also less taxing mentally, physically, and emotionally in dealing with the sport divers to move toward a mutually acceptable goal than to demand compliance through threats of law enforcement. Unfortunately, law enforcement is sometimes necessary. There are always some on whom the message is lost or who choose to ignore and flaunt the law. No system is 100% effective. Perfection is a phenomenon not found in humans or human endeavors.

*Ethics cannot successfully be imposed on others.* This was probably best demonstrated in the 1920s by the rapid proliferation of the illegal speakeasies and the underground alcohol business of bootlegging, the common man's response to the ethical and moral dictates of other's. The ethics of one group cannot, through legislation alone, be successfully imposed on another group. The ethical concepts, which are an integral part of the education and background of a professional archaeologist, generally run contrary to the desires and goals of the amateur collector who perceives his avocation of artifact collecting threatened by unreasonable bureaucrats. Ethics is one of the main issues that separates the archaeologist who is generally the resource manager, from the non-archaeological amateur. It is, however, the non-archaeological amateur who historically has been responsible for the major underwater archaeological discoveries both in number and in significance. It was amateurs who discovered such preeminently significant vessels as the *Vasa*, *Mary Rose*, *Philadelphia*, and *Brown's Ferry* vessels. The archaeologist's position that he should be the sole arbiter of issues pertaining to that body of knowledge of which he has special insight through education, training, and experience is valid and in the long run must prevail. The amateur, on the other hand, through whose dogged perseverance, special expertise, and hard work this resource is discovered, should participate in its management. These two opposing viewpoints do not have to remain irreconcilable. They can be brought together, but the responsibility for this rests with the archaeologist. He must take action through an educational process to demonstrate to the amateur that the best interests of all are served by a cooperative effort under professional guidance, and this can be done.

*Education is the key to understanding, and understanding is the foundation of conservation.* It is readily obvious that the more I meet with individuals and sport diving groups, the more cooperation I receive from them. These meetings generally include a slide talk on artifact identification and history, identification of

artifacts they have found, a discussion on the law, and the importance of conserving the state's non-renewable archaeological resources. With the realization of the importance of conservation comes acceptance, compliance, and eventually support of the law.

*It is sometimes necessary to accept a short-range loss in order to make a long-range gain.* Advancements in the physical and social sciences do not always progress along a straight path. In resource management it is often necessary to make difficult compromises. For example, information derived from the sport diver is usually more valuable to our long-range goals in our quest for knowledge than their surface collecting is harmful to the resource.

*People generally want to become involved.* Without exception, on every underwater project the Institute has carried out in public view, both sport divers and support personnel have volunteered their services and under proper supervision have provided valuable assistance.

*Support and opposition are identical emotional responses, travelling parallel paths and only a step apart.* In dealing with the sport diving community I have found that the most vociferous opponents of the law regulating their activities become, through time and education, the strongest supporters of our conservation efforts.

*People want and need approval.* Psychologists call it stroking – the act of giving approval and support. A state official who shows appreciation to a sport diver who is acting within the law binds him to the law with a moral force far greater than the occasion might normally warrant.

*The views of the sport diver should be acknowledged and respected even though they generally run contrary to the ethics and values of the archaeologist.* This premise is closely linked to the ethics statements made earlier. Disparate groups cannot resolve their differences without an acknowledgement by both parties to the right of differing viewpoints. With this right acknowledged they can begin communications and resolve their differences as equals.

#### PRACTICAL CONSIDERATIONS

The South Carolina program provides the vehicle for the blending of amateur participation under professional guidance in the management of its underwater archaeological resource. The law provides for the li-

censing of sport divers to recover artifacts but requires them to make a written report of their activities to the Institute on a monthly basis. The licensing of sport divers by the state to recover artifacts is a very controversial issue within the ranks of the professional underwater archaeological community, most viewing it as the antithesis of ethical archaeological resource management. From an academic viewpoint they may be right, but very little of the world we live in is structured along academic lines.

