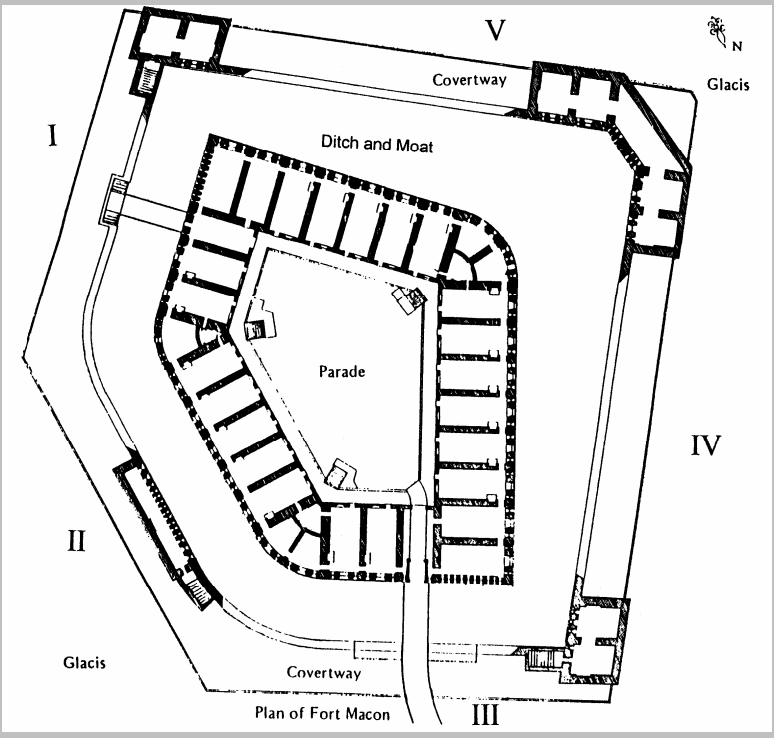
North Carolina Archaeology



Plan of Fort Macon

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North Carolina Archaeology

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AN ARCHAEOLOGICAL STUDY OF LATE WOODLAND FAUNA IN THE ROANOKE RIVER BASIN

by
Amber M. VanDerwarker

Abstract

Between 1999 and 2001, personnel from the Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill studied archaeological specimens in their collections to determine the pre-Columbian distribution and abundance of fish and other animals in the Roanoke River basin in North Carolina and Virginia. Approximately 84,000 faunal specimens from seven excavated sites—Gaston, Vir 150, Stockton, Gravely, Dallas Hylton, Koehler, and Leatherwood Creek—dating to the Late Woodland period (A.D. 800–1600) were studied. Data from two additional sites (i.e., Jordan's Landing and Lower Saratown), representing almost 50,000 analyzed specimens, were also considered.

The purpose of the study was to provide information that could be used by the U.S. Fish and Wildlife Service to develop: (1) fishery management plans for the basin and in other areas; (2) administrative records for use in regulatory proceedings; (3) restoration plans for threatened and endangered species (either currently listed or future) according to the Endangered Species Act of 1973; and (4) management plans for federal lands and for federal involvement in managing the human environment.

Significant findings of the study include: (1) the recognition of a disparity in Late Woodland vertebrate subsistence practices between sites located along Roanoke River and those located along its tributaries which may be tied to differences in local catchment zones; (2) the identification of sturgeon[1] at both Vir 150 and the Gaston site, indicating that this fish swam further upriver to spawn in prehistoric times than is possible today; and (3) evidence that the native ranges of largemouth bass, channel catfish, and walleye may have extended into Roanoke River.

Zooarchaeology has much to offer biogeographical studies concerning the prehistoric distribution of fauna across the landscape. Modern environmental management requires an understanding of both past and present distributions of plant and animal communities, and zooarchaeology is pivotal to achieving this understanding. In addition to documenting the presence and relative abundance of prehistoric fauna, zooarchaeology informs us regarding changing human-animal relationships. The impact that humans had on their environment in the past undoubtedly played an integral role in shaping the composition of the modern natural world.

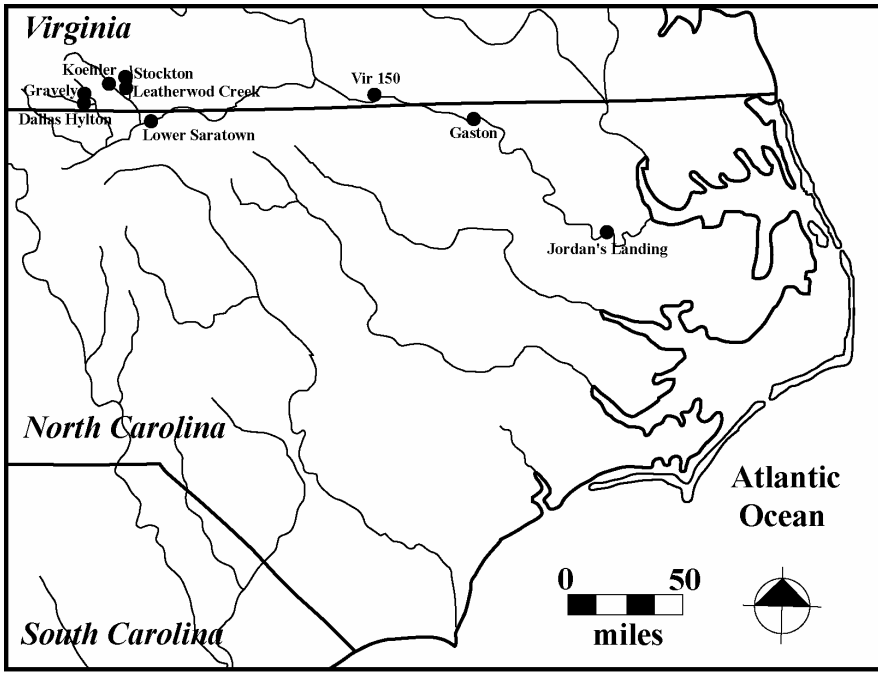

Figure 1. Map locating the archaeological sites considered in the study.

This study provides the basis for a consideration of these issues by presenting zooarchaeological data from seven Late Woodland (A.D. 800–1600) sites: Gaston, Vir 150, Stockton, Gravely, Dallas Hylton, Koehler, and Leatherwood Creek. These sites are located in the Piedmont of Virginia and North Carolina along Roanoke River and its tributaries (Figure 1 and Table 1). During the fall of 1999, the Research Laboratories of Archaeology at the University of North Carolina at Chapel Hill undertook an ambitious project initiated by the U.S. Fish and Wildlife Service to document the prehistoric distribution and abundance of faunal communities in the Roanoke River basin. This report represents the culmination of those efforts.

The primary aims of this study are to present the data collected as part of this project and consider spatial differences in Late Woodland subsistence in the Piedmont, and to address biogeographical issues concerning the prehistoric distribution of fauna, particularly fish, in the Roanoke River basin. I begin with an overview of the project goals as conceived by the U.S. Fish and Wildlife Service. This is followed by a consideration of local environmental setting, as well as a description of the

Table 1. Dates of Occupation and Recovery for the Study Sites.

Site	Dates of Occupation	Type of Recovery	Mesh Size (inches)
Gaston	1000 B.C. –A.D.1600	screened	3/8
Vir 150	A.D. 1000–1400	screened	3/8
Stockton	A.D. 1000–1450	hand recovery	
Gravely - UNC excavations	A.D. 1250–1450	screened	1/16
Dallas Hylton	A.D. 1250–1450	hand recovery	
Koehler - Gravely excavations	A.D. 1250–1450	hand recovery	
Koehler – Clark excavations	A.D. 1250–1450	screened	1/16?
Leatherwood Creek	A.D. 1250–1450	hand recover	

study sites. After a detailed discussion of the zooarchaeological methods employed throughout identification and analysis, the faunal data are presented and compared with data from the Jordan's Landing and Lower Saratown sites.

Project Goals

The U.S. Fish and Wildlife Service enlisted the Research Laboratories of Archaeology (RLA) in the spring of 1999 to initiate an analysis of extant collections of faunal and botanical materials excavated and stored by the RLA. Specifically, they were interested in describing the distribution of pre-Columbian flora and fauna in the Roanoke River valley to inform policy regarding fishery management plans, recovery plans for threatened and endangered species, federal land management plans, and dam re-licensing. Thus far, only analyses of faunal remains have been funded, but it is the intention of both organizations to expand analysis to archaeobotanical collections from this river basin in the future.

One of the primary concerns of the U.S. Fish and Wildlife Service regards the present abundance and distribution of Atlantic and shortnose sturgeons in the coastal waters of Virginia and North Carolina. Shortnose sturgeon is currently classified as endangered, and recent U.S. Fish and Wildlife Service efforts have focused on determining whether this species is still present in Roanoke River. In order to spawn, sturgeon leave the coastal waters and swim inland. It is probable that, prior to massive dam construction in the 1950s and 1960s, sturgeon swam much further upriver than is possible today. We suspect that these dams have severely impacted the natural breeding habitats of the Atlantic and shortnose sturgeons.

Analyzing prehistoric faunal materials from the Roanoke and other river basins in the region is one way to test this hypothesis. If indeed sturgeon remains are identified in prehistoric contexts upriver from present-day dams, then the U.S. Fish and Wildlife Service will have a more solid basis for requiring mitigation of these man-made constructions on the federally-listed shortnose and imperiled Atlantic sturgeons. For example, fishways or other means of upstream travel may ultimately be used to restore access to historic spawning habitat.

Environmental Setting[2]

All of the sites included in this analysis are located along Roanoke River or its tributaries in the Piedmont of North Carolina and Virginia. The Piedmont is bordered to the east by the coastal plain and to the west by the Blue Ridge Mountains, and is best characterized by rolling hills and low ridges. The vegetation consists primarily of oak-hickory forests, although pine species also were present. The climate of the region is considered humid subtropical, with hot, humid summers and short, mild winters. Annual average rainfall is 40–50 inches, and is heaviest in mid-summer and lightest during the fall. During the period from 1430–1850, a period characterized as the "Little Ice Age" altered the climate of the region, resulting in harsher winters and fewer frost-free days (Lamb 1963; Rountree 1989). These conditions would have resulted in a shorter growing season (Rountree 1989). The latter occupations at several of the sites discussed here may have overlapped slightly with the beginning of this phenomenon.

Site Descriptions

The Gaston Site (31Hx7)

The Gaston site now lies beneath Roanoke Rapids Lake in Halifax County, North Carolina. This site was excavated in 1955 by Stanley South and Lewis Binford of the RLA as part of a brief project designed to survey and salvage archaeological sites threatened by the construction of Roanoke Rapids Reservoir. Due to time constraints, the plow zone was stripped with road graders in order to expose subsurface archaeological features. Features identified at Gaston include houses, pits, 14 human burials, and several dog burials.

As part of his Master's thesis at the University of North Carolina, Stanley South conducted a seriation of the Gaston site ceramics to

establish site chronology. South recognized three consecutive occupations: the Vincent phase (1000 B.C.–A.D. 300), the Clements phase (A.D. 300–1000), and the Gaston phase (A.D. 1000–1600) (Coe 1964; South 1959). Many of the features with faunal remains, however, did not yield ceramic materials and were not included in this seriation. Because a large portion of the Gaston site faunal assemblage could not be assigned to phase, I consider faunal distributions by site only.

All contexts from the Gaston site were dry-screened through 3/8-inch mesh. These recovery methods, while ensuring the systematic recovery of larger animals and larger elements, undoubtedly biased the assemblage against the recovery of smaller animals, including fish. For the purposes of the analysis reported here, the faunal remains from all excavated contexts are considered.

Vir 150 (44Mc645)

Vir 150 is located in Mecklenburg County, Virginia, and lies beneath Lake Gaston. This site was excavated in 1962 by Ed Dolan and Bennie Keel of the RLA as part of a survey of Virginia Power and Light Company's proposed Gaston Reservoir. Numerous archaeological features were exposed, including structures, pits, 29 human burials, and one dog burial. Due to a lack of funding and resources, the collections from this site have never been analyzed and, thus, a site chronology has not been established. Despite this need for a firm chronology, a cursory examination of the ceramic materials suggests an occupation span of approximately A.D. 1000–1400. As with the Gaston site, all excavated soil was dry-screened through 3/8-inch mesh, which is too large to ensure the recovery of small animal bones, including small mammals and fish. Faunal remains from all contexts were analyzed and are reported here.

The Stockton Site (44Hr35)

The Stockton site is located is located in eastern Henry County, Virginia, near the headwaters of Leatherwood Creek, a tributary of Smith River. The site was excavated in 1969 and 1970 by Richard P. Gravely, Jr. and members of the Patrick-Henry Chapter of the Archeological Society of Virginia. The plow zone was removed by hand excavation in 5-ft by 5-ft blocks to expose subsurface features. The excavations at the Stockton site documented numerous archaeological features, including structures, pits, and at least 25 human burials. Chipped-stone projectile points from the Stockton site indicate two minor early occupations: an Archaic occupation

(ca. 7,000–1,000 B.C.) and a Middle Woodland occupation (A.D. 1–1000). Radiocarbon dates indicate that the site was also occupied twice during the Dan River phase (A.D. 1000–1450), and that most of the features date to the latter occupation during the fourteenth century. Most artifact classes (i.e., clay, stone, bone, and shell artifacts, in addition to pottery) have been analyzed and are reported in Davis et al. (1997a).

Recovery methods employed during the excavations at the Stockton site were limited to hand recovery of artifacts and ecofacts. That is, no screening or flotation techniques were used. Generally, artifacts and ecofacts were only collected from feature contexts, resulting in minimal recovery of materials from plowed soil. Thus, the recovered samples are systematically biased toward feature contexts as well as larger, more complete artifacts and ecofacts. Because of this, we can expect that bones from smaller animals and smaller elements will be underrepresented in these samples. For the purposes of the zooarchaeological analysis reported here, only faunal remains from feature contexts were analyzed.

The Gravely Site (44Hr29)

The Gravely site is located along North Mayo River in Henry County, Virginia. The site dates to the late Dan River phase (ca. A.D. 1250–1450), represents a late prehistoric village occupation, and has been the subject of two excavations. Both excavations, as well as the artifact analyses, are reported in detail in Davis et al. (1997b). Richard Gravely of the Archeological Society of Virginia conducted the first excavation in 1969. Gravely established a grid of 5-ft by 5-ft squares in the northern portion of the site and excavated a total of 64 such units. Several features were encountered in the western portion of the excavated area and were mapped in plan. Postholes, however, were not identified or mapped during excavations. Most of the features that were identified were classified as trash pits (designated as TPs). No screening or flotation was conducted during the first excavation, and the resulting faunal samples are therefore biased toward larger animals and elements.

The second excavation was conducted by the University of North Carolina's archaeological field school in 1991. The field school was directed by H. Trawick Ward, R. P. Stephen Davis, Jr., and Timothy P. Mooney of the UNC Research Laboratories of Archaeology. The field school excavated 2,800 sq ft of the site, uncovering 23 additional features. Eighteen of these features were excavated. All plowed soil was screened through 1/2-inch mesh. Flotation samples were taken from each zone of each feature, and the remaining feature fill was water-screened through a

series of 1/2-inch, 1/4-inch, and 1/16-inch mesh screens. Thus, the recovery of faunal remains from this second excavation was quite thorough, likely resulting in the representation of small species. For the purposes of the analysis reported here, only faunal remains from the UNC excavations are considered.

The Dallas Hylton Site (44Hr20)

The Dallas Hylton site is located along South Mayo River in Henry County, Virginia, less than a mile from the Virginia–North Carolina border. As with the Gravely site, the Dallas Hylton site represents a late prehistoric village dating to the late Dan River phase (ca. A.D. 1250–1450). The site was also excavated twice, in 1968 and 1973, by Richard Gravely of the Archeological Society of Virginia. The first excavation was limited, but the second excavation uncovered nearly 200 archaeological features, including pits and hearths. At least 128 of these features were mapped and excavated. According to Davis et al. (1998:1), "the distribution of features suggests a village configuration, common during late prehistory in Piedmont Virginia and North Carolina, consisting of a central plaza surrounded by a ring of houses." The Dallas Hylton excavations and artifactual analyses are reported in detail in Davis et al. (1998).

Recovery methods employed during the excavations at the Dallas Hylton site were limited to hand recovery of both artifacts and ecofacts. No screening or flotation was conducted during either excavation, thus resulting in faunal samples biased against smaller animals and elements. Only faunal remains from features or trash pits were analyzed.

The Koehler Site (44Hr6)

The Koehler site is located along Smith River, six miles west of Martinsville, Virginia. The site also dates to the late Dan River phase (ca. A.D. 1250–1450) and has been the subject of two excavations. The details of the excavations and artifact analyses for both excavations are reported in Coleman and Gravely (1992). The first excavation was conducted by Richard Gravely and members of the Archeological Society of Virginia in 1968 and was concentrated in the northwest section of the site. Thirty-one 5-ft by 5-ft squares were excavated and several types of archaeological features were uncovered, including refuse pits, storage pits, hearths, and two human burials. No screening or flotation was conducted during the

first excavation, likely resulting in a faunal sample biased against smaller species.

The second excavation was conducted in 1976 and directed by Wayne Clark, assistant archaeologist for the Virginia State Library. The project was primarily a salvage operation, as the site was in the path of a proposed sewage treatment facility. Due to time constraints, a road grader was employed to remove the topsoil and expose subsurface features. Once uncovered, all features were mapped and excavated. Features identified at the site include refuse pits, food preparation hearths, hearths, post molds, and eight human burials. All feature fill was dry screened, and most also was water-screened through fine mesh screens.[3] Thus, smaller species and elements are expected to be better represented in the second versus the first excavation of the Koehler site. Preliminary analyses of the faunal remains were conducted by Coleman and his laboratory assistants, and the results are reported in Coleman and Gravely (1992). A more thorough analysis of the faunal remains from the second excavation, in addition to an analysis of the faunal remains from the first excavation, was conducted by the author. For the purposes of this report, only fauna from features and trash pits (designated as TPs) were analyzed.

The Leatherwood Creek Site (44Hr1)

The Leatherwood Creek site is located adjacent to Leatherwood Creek, a tributary of Smith River, in eastern Henry County, Virginia. The site was occupied twice during the late Dan River phase (ca. A.D. 1250–1450) and was excavated by Richard Gravely and members of the Archeological Society of Virginia in 1968 and 1969. A site grid of 5-ft by 5-ft squares was established, and excavations uncovered seven structures, 16 pit features, and nine human burials. No screening or flotation was conducted at the site, biasing the recovered faunal assemblage against the remains of small animals or elements. Only faunal remains from features and structures were analyzed.

Analytical Procedures

Primary Data Collection

Most of the primary data collection was conducted by Amber VanDerwarker between fall 1999 and spring 2001. During fall 1999 and spring 2000, Amanda Tickner assisted with basic counts and weights and

entered data. Celeste Gagnon assisted in the collection of primary data during fall 2000 and identified the turtle remains.

Primary data collection includes the observations recorded by the analyst when working with the faunal specimens. For the purposes of this project, these data include the recording of provenience (i.e., site designation, specimen catalog number, and feature or trash pit number), animal class, genus and species, element, percentage and portion of the element represented, number of specimens, side of element (when applicable), observations regarding age of the animal, bone modification (whether natural or cultural), weight in grams, and recovery method.