The practical elements of the situation I encountered in 1973 were not those that lent themselves to an academic solution. I discovered that several hundred sport divers were recovering artifacts and fossils on a regular basis from the 12,000+ linear miles of creeks and rivers of the state. The quality and quantity of artifacts and fossils recovered suggested that on, and under, the bottoms of the rivers lay a vast repository of information in the form of sunken vessels, artifacts, and fossils from the state's historic, prehistoric, and geologic past. Fossils are included in our management plan because in our river system all underwater archaeological sites have yielded fossils and most fossil beds have an archaeological component.

Utilizing the numbers, energy, expertise, and local knowledge of the sport divers was to me the most practical and reasonable approach to take for a one-man operation with wide responsibilities and very limited resources. Even if I had the capability through law enforcement to compel compliance with the law, I would have chosen the voluntary compliance route as the one most likely to be successful over time.

South Carolina's law for underwater archaeological resources management might serve as a guide for Alaska but should not be adopted verbatim. The program that has evolved in South Carolina over the past 10 years reflects the special needs of a small southeastern state with its particular physical, human, and cultural environment. That has little in common with the special needs of the nation's largest state with its own particular physical, human, and cultural environment. The law, which is actually the resource management plan, is written for the special conditions of a specific environment and, except in unusual cases, is not transferable from one area to another. The philosophy behind the administration of the law, that element that gives it vitality, however, is transferable. It is not tied to a physical environment, rather it addresses the social aspect of resource management, that part dealing with people.

## THE LAW AND ITS APPLICATION

The authority for the management of South Carolina's underwater archaeological resources rests by state law with the Director of the South Carolina Institute of Archaeology and Anthropology of the University of South Carolina. The day-to-day management responsibilities, however, rest with the Institute's Underwater Archaeology Division. I mention resources rather than just shipwrecks because, although shipwrecks are a very visible, media-attractive, and attention-getting aspect of underwater archaeological resources, they are only one part of the whole and not the whole itself. Prehistoric man and his water-related activities deserve attention and investigation as well as the water-related activities of historic man. The management plan that covers one logically should also cover the other.

South Carolina, like many states in the nation with navigable rivers, harbors, ocean coastlines, or large lakes, faces the problem of how to properly manage underwater resources in a manner to achieve maximum acceptable protection of these resources with minimum cost to the state. It is easy to say that state governments have a responsibility to find the money for adequate management, but the realities of budget limitations often dictate otherwise. There are a number of ways to handle this problem. One is to deny its existence and let the free enterprise system take control, excavate a site for private gain, sell and scatter the unrecorded artifacts to parts unknown, and otherwise despoil an important segment of our history. The other end of the spectrum is to pass restrictive laws, authorize and fund a large law enforcement establishment, and then spend a great deal of time and money in law enforcement and defending the system in court. In South Carolina, we have chosen a middle course which affords reasonable protection to the resource, involves those affected by the law in its application, and is cost effective.

South Carolina is one of only 20 or so states that has a law pertaining to the management of its underwater archaeological resources. It is one of only four or five states with a program of underwater archaeological investigation and resource management, and it is the only state, to my knowledge, to have a program of resource management that has the general support of the sport diving community. The vehicle through which this is carried out is the "South Carolina Underwater Antiquities Act of 1982." The law, in its several versions, has been in effect since 1968. It was then called "Control of Certain Salvage Operations." The change

in title emphasis from "salvage" in 1968 to "antiquities" in 1982 reflects the growth and development of underwater archaeology in South Carolina during that 15-year period.

The law does several things; it establishes, assigns, authorizes, and provides, as follows:

1. It establishes title to the river bottoms and ocean bottom out to the three-mile limit and title to "all objects of archaeological and paleontological association which have remained unclaimed for more than 50 years."

2. It assigns responsibility for the management of this artifact and fossil resource to the Institute, although the curation of the fossils is the responsibility of the South Carolina Museum Commission.

3. It authorizes the Institute to conduct underwater archaeological projects and to license others to do the same if it is clearly "in the best interests of the state," said licensee to be guaranteed no less than 50% of the artifacts recovered, *in value or in kind*.

4. It provides for law enforcement, license revocation, and judicial recourse for the diver and for the state.

The law authorizes the issuance of three types of licenses: hobby licenses, search licenses, and salvage licenses. These licenses are not diving licenses, they are instead licenses authorizing a person to go onto state property, the river and ocean bottom, and to search for and recover state property, the fossils and artifacts. Each license is for a specific activity and has its own responsibilities and requirements.

First, the hobby license. This license is issued to a sport diver for "temporary, intermittent, noncommercial search and salvage operations of a recreational nature requiring minimal equipment, training, and experience." The license is statewide in authority except in the few restricted areas where search and salvage licenses may be in force or which the Institute may have placed off limits for its own research purposes. The hobby diver is required to report his licensed activities on a monthly basis detailing what was found, where, when, and by whom, on forms provided by the Institute. These reports are confidential, are not open to inspection by other hobby divers, and are the major source of site locations for the Statewide Archaeological Site Inventory.

The state has 60 days from receipt of the report to

exercise its option on a division of artifacts. If no division is made within 60 days, title goes to the licensed diver. The fee is \$5.00 per person or husband and wife, and \$25.00 for instructors for use in classes in which the recovery of artifacts or fossils is an integral part of the instruction. Fees for out-of-state applicants are double the in-state fees. The license is good for one year from date of issue. The hobby licensed diver may not use any powered mechanical lifting or excavating devices or remote sensing devices such as metal detectors under this license. This is a hands-only license. Offenses arising out of this license category are heard in a local magistrate's court with a maximum fine of \$200 or a jail sentence not to exceed 30 days.

A search license may be granted to an applicant for the purpose of conducting underwater search operations using electronic remote sensing systems, ranging systems, or other sophisticated methods of search. It is granted for a period of three months, for an area of one square mile in open bodies of water, or one linear mile in a river. The three-month time period and one square or linear mile area is called a search unit. Nine search units is the maximum that may be issued under this license to any one applicant. The fee for each search unit is \$25.00 for in-state residents and double that for out-of-state residents. Only the amount of artifacts needed for evaluation of the site may be removed under this license. A written report is required at a frequency specified in the license. A division of artifacts is always made, and the operation is monitored by Institute personnel. The same 60-day option for final ownership of artifacts as in the Hobby License is authorized. Offenses arising out of this license category are heard in circuit court and upon conviction are punishable by a fine not to exceed \$10,000 or imprisonment not to exceed two years.

A salvage license "may be granted to an applicant for the purpose of conducting a well-planned, continuing, underwater salvage operation with experienced personnel and adequate financial support." The salvage license is issued for a specific site and is granted for a period of time not to exceed one year. A fee of \$250 is charged, \$500 for out-of-state residents. Detailed reports of all activities covered under the license are required including a listing of all personnel and equipment used under the license. Powered lifting and excavating devices are permitted provided they are used in accordance with a plan of operation previously approved by the Institute. A written report is required at a frequency specified in the license. Work under this license is monitored by Institute personnel. Offenses in this license category are handled in the same way as for

a search license.

The law was written in specific terms where precise statements had to be made, but in less specific terms where discretionary powers might be desired. For example, the law guarantees to the licensee equity of not less than 50% of the artifacts, "in value or in kind." If it is decided by the Institute that an artifact or collection of artifacts recovered under a license should remain intact and in state hands, the licensee is compensated "in value" for his share. It is the responsibility of the Institute to find the funds to compensate the diver. The compensation figure is determined in the following manner. An appraiser representing the diver and an appraiser representing the state choose a third appraiser. The three set the value which is binding on both parties. This has not happened in the 16 years the law has been in effect, but the provision is there if the need arises.