Each specimen was first assigned to the appropriate animal class whenever possible (e.g., mammal, bird, etc.). When the specific taxon of the animal could not be determined, the analyst attempted to assign the specimen to a size class (e.g., small, medium, or large mammal). The anatomical element was recorded when identified. When the element could not be identified, it was placed either in an Unidentified or Unidentifiable category. Unidentified refers to specimens that are likely identifiable, but that the analyst was unable to identify.[4] Unidentifiable refers to specimens too small or too fragmented to exhibit distinguishing characteristics. Data collected regarding age included information on cranial fusion, long bone fusion, and tooth eruption, in addition to qualitative observations regarding bone porosity. Observations made with respect to bone modification included the presence or absence of burning and calcination, tool modification, discoloration not associated with burning, cut marks, and carnivore and rodent gnawing. Specimens were not systematically examined for evidence of butchering and gnawing, due to time constraints and the nature of the project goals. Observations of butchering/gnawing were made without the use of magnification and were recorded as presence/absence data.

Specimens that could not be identified with reference to the comparative collections at the UNC Research Laboratories of Archaeology were taken to the Zooarchaeology Collection at the University of Georgia Natural History Museum for comparison. Some of the fish specimens, including the remains of sturgeon, channel catfish, largemouth bass, and walleye, were also sent to Dr. Thomas Whyte at Appalachian State University for a second opinion.

Quantitative Measures

Throughout this analysis, I employ standard zooarchaeological measures to estimate the relative abundance of different taxa in each

assemblage. The most basic statistic in zooarchaeology is the Number of Identified Specimens (NISP). NISP is the count of identified specimens per taxon (Grayson 1984). For example, if the analyst identifies 71 bones or fragments of bones representing white-tailed deer (*Odocoileus virginianus*), then the NISP for deer equals 71. NISP can be quantified at different scales as well—there can be an NISP for deer, mammals, by feature, or by site.

While NISP is relatively easy to calculate, there are disadvantages to using it to estimate the relative abundance of different taxa in an assemblage. Different taxa vary in the number of elements that compose their skeletons, and NISP is unable to control for this (Grayson 1984). Another problem with NISP is that is does not account for differential preservation or bone fragmentation (Grayson 1984; Klein and Cruz-Uribe 1984). Clearly, the bones of one white-tailed deer have more surface area than those of one fox squirrel (*Sciurus niger*) and are thus more likely to fragment into more pieces, significantly inflating the NISP of the deer relative to the squirrel. Thus, NISP may over-estimate the contribution of larger animals relative to smaller animals.

To adjust for the problems of NISP in estimating the relative contribution of different animals in the diet, zooarchaeologists have developed alternative measures that are often used in addition to NISP. Perhaps the most widely used is the Minimum Number of Individuals (MNI). The Minimum Number of Individuals is a secondary measure based in part on NISP. As such, MNI is estimated for each animal by calculating the occurrence of the most abundant element of the animal, while accounting for the side of the element, portion represented, and relevant age information (Grayson 1984). For example, if the most abundant element of a white-tailed deer is the proximal end of a femur (n=12), and 8 derive from the right side of the animal and 4 from the left side, then the Minimum Number of deer would be 8.

MNI has several advantages over NISP, the primary one being that it provides units that are independent of each other (Grayson 1973). While NISP does not account for the fact that different taxa are composed of varying numbers of skeletal elements, MNI is totally unaffected by this problem. Moreover, MNI is much less affected by the problems of fragmentation and preservation than NISP.

As with NISP, however, there are also disadvantages to using MNI, including the inflation of rarer species in the assemblage and the problem of aggregation (Grayson 1984; Holm 1994). NISP and MNI can best be understood as separate ends of a spectrum in which NISP represents the *maximum* number of individuals identified in an assemblage. As such,

NISP overestimates the importance of larger, more common taxa. At the other end of the spectrum, MNI (through setting a minimum) has the opposite effect and overestimates *rarer* species. Moreover, MNI calculations can vary based on how the analyst aggregates the data. There are many ways that the data can be grouped and MNI values calculated—by site, feature, feature type, stratigraphic level, etc. For the purposes of this analysis, I calculate MNI by site, and when applicable, by excavation.[5]

Results

The Gaston Site (31Hx7)

The faunal assemblage from the Gaston site consists of 13,845 bone fragments representing a minimum of 108 individuals (Table 2). Mammals contributed 78.7% of the total NISP, and white-tailed deer (*Odocoileus virginianus*) was by far the most abundantly represented mammal, contributing 13.6% of the NISP and 31.6% of the MNI.

Various other mammalian taxa were identified in the Gaston site assemblage, including opossum (*Didelphis virginianus*), rabbit (*Sylvilagus* sp.), squirrel (*Sciurus* sp.), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), domestic dog (*Canis familiaris*), gray fox (*Urocyon cinereoargentus*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). Aside from deer, domestic dog was the only other mammal that contributed significantly to the assemblage. Most of the dog remains, however, derive from burial contexts and thus did not contribute significantly to the diet of the site's residents. No commensal mammals (mice and voles, for example) were identified, likely a result of recovery.

Birds make up only 6.4% of the Gaston assemblage by NISP and are represented by nine individuals and three taxa. Wild turkey (*Meleagris gallopavo*) was by far the most well-represented, contributing eight of the individuals. Other birds identified in the assemblage include Canada goose (*Branta canadensis*) and two specimens from the duck family (Anatidae).

Reptiles contributed 10.7% of the total NISP and are represented by six taxa. Box turtle (*Terrapene carolina*) is the most well-represented, accounting for 2.4% of the NISP. Other turtles include snapping turtle (*Chelydra serpentina*), mud turtle (*Kinosternon* sp.), painted turtle/pondslider (*Chrysemys* sp.), map turtle (*Graptemys* sp.), and cooter (*Pseudemys* sp.). Six fragments from an unidentified snake were also identified, although given the burrowing nature of some snakes, it is

Table 2. Summary of Faunal Remains from the Gaston Site (31Hx7).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
opossum	*Didelphis virginianus*	24	0.2	2	1.7
rabbit	*Sylvilagus* sp.	11	0.1	3	2.6
squirrel	*Scurius* sp.	17	0.1	2	1.7
beaver	*Castor canadensis*	55	0.4	2	1.7
muskrat	*Ondatra zibethicus*	27	0.2	3	2.6
domestic dog	*Canis familiaris*	1,229	8.9	9	7.7
gray fox	*Urocyon cinereoargentus*	2	0.0	1	0.9
black bear	*Ursus americanus*	6	0.0	1	0.9
raccoon	*Procyon lotor*	121	0.9	4	3.4
white-tailed deer	*Odocoileus virginianus*	1,887	13.6	37	31.6
striped skunk	*Mephitis mephitis*	2	0.0		
unidentified mammal		7,526	54.3		
Birds					
ducks	Anatidae	2	0.0		
Canada goose	*Branta canadensis*	1	0.0	1	0.9
turkey	*Meleagris gallopavo*	152	1.1	8	6.8
unidentified bird		736	5.3		
Reptiles					
snapping turtle	*Chelydra serpentina*	40	0.3	1	0.9
mud turtle	*Kinosternon* sp.	6	0.0	1	0.9
painted/slider	*Chrysemys* sp.	76	0.5	1	0.9
map turtle	*Graptemys* sp.	2	0.0	1	0.9
cooter	*Pseudemys* sp.	4	0.0	1	0.9
box turtle	*Terrapene carolina*	331	2.4	4	3.4
unidentified turtle		1,011	7.3		
unidentified snake		6	0.0		
Amphibians					
toad/frog		1	0.0		
Fish					
sturgeon	*Acipenser* sp.	63	0.5	1	0.9
gar	*Lepisosteus* sp.	59	0.4	1	0.9
bowfin	*Amia calva*	10	0.1		
sturgeon/bowfin		1	0.0		
minnows	Cyprinidae	3	0.0		
suckers	Catostomidae	2	0.0		
sucker	*Catostomus* sp.	2	0.0	2	1.7

Table 2 continued.

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
redhorse	*Moxostoma* sp.	36	0.3	5	4.3
catfish	Ictaluridae	3	0.0		
bullhead	*Ameiurus* sp.	1	0.0	1	0.9
channel catfish	*Ictalurus punctatus*	3	0.0	2	1.7
bass, sunfish	Centrarchidae	46	0.3		
Roanoke bass	*Ambloplites cavifrons*	4	0.0	1	0.9
largemouth bass	*Micropterus salmoides*	10	0.1	9	7.7
bass	Percichthyidae	3	0.0		
striped bass	*Morone saxatilis*	1	0.0	1	0.9
temperate bass	*Morone* sp.	5	0.0	2	1.7
walleye	*Stizostedion vitreum*	2	0.0	1	0.9
unidentified fish		248	1.8		
Unidentified		68	0.5		
Total		13,845		108	

unlikely that these specimens represent refuse from food-related activities. Amphibians make up less than 1% of the NISP and are represented by a single toad/frog (*Bufo* sp./*Rana* sp.) specimen.

Fish identified in the Gaston site assemblage include sturgeon (*Acipenser* sp.), gar (*Lepisosteus* sp.), bowfin (*Amia calva*), minnows (Cyprinidae), suckers (Catostomidae), catfish (Ictaluridae), bass/sunfish (Centrarchidae), bass (Percichthyidae), and walleye (*Stizostedion vitreum*), making up 3.6% of the NISP and yielding a total of 26 individuals. Suckers include two genera (*Catostomus* sp., *Moxostoma* sp.), and catfish are represented by bullhead (*Ameiurus* sp.) and channel catfish (*Ictalurus punctatus*). Centrarchidae is represented by Roanoke bass (*Ambloplites cavifrons*) and largemouth bass (*Micropterus salmoides*), and Percichthydae includes striped bass (*Morone saxitilis*) and temperate bass (*Morone* sp.).

To get a better idea of the animals that were most heavily exploited by the residents of the Gaston site, the top five species were ranked in order of importance by both NISP and MNI (Table 3). In terms of MNI, when more than one taxon yielded the same number of individuals, those taxa were assigned to the same rank—thus the top five ranks based on MNI might include more than five taxa. In addition, bold-face type is used

Table 3. Top Five Ranked Taxa from the Gaston Site.