In another example of discretionary powers the law, as mentioned above, guarantees to the licensee equity of not less than 50% but does not prohibit the Institute from granting more than 50% equity, which it often does. For example, the percentage equity printed on the hobby license form is stated as 75% for the diver and 25% for the state, and in fact the Institute has never made a division with a hobby diver of his finds. Because of this non-possessive attitude the Institute has never been denied the long-term loan of an artifact for study or display. In contrast with not requiring a division with a hobby diver, the Institute always requires a division with a search or salvage licensee and the salvor's equity in the license seldom exceeds 50%.

There are two crucial provisions in the law that give major discretionary powers to the Institute in the granting or denial of licenses. The first authorizes the granting of a license only "as the Institute may deem to be in the best interests of the state." The second provision states, "No license for the disturbance or removal of any submerged antiquities which, in the opinion of the Institute, are of primary scientific value shall be granted." Under South Carolina law, therefore, none of the many treasure salvors that have had salvage licenses in other states could operate in South Carolina because the Institute considers treasure vessels and all vessels sunk in the 18th century or before to be of primary scientific value. The decision of what constitutes primary scientific value is made by Institute archaeologists, not by politicians or special interest groups. Licenses for salvors desiring to work on vessels lost in the 19th and 20th centuries are handled on

a case-by-case basis. A recognized underwater archaeologist wishing to excavate a shipwreck of primary scientific value could not do so under the licensing system. He would instead be appointed an adjunct member of the Institute staff for the duration of the project. The Institute's facilities and equipment would be made available to him if needed.

In order for this law to be made into a workable tool for resource management it was necessary to make some hard decisions. It was decided that using the law as a club to bludgeon compliance would be immediately counterproductive and firmly establish an adversary relationship between the diver and the Institute. Aside from the fact that the Institute could not fund an adequate law enforcement effort it was believed that if we could open up a line of communication with the divers, present the case for conservation with conviction but not from a position of unassailable power, stressing long range benefits of an educational and scientific nature for the citizens of the state, the divers would respond in a positive manner. And such was the case, but it did not happen overnight.

I sought a close association with the divers and spent many hours in countless dive club meetings and with individuals discussing each other's special concerns. Their opinions were sought and listened to, ours were received and considered. We were open with each other and held nothing back, particularly when we had a controversial point to make or positions to defend. In other words we opened lines of communication, conducted ourselves with courtesy and respect, recognized each other's value and potential contribution, and eventually developed a trust that made mutual cooperation inevitable.

There are a number of qualities about South Carolina that have created a physical environment in which our program has been able to take root and grow. Probably most important, at least to date, is the complete absence of known or sought after treasure wrecks in state waters. For this we are thankful. South Carolina is a small state but has a relatively large number of rivers for its size. These fresh water rivers, where most of the diving takes place and most of the discoveries are made, are beneficial to our conservation efforts because they inhibit two major destructive forces to shipwrecks and artifacts, teredo worms and electrolysis. Organic and inorganic material from river sites tend to be in better condition than comparable material recovered from sea water. Most of the rivers are wide, some are quite deep and all except the Cooper River have a

high tannin or particulate matter content which limits visibility severely. The Cooper River alone in the state often has 15 feet visibility. Out to the three-mile limit in the ocean visibility is almost always very poor.

The general poor visibility phenomenon tends to quickly eliminate the dilettante divers, and those who persevere do so with a singleness of purpose. This personality type initially tends to oppose regulation, but upon learning how the law is applied and why, he usually becomes supportive. The small size of the state also works in our favor because it is possible for me to drive from the Institute in Columbia to the farthest part of the state to visit a site or meet with a diver in less than three hours, and to the center of diving activity around Charleston in only two hours.