Rank	NISP	MNI
1	white-tailed deer	white-tailed deer
2	wild turkey	muskrat
3	box turtle	wild turkey
4	muskrat	**squirrel**
5	raccoon	raccoon, box turtle

to highlight non-overlapping taxa between the two measures of rank-order abundance. Although the rank *order* of the top five taxa for the Gaston site varies depending on NISP or MNI, the same taxa (with the addition of squirrel when rank is determined based on MNI) ranked in the top five for both NISP and MNI. These taxa include white-tailed deer, wild turkey, box turtle, muskrat, and raccoon.

Vir 150 (44Mc645)

The faunal assemblage from Vir 150 consists of 47,878 bone fragments representing 239 individuals (Table 4). Mammals contributed 87.6% of the total NISP. White-tailed deer (*Odocoileus virginianus*) was the most well-represented species, contributing 14.6% of the NISP and 38.2% of the MNI. Other mammalian taxa identified at the Gaston site include opossum (*Didelphis virginianus*), rabbit (*Sylvilagus* sp.), woodchuck (*Marmota monax*), squirrel (*Sciurus* sp.), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), domestic dog (*Canis familiaris*), gray fox (*Urocyon cinereoargentus*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). The only commensal mammal recovered was white-footed mouse (*Peromyscus leucopus*) which was represented by two specimens.

Birds make up only 3% of the NISP from the Vir 150 site assemblage and are represented by 24 individuals and three taxa. As at the Gaston site, wild turkey (*Meleagris gallopavo*) was most numerous, contributing 23 of the individuals. Other birds identified in the assemblage include Canada goose (*Branta canadensis*) and six specimens from the duck family (Anatidae).

Reptiles contributed 8.3% of the total NISP and are represented by eight taxa. Box turtle (*Terrapene carolina*) is most numerous, followed by painted turtle/pondslider (*Chrysemys* sp.), painted turtle (*Chrysemys picta*), snapping turtle (*Chelydra serpentina*), mud turtle (*Kinosternon* sp.),

Table 4. Summary of Faunal Remains from Vir 150 (44Mc645).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
opossum	*Didelphis virginianus*	118	0.2	9	3.6
rabbit	*Sylvilagus* sp.	50	0.1	6	2.4
woodchuck	*Marmota monax*	19	0.0	3	1.2
squirrel	*Scurius* sp.	138	0.3	12	4.8
beaver	*Castor canadensis*	57	0.1	3	1.2
white-footed mouse	*Peromyscus leucopus*	2	0.0	2	0.8
muskrat	*Ondatra zibethicus*	313	0.7	24	9.6
domestic dog	*Canis familiaris*	132	0.3	5	2.0
gray fox	*Urocyon cinereoargentus*	1	0.0	1	0.4
black bear	*Ursus americanus*	5	0.0	1	0.4
raccoon	*Procyon lotor*	172	0.4	10	4.0
white-tailed deer	*Odocoileus virginianus*	6,983	14.6	96	38.2
striped skunk	*Mephitis mephitis*	26	0.1	9	3.6
unidentified mammal		34,000	70.9		
Birds					
unidentifed duck	Anatidae	6	0.0		
Canada goose	*Branta canadensis*	4	0.0	1	0.4
turkey	*Meleagris gallopavo*	515	1.1	23	9.2
unidentified bird		935	1.9		
Reptiles					
snapping turtle	*Chelydra serpentina*	59	0.1	2	0.8
mud turtle	*Kinosternon* sp.	30	0.1	3	1.2
painted turtle	*Chrysemys picta*	81	0.2	1	0.4
pondslider	*Chrysemys scripta*	19	0.0	1	0.4
painted/slider	*Chrysemys* sp.	169	0.4		
map turtle	*Graptemys* sp.	6	0.0	1	0.4
cooter	*Pseudemys* sp.	6	0.0	2	0.8
box turtle	*Terrapene carolina*	459	1.0	2	0.8
unidentified turtle		3,154	6.6		
Amphibians					
toad	*Bufo* sp.	3	0.0	1	0.4
toad/frog		3	0.0		
Fish					
sturgeon	*Acipenser* sp.	5	0.0	1	0.4
gar	*Lepisosteus* sp.	18	0.0	5	2.0
bowfin	*Amia calva*	15	0.0	2	0.8

Table 4 continued.

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
minnows	Cyprinidae	23	0.0		
suckers	Catostomidae	5	0.0		
sucker	*Catostomus* sp.	1	0.0	1	0.4
silver redhorse	*Moxostoma anisurum*	1	0.0	1	0.4
redhorse	*Moxostoma* sp.	18	0.0	4	1.6
catfish	Ictaluridae	7	0.0		
bullhead	*Ameiurus* sp.	1	0.0	1	0.4
channel catfish	*Ictalurus punctatus*	12	0.0	2	0.8
bass, sunfish	Centrarchidae	72	0.2		
Roanoke bass	*Ambloplites cavifrons*	3	0.0	1	0.4
largemouth bass	*Micropterus salmoides*	4	0.0	1	0.4
bass	Percichthyidae	2	0.0		
striped bass	*Morone saxatilis*	2	0.0	1	0.4
temperate bass	*Morone* sp.	5	0.0	1	0.4
unidentified fish		181	0.4		
Unidentified		38	0.1		
Total		47,878		239	

pondslider (*Chrysemys scripta*), map turtle (*Graptemys* sp.), and cooter (*Pseudemys* sp.). Amphibians make up less than 1% of the NISP and are represent by toad (*Bufo* sp.) and toad/frog (*Bufo* sp./*Rana* sp.) specimens.

A similar set of fish were identified at Vir 150 as at the Gaston site, including sturgeon (*Acipenser* sp.), gar (*Lepisosteus* sp.), bowfin (*Amia calva*), minnows (Cyprinidae), suckers (Catostomidae), catfish (Ictaluridae), bass/sunfish (Centrarchidae), and bass (Percichthyidae). Fish make up 0.8% of the NISP, representing 21 individuals. Suckers include two genera (*Catostomus* sp., *Moxostoma sp*.) in addition to silver redhorse (*Moxostoma anisurum*). Catfish are represented by bullhead (*Ameiurus* sp.) and channel catfish (*Ictalurus punctatus*), and sunfish include Roanoke bass (*Ambloplites cavifrons*) and largemouth bass (*Micropterus salmoides*). Bass from the Percichthyidae family include striped bass (*Morone saxitilis*) and temperate bass (*Morone* sp.).

Four taxa from Vir 150 consistently ranked in the top five taxa for NISP and MNI—white-tailed deer, wild turkey, muskrat, and raccoon (Table 5). Box turtle ranked third based on NISP, but did not place in the

Table 5. Top Five Ranked Taxa from Vir 150.

Rank	NISP	MNI
1	white-tailed deer	white-tailed deer
2	wild turkey	muskrat
3	**box turtle**	wild turkey
4	muskrat	**squirrel**
5	raccoon	raccoon

top five MNI. Squirrel, which did not rank highly based on its NISP value, was the fourth most abundant taxa based on MNI.

The Stockton Site (44Hr35)

The faunal assemblage from the Stockton site consists of 4,029 bone fragments representing 76 individuals (Table 6). Mammals contributed 61.6% of the total NISP. White-tailed deer (*Odocoileus virginianus*) was by far the most well-represented mammal, contributing 19% of the NISP and 19.7% of the MNI. Other mammalian taxa identified in the Stockton site assemblage include opossum (*Didelphis virginianus*), rabbit (*Sylvilagus* sp.), woodchuck (*Marmota monax*), chipmunk (*Tamias striatus*), squirrel (*Sciurus* sp.), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), domestic dog (*Canis familiaris*), gray fox (*Urocyon cinereoargentus*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). No commensal mammals were identified, likely a result of recovery methods.

Birds represent 14.6% of the Gaston assemblage by NISP and are represented by 30 individuals and eight species. Passenger pigeon (*Ectopistes migratorius*) is the most numerous, yielding 20 individuals and accounting for 6.1% of the total NISP. Wild turkey (*Meleagris gallopavo*) was also identified, contributing four of the individuals. Other birds identified in the assemblage include hawk (*Buteo* sp.), ruffed grouse (*Bonasa umbellus*), bobwhite quail (*Colinus virginianus*), common crow (*Corvus brachyrhynchos*), flicker (*Colaptes* sp.), and blue jay (*Cyanocitta cristata*).

Reptiles contributed 14.7% of the total NISP and are represented by five taxa. Box turtle (*Terrapene carolina*) is by far the most numerous, accounting for 8.3% of the total NISP. Other turtles include snapping turtle (*Chelydra serpentina*), mud turtle (*Kinosternon* sp.), painted turtle/pondslider (*Chrysemys* sp.), and cooter (*Pseudemys* sp.). Three

Table 6. Summary of Faunal Remains from the Stockton site (44Hr35).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
opossum	*Didelphis virginianus*	6	0.1	1	1.3
rabbit	*Sylvilagus* sp.	14	0.3	2	2.6
rodents	Rodentia	1	0.0		
woodchuck	*Marmota monax*	7	0.2	1	1.3
chipmunk	*Tamias striatus*	11	0.3	1	1.3
squirrel	*Scurius* sp.	56	1.4	7	9.2
beaver	*Castor canadensis*	7	0.2	1	1.3
muskrat	*Ondatra zibethicus*	1	0.0	1	1.3
domestic dog	*Canis familiaris*	7	0.2	1	1.3
gray fox	*Urocyon cinereoargentus*	3	0.1	1	1.3
raccoon	*Procyon lotor*	8	0.2	1	1.3
white-tailed deer	*Odocoileus virginianus*	764	19.0	15	19.7
striped skunk	*Mephitis mephitis*	6	0.1	1	1.3
unidentified mammal		1,592	39.5		
Birds					
-	Ardeidae	1	0.0		
hawk	*Buteo* sp.	1	0.0	1	1.3
ruffed grouse	*Bonasa umbellus*	2	0.0	1	1.3
bobwhite quail	*Colinus virginianus*	2	0.0	1	1.3
wild turkey	*Meleagris gallopavo*	111	2.8	4	5.3
common crow	*Corvus brachyrhynchos*	1	0.0	1	1.3
passenger pigeon	*Ectopistes migratorius*	246	6.1	20	26.3
flicker	*Colaptes* sp.	1	0.0	1	1.3
blue jay	*Cyanocitta cristata*	2	0.0	1	1.3
unidentified bird		221	5.5		
Reptiles					
snapping turtle	*Chelydra serpentina*	4	0.1	1	1.3
mud turtle	*Kinosternon* sp.	2	0.0	1	1.3
painted/slider	*Chrysemys* sp.	1	0.0	1	1.3
cooter	*Pseudemys* sp.	1	0.0	1	1.3
box turtle	*Terrapene carolina*	336	8.3	4	5.3
unidentified turtle		246	6.1		
unidentified snake		3	0.0		
Amphibians					
toad/frog		81	2.0		

Table 6 continued.

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Fish					
suckers	Catostomidae	5	0.1		
sucker	*Catostomus* sp.	7	0.2	2	2.6
redhorse	*Moxostoma* sp.	4	0.1	2	2.6
bass	*Ambloplites* sp.	1	0.0	1	1.3
unidentified fish		76	1.9		
Unidentified		191	4.7		
Total		4,029		76	

Table 7. Top Five Ranked Taxa from the Stockton Site.

Rank	NISP	MNI
1	white-tailed deer	passenger pigeon
2	box turtle	white-tailed deer
3	passenger pigeon	squirrel
4	wild turkey	wild turkey, box turtle
5	squirrel	**rabbit, sucker** (*Catostomus* sp.), **redhorse** (*Moxostoma* sp.)

fragments from an unidentified snake were also identified, although snakes were likely commensal species and were probably not used for food. Amphibians make up 2% of the NISP and are represented by 81 specimens of toad/frog (*Bufo* sp./*Rana* sp.).

Fish make up 1.9% of the Stockton site NISP, yielding a total of five individuals. They include suckers (Catostomidae) and bass/sunfish (Centrarchidae). Suckers are represented by two genera (*Catostomus* sp., *Moxostoma* sp.) and bass/sunfish by one genus (*Ambloplites* sp.).

In terms of both NISP and MNI, the most important taxa exploited from the Stockton site include white-tailed deer, box turtle, passenger pigeon, wild turkey, and squirrel (Table 7). In terms of MNI, passenger pigeon represents the most important species at the site. Additional taxa were added to the MNI ranking, including rabbit and two fish taxa (*Catostomus* sp., *Moxostoma sp*.).

Table 8. Summary of Faunal Remains from the Gravely site (44Hr29).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
rabbit	*Sylvilagus* sp.	1	0.0	1	6.3
chipmunk	*Tamias striatus*	1	0.0	1	6.3
squirrel	*Scurius* sp.	24	0.6	2	12.5
gray fox	*Urocyon cinereoargentus*	1	0.0	1	6.3
white-tailed deer	*Odocoileus virginianus*	283	6.7	5	31.3
unidentified mammal		529	12.5		
Birds					
bobwhite quail	*Colinus virginianus*	1	0.0	1	6.3
wild turkey	*Meleagris gallopavo*	31	0.7	1	6.3
passenger pigeon	*Ectopistes migratorius*	7	0.2	1	6.3
blue jay	*Cyanocitta cristata*	2	0.0	1	6.3
unidentified bird		20	0.5		
Reptiles					
box turtle	*Terrapene carolina*	13	0.3	1	6.3
unidentified turtle		29	0.7		
unidentified snake		44	1.0		
Fish					
gar	*Lepisosteus* sp.	1	0.0	1	6.3
unidentified fish		16	0.4		
Unidentified		3,244	76.4		
Total		4,247		16	

The Gravely Site (44Hr29)

The faunal assemblage from the Gravely site consists of 4,247 bone fragments representing 16 individuals (Table 8). Unfortunately, most of the assemblage was highly fragmented and hence unidentifiable (76.4%). Mammals contributed 19.8% of the total NISP. White-tailed deer (*Odocoileus virginianus*) was the most numerous mammal, contributing 6.7% of the NISP and 31.3% of the MNI. Four other mammals were identified at the Gravely site and include rabbit (*Sylvilagus sp*.), chipmunk (*Tamias striatus*), squirrel (*Sciurus sp*.), and gray fox (*Urocyon cinereoargentus*).

Table 9. Top Five Ranked Taxa from the Gravely Site.

Rank	NISP	MNI
1	white-tailed deer	white-tailed deer
2	wild turkey	**chipmunk**
3	squirrel	ALL OTHERS
4	box turtle	
5	passenger pigeon	

Birds represent only 1.4% of the Gravely assemblage by NISP and are represented by four individuals and four taxa. Wild turkey (*Meleagris gallopavo*) was most abundant, followed by passenger pigeon (*Ectopistes migratorius*), blue jay (*Cyanocitta cristata*), and bobwhite quail (*Colinus virginianus*).

Reptiles contributed 2% of the total NISP and are represented solely by box turtle (*Terrapene carolina*). No amphibians were identified, and gar (*Lepisosteus* sp.) was the only fish identified at the Gravely site.

The top five ranked species by NISP for the Gravely site include white-tailed deer, wild turkey, squirrel, box turtle, and passenger pigeon (Table 9). In terms of MNI, all species identified at the site ranked in the top five. Nevertheless, white-tailed deer appears to be the most heavily-exploited mammal and the most important vertebrate food resource.

The Dallas Hylton Site (44Hr20)

The faunal assemblage from the Dallas Hylton site consists of 6,992 bone fragments representing 135 individuals (Table 10). Mammals contributed 66.2% of the total NISP. As with the other sites, white-tailed deer (*Odocoileus virginianus*) was the most abundant mammal, contributing 23.1% of the NISP and yielding 22 individuals. Other mammals identified at Dallas Hylton include opossum (*Didelphis virginianus*), rabbit (*Sylvilagus* sp.), woodchuck (*Marmota monax*), squirrel (*Sciurus* sp.), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), domestic dog (*Canis familiaris*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and mountain lion (*Felis concolor*). One commensal mammal, hispid cotton rat (*Sigmodon hispidus*), was also identified. In addition, two Old World species, cow (*Bos taurus*) and goat (*Capra hirca*), were identified at the Dallas Hylton site. Represented by one specimen each, cow and goat likely represent intrusions from a later Euroamerican occupation.

Table 10. Summary of Faunal Remains from the Dallas Hylton Site (44Hr20).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
opossum	*Didelphis virginianus*	10	0.1	2	1.5
rabbit	*Sylvilagus* sp.	107	1.5	4	3.0
woodchuck	*Marmota monax*	2	0.0	2	1.5
squirrel	*Scurius* sp.	126	1.8	12	8.9
beaver	*Castor canadensis*	25	0.4	3	2.2
hispid cotton rat	*Sigmodon hispidus*	1	0.0	1	0.7
muskrat	*Ondatra zibethicus*	1	0.0	1	0.7
domestic dog	*Canis familiaris*	9	0.1	1	0.7
black bear	*Ursus americanus*	2	0.0	1	0.7
raccoon	*Procyon lotor*	57	0.8	2	1.5
white-tailed deer	*Odocoileus virginianus*	1,618	23.1	22	16.3
cow	*Bos taurus*	1	0.0	1	0.7
goat	*Capra hirca*	1	0.0	1	0.7
striped skunk	*Mephitis mephitis*	1	0.0	1	0.7
mountain lion	*Felis concolor*	1	0.0	1	0.7
unidentified mammal		2,669	38.2		
Birds					
bobwhite quail	*Colinus virginianus*	6	0.1	2	1.5
turkey	*Meleagris gallopavo*	513	7.3	18	13.3
rail	Rallidae	1	0.0	1	0.7
screech owl	*Otus asio*	1	0.0	1	0.7
common crow	*Corvus brachyrhynchos*	1	0.0	1	0.7
passenger pigeon	*Ectopistes migratorius*	402	5.7	32	23.7
pileated woodpecker	*Dryocopus pileatus*	1	0.0	1	0.7
red-bellied woodpecker	*Melanerpes carolinus*	1	0.0	1	0.7
blue jay	*Cyanocitta cristata*	2	0.0	1	0.7
rufous-sided towhee	*Pibilo erythropthalamus*	1	0.0	1	0.7
unidentified bird		490	7.0		
Reptiles					
snapping turtle	*Chelydra serpentina*	8	0.1	2	1.5
painted/slider	*Chrysemys* sp.	4	0.1	1	0.7
box turtle	*Terrapene carolina*	429	6.1	10	7.4
unidentified turtle		294	4.2		
Amphibians					
toad	*Bufo* sp.	2	0.0	1	0.7

Table 10 continued.

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
frog	*Rana* sp.	4	0.1	1	0.7
toad/frog		17	0.2		
Fish					
suckers	Catostomidae	2	0.0		
sucker	*Catostomus* sp.	3	0.0	1	0.7
redhorse	*Moxostoma* sp.	1	0.0		
catfish	Icataluridae	1	0.0		
sunfish	*Lepomis* sp.	1	0.0	1	0.7
rock bass	*Ambloplites rupestris*	1	0.0	1	0.7
Roanoke bass	*Ambloplites cavifrons*	1	0.0		
largemouth bass	*Micropterus salmoides*	3	0.0	1	0.7
bass	*Ambloplites* sp.	1	0.0	1	0.7
temperate bass	*Morone* sp.	1	0.0	1	0.7
unidentified fish		72	1.0		
Unidentified		97	1.4		
Total		6,992		135	

Birds represent 20.3% of the Dallas Hylton assemblage by NISP and are represented by 59 individuals and nine species. Wild turkey (*Meleagris gallopavo*) is represented by the most specimens (n=513) and passenger pigeon (*Ectopistes migratorius*) by the most individuals (MNI=32). Other birds identified in the assemblage include bobwhite quail (*Colinus virginianus*), screech owl (*Otus asio*), common crow (*Corvus brachyrhynchos*), pileated woodpecker (*Dryocopus pileatus*), red-bellied woodpecker (*Melanerpes carolinus*), blue jay (*Cyanocitta cristata*), and rufous-sided towhee (*Pibilo erythropthalamus*).