### RESULTS

I do not want to imply that our management techniques have resulted in 100% compliance by the sport diving community, for that is not the case. A number of divers from both in and out of state ignore the law altogether, and take the chance that they will not encounter a law officer while diving. In that, they have not always been successful and arrests have been made. We are also aware that some divers do not list all of their recoveries or sites on the monthly report forms they send to the Institute. Some report to us only objects they have no interest in, or are not saleable, keeping the saleable objects for themselves. This has happened, and will undoubtedly continue to happen, but I believe at an increasingly lower rate as time progresses. Certain divers have tried to circumvent the Institute's licensing authority by working within the state political system or through other agencies such as museums, but in this they have not been successful. We have revoked licenses for cause and have had our revocation challenged in court. To date, however, all of our legal actions have been upheld or the challenges have been thrown out of court before reaching trial stage.

In contrast to the negative response mentioned above, the positive side of the program is encouraging. In 1976 a hobby diver discovered a shipwreck in the Black River in South Carolina at a site known as Brown's Ferry. He reported the discovery to the Institute and after a determination had been made that the vessel dated from around 1740 and was of primary significance to the study of early 18th century river craft, he voluntarily relinquished his equity in it and donated his share to the state. This would not have happened in an environment of confrontation. The vessel was raised by amateurs under professional di-

rection and examined in detail. J. Richard Steffy (personal communication) of the Institute of Nautical Archeology, probably the leading authority on ancient ship construction, said of the vessel,

*In my opinion, it is the most important single nautical discovery in the United States to date. In the first place, it establishes abundant primary evidence for American shipbuilding nearly 50 years earlier than previous discoveries. More importantly, this was a merchant hull, built without the anxiety, bureaucracy, and inefficiency often associated with vessels of war. As such, it defines everyday technology in a competitive atmosphere. Additionally, this was a local type important to any maritime scholar representing a period and area in which far too little maritime information has been forthcoming.*

Because of the cooperation of a single hobby diver in donating the vessel, I was able to raise \$300,000 for the construction of a conservation laboratory for the Brown's Ferry Vessel and other vessels yet to be recovered from South Carolina and other states. It is anticipated the laboratory will be in use well into the next century. This laboratory, resulting from an act of civic responsibility by a sport diver, should put to rest the often heard statement that all sport divers are despoilers and looters of our heritage.

Hobby divers have reported to the Institute the location in South Carolina rivers of at least six other sunken vessels of the 18th and early 19th centuries. These vessels may each be as significant to the study of the early maritime history of this nation as is the Brown's Ferry vessel. To our knowledge, and to their credit, not a single vessel has been disturbed by a hobby diver nor has a diver entered a claim for any of the vessels since they were reported to the Institute. The few artifacts that were removed from one wreck, prior to our involvement, are available for examination on request.

Hobby divers and others knowing of our interests, have reported to the Institute the location of over 20 dugout canoes, the majority of which were formed by fire and scraping, in the prehistoric manner. At our request the divers have not disturbed them since their discovery and have expressed their desire to us that the canoes eventually be raised for examination, conservation, and display in a state or county museum.

A number of years ago a hobby diver recovered an

intact example of a "Colono-Indian" jug from underwater. It was assumed that this plain, low fired, red earthenware jug had been made by Indians for sale to the colonists for use by slaves. However, an archaeologist from the Institute, examining the shape and impressed design found exact duplicates being made and sold in Africa in this century. He further found in examining our site files that "Colono-Indian" ware had never been recovered, at least in South Carolina, from an Indian site and had always been recovered from a slave-associated site. This has given a new direction for research on the interpretation of a type of ceramics found in relatively large numbers in the southeast. Many scholars have examined our ceramic collection in order to find parallels in their collections that might be Indian-made in name but slave-made in fact.