Reptiles contributed 10.5% of the NISP and are represented by three turtle species. Box turtle (*Terrapene carolina*) is the most abundant, making up 6.1% of the total NISP. Other turtles include snapping turtle (*Chelydra serpentina*) and painted turtle/pondslider (*Chrysemys* sp.). Amphibians account for less than 1% of the assemblage by NISP and are represented toad (*Bufo* sp.), frog (*Rana* sp.), and 17 specimens assigned to a toad/frog (*Bufo* sp./*Rana* sp.) category.

Table 11. Top Five Ranked Taxa from the Dallas Hylton Site (44Hr20).

Rank	NISP	MNI
1	white-tailed deer	passenger pigeon
2	wild turkey	white-tailed deer
3	box turtle	wild turkey
4	passenger pigeon	squirrel
5	squirrel	box turtle

Fish make up 1.2% of the Dallas Hylton site NISP, yielding a total of 6 individuals. Fish taxa include suckers (Catostomidae), catfish (Ictaluridae), bass/sunfish (Centrarchidae), and bass (Percichthyidae). Suckers are represented by two genera (*Catostomus* sp.*, Moxostoma* sp.). Bass/sunfish species include rock bass (*Ambloplites rupestris*), Roanoke bass (*Ambloplites cavifrons*), largemouth bass (*Micropterus salmoides*), and temperate bass (*Morone* sp.).

The same taxa ranked in the top five for both NISP and MNI at the Dallas Hylton site. These species include white-tailed deer, wild turkey, box turtle, passenger pigeon, and squirrel (Table 11). As with the Stockton site, passenger pigeon was the highest ranked species by MNI, indicating its importance as a major vertebrate food resource at Dallas Hylton.

The Koehler Site (44Hr6)

The Gravely Excavations. The faunal assemblage from the first excavation of the Koehler site consists of a scant 663 bone fragments representing 27 individuals (Table 12). Mammals contributed 67.9% of the total NISP, and white-tailed deer (*Odocoileus virginianus*) was the most abundant mammal, contributing 16% of the NISP and 18.5% of the MNI. Other mammalian taxa also were identified in the assemblage from the early excavations of the Koehler site, including woodchuck (*Marmota monax*), squirrel (*Sciurus* sp.), beaver (*Castor canadensis*), gray fox (*Urocyon cinereoargentus*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), pig (*Sus scrofa*), and cow (*Bos taurus*). Bones of these latter two species came from a discrete feature that represents a colonial cellar and are thus unrelated to the Late Woodland component at the site. No commensal mammals (mice and voles, for example) were identified, likely a result of recovery.

Table 12. Summary of Faunal Remains from the Gravely Excavations at the Koehler site (44Hr6).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
woodchuck	*Marmota monax*	2	0.3	1	3.7
squirrel	*Scurius* sp.	16	2.4	3	11.1
beaver	*Castor canadensis*	2	0.3	1	3.7
gray fox	*Urocyon cinereoargentus*	2	0.3	1	3.7
black bear	*Ursus americanus*	1	0.2	1	3.7
raccoon	*Procyon lotor*	9	1.4	1	3.7
pig	*Sus scrofa*	17	2.6	1	3.7
white-tailed deer	*Odocoileus virginianus*	106	16.0	5	18.5
cow	*Bos taurus*	1	0.2	1	3.7
unidentified mammal		294	44.3		
Birds					
bobwhite quail	*Colinus virginianus*	1	0.2	1	3.7
wild turkey	*Meleagris gallopavo*	33	5.0	4	14.8
passenger pigeon	*Ectopistes migratorius*	2	0.3	1	3.7
unidentified bird		42	6.3		
Reptiles					
box turtle	*Terrapene carolina*	51	7.7	4	14.8
unidentified turtle		26	3.9		
Amphibians					
toad	*Bufo* sp.	3	0.5	1	3.7
sunfish	*Lepomis* sp.	1	0.2	1	3.7
unidentified fish		13	2.0		
Unidentified		41	6.2		
Total		663		27	

Birds make up 11.8% of the Koehler assemblage from the Gravely excavations and are represented by six individuals and three taxa. Wild turkey (*Meleagris gallopavo*) was the most well-represented, contributing four of the individuals. Other birds identified in the assemblage include bobwhite quail (*Colinus virginianus*) and passenger pigeon (*Ectopistes migratorius*).

Table 13. Top Five Ranked Taxa from the Gravely Excavations at the Koehler Site (44Hr6).

Rank	NISP	MNI
1	white-tailed deer	white-tailed deer
2	box turtle	wild turkey, box turtle
3	wild turkey	squirrel
4	pig	ALL OTHERS
5	squirrel	

Reptiles contributed 11.6% of the NISP and are represented by box turtle (*Terrapene carolina*) only. Amphibians make up less than 1% of the NISP and are represented by three toad (*Bufo* sp.) specimens. Only one species of fish, a sunfish (*Lepomis* sp.), was identified in the assemblage from this first excavation.

The top five ranked species by NISP for the Gravely excavations of the Koehler site include white-tailed deer, box turtle, wild turkey, pig, and squirrel (Table 13). The pig remains were restricted to one context that significantly post-dates the other contexts at the site. Thus, the high ranking of pig relative to the other taxa recovered at the site is misleading. While all the species identified at the site ranked in the top five by MNI, four of the top five taxa by NISP ranked the highest, including white-tailed deer, wild turkey, box turtle, and squirrel.

The Clark Excavations. The second excavation of the Koehler site yielded a faunal assemblage consisting of 5,006 bone fragments representing 83 individuals (Table 14). In addition, 329 faunal specimens from several flotation samples were also analyzed. The faunal remains from the flotation samples will be discussed separately. Mammals contributed 32.5% of the total NISP. White-tailed deer (*Odocoileus virginianus*) was the most abundant mammal, contributing 7.7% of the NISP and yielding five individuals. Other mammals identified from the second excavation of the Koehler site include opossum (*Didelphis virginianus*), rabbit (*Sylvilagus* sp.), woodchuck (*Marmota monax*), chipmunk (*Tamias striatus*), squirrel (*Sciurus* sp.), beaver (*Castor canadensis*), domestic dog (*Canis familiaris*), gray fox (*Urocyon cinereoargentus*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*). In addition, one Old World species, cow (*Bos taurus*), was identified in the second set of excavations conducted at the Koehler site.

Table 14. Summary of Faunal Remains from the Clark Excavations at the Koehler Site (44Hr6).

Common Name	Taxonomic Name	Features NISP	%NISP	MNI	%MNI	Flotation NISP	MNI
Mammals							
opossum	*Didelphis virginianus*	6	0.1	1	1.2		
rabbit	*Sylvilagus* sp.	6	0.1	1	1.2		
rodents	Rodentia	11	0.2				
woodchuck	*Marmota monax*	5	0.1	1	1.2		
chipmunk	*Tamias striatus*	7	0.1	2	2.4		
squirrel	*Scurius* sp.	49	1.0	8	9.6		
beaver	*Castor canadensis*	9	0.2	1	1.2		
domestic dog	*Canis familiaris*	1	0.0	1	1.2		
gray fox	*Urocyon cinereoargentus*	3	0.1	1	1.2		
raccoon	*Procyon lotor*	13	0.3	2	2.4		
white-tailed deer	*Odocoileus virginianus*	386	7.7	5	6.0		
cow	*Bos taurus*	1	0.0	1	1.2		
striped skunk	*Mephitis mephitis*	3	0.1	1	1.2		
unidentified mammal		1,117	22.3				
Birds							
turkey vulture	*Cathartes aura*	1	0.0	1	1.2		
bobwhite quail	*Colinus virginianus*	5	0.1	1	1.2		
wild turkey	*Meleagris gallopavo*	57	1.1	3	3.6		
crow	*Corvus* sp.	1	0.0	1	1.2		
passenger pigeon	*Ectopistes migratorius*	54	1.1	5	6.0		
pileated woodpecker	*Dryocopus pileatus*	1	0.0	1	1.2		
blue jay	*Cyanocitta cristata*	3	0.1	1	1.2		
robin	*Turdus migratorius*	1	0.0	1	1.2		
white-crowned sparrow	*Zonotricia leucophrys*	1	0.0	1	1.2		
unidentified bird		111	2.2				
Reptiles							
snapping turtle	*Chelydra serpentina*	3	0.1	1	1.2		
box turtle	*Terrapene carolina*	153	3.1	6	7.2		
unidentified turtle		626	12.5				
unidentified snake		128	2.6				
unidentified reptile		8	0.2				
Amphibians							
toad	*Bufo* sp.	6	0.1	3	3.6		

Table 14 continued.

Common Name	Taxonomic Name	Features NISP	%NISP	MNI	%MNI	Flotation NISP	MNI
frog	*Rana* sp.	1	0.0	1	1.2		
toad/frog		163	3.3				
eastern spadefoot	*Scaphiopus holbrooki*	23	0.5	14	16.9		
Fish							
gar	*Lepisosteus* sp.	5	0.1	1	1.2		
minnows	Cyprinidae	23	0.5				
suckers	Catostomidae	3	0.1			1	
redhorse	*Moxostoma* sp.	2	0.0	1	1.2		
sucker	*Minytrema* sp.	1	0.0	1	1.2		
catfish	Icataluridae	2	0.0				
bass, sunfish	Centrarchidae	17	0.3			8	
sunfish	*Lepomis* sp.	17	0.3	7	8.4	20	4
rock bass	*Ambloplites rupestris*	30	0.6	3	3.6	13	3
Roanoke bass	*Ambloplites cavifrons*	2	0.0	1	1.2		
largemouth bass	*Micropterus salmoides*	8	0.2	2	2.4		
bass	*Ambloplites* sp.	27	0.5			5	
temperate bass	*Morone* sp.	10	0.2	2	2.4		
unidentified fish		1,024	20.5			282	
Unidentified		872	17.4				
Total		5,006		83		329	7

Represented by one specimen, cow likely represents an intrusion from a later Euroamerican occupation.

Birds make up only 4.7% of the Koehler assemblage by NISP and are represented by 15 individuals and nine species. Wild turkey (*Meleagris gallopavo*) is represented by the most specimens (n=57) and passenger pigeon (*Ectopistes migratorius*) by the most individuals (MNI=5). Other birds identified in the assemblage include turkey vulture (*Cathartes aura*), bobwhite quail (*Colinus virginianus*), crow (*Corvus* sp.), pileated woodpecker (*Dryocopus pileatus*), blue jay (*Cyanocitta cristata*), robin (*Turdus migratorius*), and white-crowned sparrow (*Zonotricia leucophrys*).

Reptiles contributed 18.4% of the NISP and are represented solely by box turtle (*Terrapene carolina*) and snapping turtle *(Chelydra serpentina*).

Table 15. Top Five Ranked Taxa from the Clark Excavations at the Koehler Site (44Hr6).

Rank	NISP	MNI
1	white-tailed deer	**eastern spadefoot**
2	box turtle	squirrel
3	**wild turkey**	**sunfish** (*Lepomis* sp.)
4	passenger pigeon	box turtle
5	squirrel	white-tailed deer, passenger pigeon

Box turtle is the most abundant, accounting for 3.1% of the total NISP. Amphibians make up 3.4% of the assemblage by NISP and are represented toad (*Bufo* sp.), frog (*Rana* sp.), and eastern spadefoot toad (*Scaphiopus holbrooki*). Though only represented by 23 specimens, eastern spadefoot yielded the highest MNI (n=14) for these excavations.

Fish make up 23.5% of the NISP, yielding a total of 18 individuals. Fish taxa include gar (*Lepisosteus sp*.), minnows (Cyprinidae), suckers (Catostomidae), catfish (Ictaluridae), bass/sunfish (Centrarchidae), and bass (Percichthyidae). Suckers are represented by two genera (*Moxostoma* sp.*, Minytrema* sp.). Bass/sunfish species include rock bass (*Ambloplites rupestris*), Roanoke bass (*Ambloplites cavifrons*), largemouth bass (*Micropterus salmoides*), and temperate bass (*Morone* sp.).

Faunal remains identified in the flotation samples consist entirely of fish (Table 14). Although many fish were identified only to family (Catostomidae, Ictaluridae), several basses were identified to species, including rock bass (*Ambloplites rupestris*), Roanoke bass (*Ambloplites cavifrons*), largemouth bass (*Micropterus salmoides*), and temperate bass (*Morone* sp.). Rock bass, however, was the most abundantly represented.

The top five ranked species by NISP for the Clark excavations of the Koehler site include white-tailed deer, box turtle, wild turkey, passenger pigeon, and squirrel (Table 15). Four of these taxa remained in the top five by MNI—white-tailed deer, box turtle, passenger pigeon, and squirrel. Eastern spadefoot and sunfish (*Lepomis sp*.) were added to the top five species ranked by MNI, while wild turkey dropped out. It is interesting that eastern spadefoot is represented by the most individuals at the site. However, given (1) the burrowing nature of toads, (2) that most of the remains derive from a single context, and (3) that most skeletal elements are represented, it is likely that the eastern spadefoot represents a commensal species rather than a food resource.

The Leatherwood Creek Site (44Hr1)

The faunal assemblage from the Leatherwood Creek site consists of 1,372 bone fragments representing 38 individuals (Table 16). Mammals contributed 73.4% of the total NISP. White-tailed deer (*Odocoileus virginianus*) was the most abundant mammal, contributing 22.3% of the NISP and yielding nine individuals. Other mammals identified at Leatherwood Creek include opossum (*Didelphis virginianus*), rabbit (*Sylvilagus* sp.), woodchuck (*Marmota monax*), squirrel (*Sciurus* sp.), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), gray fox (*Urocyon cinereoargentus*), raccoon (*Procyon lotor*), and bobcat (*Lynx rufus*). One commensal mammal, white-footed mouse (*Peromyscus leucopus*), was also identified.

Birds represent 13.4% of the Leatherwood Creek assemblage by NISP and are represented by nine individuals and three species. Wild turkey (*Meleagris gallopavo*) is the most well-represented, yielding five individuals and accounting for 4% of the NISP.
Passenger pigeon (*Ectopistes migratorius*) was also identified at the site (MNI=3), followed by blue jay (*Cyanocitta cristata*).

Reptiles contributed 10.5% of the NISP and are represented by box turtle (*Terrapene carolina*) and snapping turtle (*Chelydra serpentina*). Amphibians account for less than 1% of the assemblage by NISP and are represented by two specimens assigned to a toad/frog (*Bufo* sp./*Rana* sp.) category. Few fish remains were identified in the Leatherwood Creek assemblage and were restricted to suckers (Catostomidae). In addition to two sucker specimens assigned to family, a redhorse (*Moxostoma* sp.) was also identified.

The same taxa ranked in the top five by both NISP and MNI at the Leatherwood Creek site (Table 17). These species include white-tailed deer, box turtle, wild turkey, squirrel, and passenger pigeon. Raccoon was added to the top five ranked species when taxa were ranked according to MNI. There appears to be a great deal of consistency in species ranks at Leatherwood Creek.

Site Comparisons

The data reported above demonstrate considerable overlap between these sites in terms of the exploitation of native fauna. This section considers this overlap in more detail through assemblage comparisons. In making comparisons across these sites, I first consider the relative

Table 16. Summary of Faunal Remains from the Leatherwood Creek Site (44Hr1).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
opossum	*Didelphis virginianus*	2	0.1	1	2.6
rabbit	*Sylvilagus* sp.	7	0.5	1	2.6
woodchuck	*Marmota monax*	1	0.1	1	2.6
squirrel	*Scurius* sp.	36	2.6	4	10.5
beaver	*Castor canadensis*	4	0.3	1	2.6
white-footed mouse	*Peromyscus leucopus*	1	0.1	1	2.6
muskrat	*Ondatra zibethicus*	1	0.1	1	2.6
gray fox	*Urocyon cinereoargentus*	1	0.1	1	2.6
raccoon	*Procyon lotor*	9	0.7	2	5.3
white-tailed deer	*Odocoileus virginianus*	306	22.3	9	23.7
bobcat	*Lynx rufus*	1	0.1	1	2.6
unidentified mammal		638	46.4		
Birds					
wild turkey	*Meleagris gallopavo*	55	4.0	5	13.2
passenger pigeon	*Ectopistes migratorius*	20	1.5	3	7.9
blue jay	*Cyanocitta cristata*	1	0.1	1	2.6
unidentified bird		108	7.9		
Reptiles					
snapping turtle	*Chelydra serpentina*	12	0.9	1	2.6
box turtle	*Terrapene carolina*	58	4.2	4	10.5
unidentified turtle		72	5.2		
unidentified snake		2	0.1		
Amphibians					
toad/frog		2	0.1		
Fish					
suckers	Catostomidae	2	0.1		
redhorse	*Moxostoma* sp.	1	0.1	1	2.6
unidentified fish		6	0.4		
Unidentified		26	1.9		
Total		1,372		38	

Table 17. Top Five Ranked Taxa from the Leatherwood Creek Site (44Hr1).

Rank	NISP	MNI
1	white-tailed deer	white-tailed deer
2	box turtle	wild turkey
3	wild turkey	squirrel, box turtle
4	squirrel	passenger pigeon
5	passenger pigeon	**raccoon**

abundance of different animal classes using %NISP. This statistic was calculated by site and is displayed as a series of bar graphs (Figure 2).

Generally, the graphs from all of the excavations yielded a similar pattern, with the exception of the second excavation of the Koehler site. The second Koehler assemblage yielded more remains of birds and reptiles relative to mammals than any other assemblage in this study. This deviation may be attributable to the fine-screen recovery employed throughout the second excavation. The recovery methods used during the UNC excavation of the Gravely site also included fine-screening down to 1/16-inch mesh. The resulting bar graph for the Gravely site, however, mirrors the other graphs, indicating a focus on mammals. This suggests that there may be other factors at work in addition to differences in recovery. The drastic differences between the bar graphs for the two Koehler site samples also suggests that the faunal assemblages from these different excavations may derive from different contexts at the site.

Of all of the assemblages considered in this analysis, the Gaston site and Vir 150 yielded the lowest %NISP of bird remains. This is likely attributable to the lack of passenger pigeon recovered from Gaston and Vir 150, a species that is well represented at the other sites. There also appears to be less diversity in terms of the recovered bird taxa at Gaston and Vir 150 than in the other assemblages. These differences in the bird assemblages may be a result of site location. Gaston and Vir 150 are located along the Roanoke River, whereas the other sites are located along tributaries of this river. Differences in local catchments, as well as site location relative to migrational flyways, may have been factors affecting the exploitation of bird taxa at these different sites.