Operating with a diving staff of only two, we are dependent on the voluntary support of hobby divers. On occasions too numerous to mention we have called upon divers for free help on one- or two-day projects and have seldom been turned down. On two occasions a number of divers have given us, free of charge, their two weeks annual vacations for the privilege of working on a project under Institute supervision. We have more volunteers than we have time or opportunity to use.

At present there is only one salvage license in force for the excavation of a shipwreck. This license was issued to a sport diver from Florida who, while diving in South Carolina under a hobby license, discovered the remains of the Federal transport *U.S.S. Boston* lost in the Ashpoo River in 1864. The *Boston* had been hit by 75 to 80 cannon balls from a Confederate artillery battery. It had caught fire, burned to the water line, and sunk. After the war it was salvaged under a federal contract and undoubtedly picked over by generations of fishermen. The Institute did not consider this vessel to be of primary scientific value. The goal of the salvage operation was to recover the artifacts to sell, a concept anathema to archaeologists but reasonable to laymen. Because this site has both federal and state components, both entities were involved with the licensing process. Therefore a mutually agreeable understanding was reached by the three parties involved – federal, state and the private sector – with the Institute having overall management responsibilities. The salvor submitted a plan of operation which, after modification, was approved. He is conducting his operation in a scientific manner working within a five-foot grid system, recovering all objects, and carefully measuring major hull features. Artifacts are given a field cata-

logue number, recorded on Institute forms, and stored in separate containers at a nearby law enforcement complex. The required divisions are made, at appropriate times, to the proportions, 25% for the federal government, 25% for South Carolina, and 50% for the salvor. The licensee has conducted himself in a responsible manner, carried out Institute directions to the letter, and is a valuable asset to our program.

#### OTHER AMATEUR SUPPORT

Up to this point the only amateur I have mentioned has been the sport diver, who through the years, has played an active and vital role in all of our activities. There is another category of amateur who plays an equally vital but less visible role. This is a person, or firm, whose support is through the loan, or gift of supplies and equipment. The recovery of the Brown's Ferry vessel would not have been possible without this kind of help. For instance, a garden supply store owner loaned us a pump and hose, and later a second pump; a fire department loaned us a hose nozzle; from the Air Force we borrowed lifting straps; from the National Guard an air compressor; a shoe store operator supplied sprinklers to keep the artifacts wet; a hardware store donated heavy rope; prisoners from the county jail moved bricks recovered from the wreck; from a Sears automotive center we borrowed heavy duty batteries; from International Paper Company a 50 ton crane; and from a trucking company a 40 foot flatbed truck, all at no cost to the project! Engineers and welders from a nearby sawmill, on their own time, designed and built the large metal frame used to support the vessel, and the paper company union supplied the crew for the crane. This was by any definition a community project, supported by amateurs.

Another form of amateur support comes from an organization created a number of years ago called the South Carolina Underwater Archaeological Research Council. It is composed of an insurance agent with law enforcement, business, and political affiliations, a manufacturer and builder who worked on the Brown's Ferry project, a lawyer, and a publisher and media specialist who currently holds a hobby license. The purpose of the council is to promote underwater archaeology in the state and to assist the Institute in any of its activities relating to the underwater program. Over the years it has developed funding sources, but more importantly it has provided me an entree into the business and political structure of the state I would not otherwise have.

### CONCLUSION

The basic goal of the archaeologist is the acquisition of knowledge, not the collection of artifacts, although the two are inextricably entwined for a major part of the learning process. South Carolina's resource management program utilizing the amateur in active and supportive roles, as detailed above, has already yielded major new information for the general body of archaeological knowledge and has the potential to make new contributions well into the future. In order for a law to be effective it must be enforced, or must engender voluntary compliance. Although enforcement is occasionally necessary, it is always time-consuming, expensive, must be continually carried out, and firmly establishes an adversary relationship as the norm. Voluntary compliance on the other hand, a product of education, understanding, and compromise, is less expensive, self-motivating, and establishes cooperation as the norm. In South Carolina we have chosen the latter.



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