To further explore these differences, I consider the top five ranked taxa for each site. These data were presented above in individual tables for each site, but are presented here as two tables (for NISP and MNI) which incorporate data from all seven sites (Tables 18 and 19). The first table

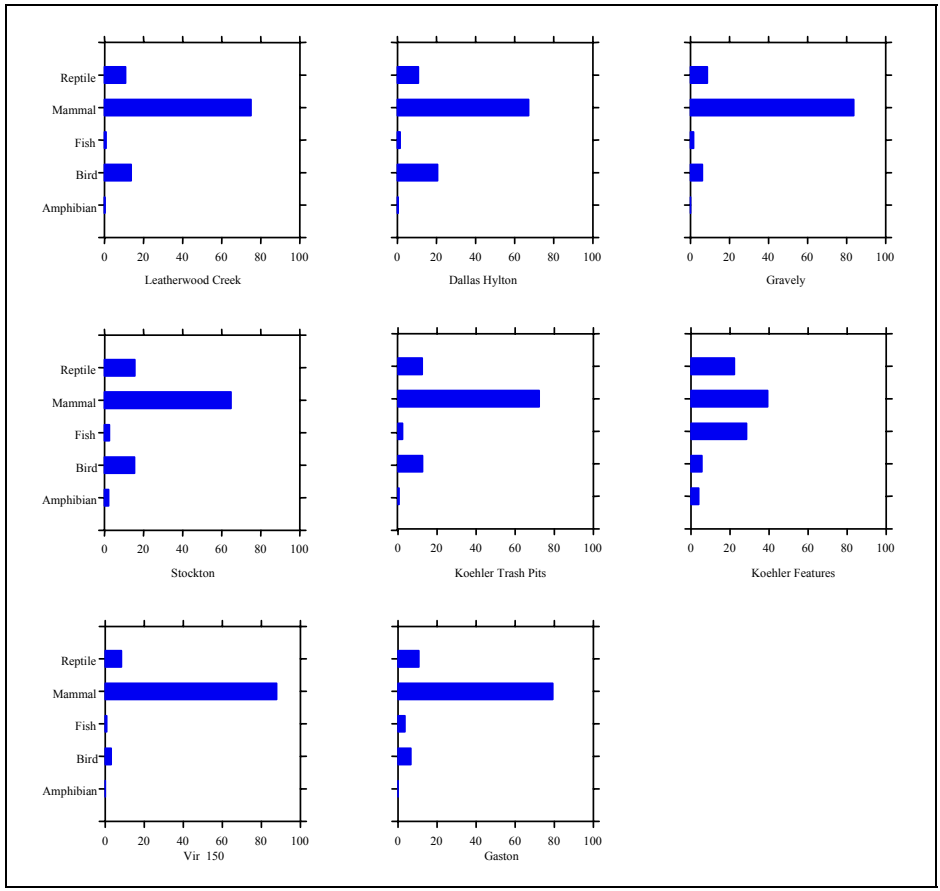

Figure 2. Comparison of the relative abundance of different animal classes using %NISP.

includes the top five species ranked by NISP. Three taxa—deer, turkey, and box turtle—consistently rank in the top five for all seven sites. Moreover, these three taxa ranked in the top three at all sites but Stockton and Gravely. Perhaps more interesting are the highly-ranked taxa that differ from site to site. In addition to the three top taxa (deer, turkey, and box turtle), muskrat and raccoon ranked in the top five at Gaston and Vir 150, whereas squirrel and passenger pigeon ranked in the top five at the other sites.[6] This disparity between the different sites further suggests that site location with respect to local topography and waterways (e.g., the Roanoke river versus its tributaries) was an important factor conditioning the exploitation of local fauna.

Table 18. Top Five Taxa Ranked by NISP for Each Site.

Rank	Gaston	Vir 150	Stockton	Gravely
1	**deer**	**deer**	**deer**	**deer**
2	**turkey**	**turkey**	**box turtle**	**turkey**
3	**box turtle**	**box turtle**	passenger pigeon	squirrel
4	muskrat	muskrat	**turkey**	**box turtle**
5	raccoon	raccoon	squirrel	passenger pigeon

Table 18 continued.

Rank	Dallas Hylton	Koehler (Gravely Excav.)	Koehler (Clark Excav.)	Leatherwood Creek
1	**deer**	**deer**	**deer**	**deer**
2	**turkey**	**box turtle**	**box turtle**	**box turtle**
3	**box turtle**	**turkey**	**turkey**	**turkey**
4	passenger pigeon	pig	passenger pigeon	squirrel
5	squirrel	squirrel	squirrel	passenger pigeon

Table 19. Top Five Taxa Ranked by MNI for Each Site.

Rank	Gaston	Vir 150	Stockton	Gravely
1	**deer**	**deer**	passenger pigeon	**deer**
2	muskrat	muskrat	**deer**	chipmunk
3	**turkey**	**turkey**	**squirrel**	ALL OTHERS
4	**squirrel**	**squirrel**	**turkey**	-
5	raccoon box turtle	raccoon	box turtle rabbit *Catostomus* sp. *Moxostoma* sp	-

Table 19 continued.

Rank	Dallas Hylton	Koehler (Gravely Excav.)	Koehler (Clark Excav.)	Leatherwood Creek
1	passenger pigeon	**deer**	e. spadefoot	**deer**
2	**deer**	**turkey**	**squirrel**	**turkey**
3	**turkey**	box turtle **squirrel**	Lepomis sp.	**squirrel**
4	**squirrel**	ALL OTHERS	box turtle	box turtle passenger pigeon
5	box turtle	-	**deer** passenger pigeon	raccoon

The second table includes the top five species ranked by MNI. As with the NISP rankings, deer and turkey consistently rank in the top five for all sites. With the exception of Vir 150, box turtle also consistently ranks in the top five. In contrast to the NISP rankings, squirrel ranks in the top five by MNI for all sites. The difference between the sites in terms of passenger pigeon noted above is reflected in the MNI ranks—passenger pigeon appears to have been an important vertebrate resource for sites located along tributaries to Roanoke River, but not for sites (e.g., Gaston and Vir 150) along the Roanoke itself.

While the faunal assemblages from all the sites considered here are broadly similar, closer analysis has revealed important differences that are likely related to differences in local catchment zones. In particular, the major disparities identified thus far are between the sites located along Roanoke River (Gaston and Vir 150) and those located along its tributaries which include Leatherwood Creek, North Mayo River, South Mayo River, and Smith River. If indeed site location relative to the Roanoke River was a significant factor conditioning past vertebrate exploitation, then we would expect this to be reflected in the fish remains as well.

With this in mind, I turn my attention to the fish remains. Although all seven sites yielded roughly comparable fish assemblages in terms of suckers, catfish, and bass, there are disparities between the sites based on the locational distinction defined above. For example, sturgeon, bowfin, and channel catfish were identified only at Gaston and Vir 150.[7] The presence of sturgeon this far inland is significant and will undoubtedly affect current environmental policy regarding dam management. That sturgeon was identified only at the sites located along Roanoke River and not along its tributaries is interesting. This finding suggests that in the past, sturgeon may have restricted its travel inland to large river channels.

This assumption may apply to channel catfish as well. While it is generally believed that the pre-Columbian distribution of channel catfish did not extend into the Roanoke River (Lee et al. 1980), this study has demonstrated that channel catfish formed a small part of the diet of the residents at Gaston and Vir 150. Perhaps the range of channel catfish included Roanoke River in the past as well as the present. The osteological evidence provides cause to re-evaluate the prehistoric biogeography of this catfish.

The identification of walleye in the Gaston site assemblage is also important for revising what we know about the pre-Columbian distribution of fish.[8] As with channel catfish, it is believed that Roanoke River falls outside the walleye's natural range (e.g., Lee et al. 1980). However, the

presence of two walleye dentaries at the Gaston site suggests that walleye may also have been native to the Roanoke.

The identification of largemouth bass at four of the study sites was also unexpected. Like channel catfish and walleye, the pre-Columbian distribution of largemouth bass was not believed to have extended into Roanoke River (Lee et al. 1980). Indeed, Whyte (1994) has suggested that specimens of Roanoke bass have been mistakenly identified and reported as largemouth bass in the archaeological literature for the Roanoke River basin. Roanoke bass and largemouth bass are similar osteologically and are often difficult to distinguish. Nevertheless, they can be distinguished by a few key elements (Whyte 1994), and based on these criteria, Whyte (1999) identified both Roanoke and largemouth basses at the Buzzard Rock site in Roanoke, Virginia.

I consulted with Whyte regarding specimens from Vir 150 and the Gaston site that I tentatively identified as largemouth bass. Whyte concurred that some specimens were indeed largemouth bass, but identified Roanoke bass as well. Thus, it would appear that largemouth bass, though perhaps over-identified in archaeological sites along Roanoke River, was present in this river in prehistory.

Unfortunately, there is a dearth of archaeological literature pertaining to native fishing practices along the Roanoke River. Although Binford's (1991) published dissertation models the exploitation of anadromous fish for interpreting past human-ecological adaptation in coastal Virginia and North Carolina, his study deals specifically with the Chesapeake Bay. Thus, Binford's study is not pertinent to the assemblages reported here.

Additional Assemblages

It is important to consider these analyses within the context of previous zooarchaeological studies that have been conducted in the region. This includes the analyses of faunal assemblages from the Jordan's Landing and Lower Saratown sites.

The Jordan's Landing Site (31Br7)

The Jordan's Landing site is located along Roanoke River approximately 30 miles upriver from Albemarle Sound and dates to the Cashie phase (approx. A.D. 800–1650). This places the site further downriver from Gaston and Vir 150. The faunal assemblage from this site derives from four features and was analyzed by John Byrd (1997). With the exception of Feature 1, a refuse-filled ditch adjacent to the stockade

which surrounded the village, all feature fill was screened through 1/16-inch mesh. The soil from Feature 1 was screened through 1/4-inch mesh, and random samples of soil were fine-screened as well. With the exception of the fine-screen samples from Feature 1, all faunal remains were analyzed and reported by John Byrd (1997).

For the purposes of this report, I summarize Byrd's (1997) data below (Table 20). In calculating MNI for the Jordan's Landing site, Byrd aggregated his data by plot level within each feature. In terms of the study sites, however, data were aggregated by site in order to calculate MNI. Thus, the MNI values reported by Byrd are not comparable to the MNI values calculated for the study sites.

The Jordan's Landing faunal assemblage differs from the study sites in terms of animal class percentages. Based on NISP, fish overwhelmingly dominate the Jordan's Landing assemblage, accounting for 70% of the recovered faunal remains (Figure 3). Moreover, three of the top ranked taxa by NISP are fish species (Table 21). Two of these, bowfin and gar, were also high-ranking fish at Gaston and Vir 150. As with Gaston and Vir 150, the remains of sturgeon and muskrat were identified at Jordan's Landing as well. Thus, there appear to be slight similarities between the sites located along the Roanoke River. Perhaps if the recovery methods employed during excavations at Gaston and Vir 150 had used mesh sizes comparable to those used at Jordan's Landing, the overall faunal patterns would be even more similar.

Table 20. Summary of Faunal Remains from Jordan's Landing (31Br7).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
opossum	Didelphis virginianus	40	0.2	11	3.7
eastern cottontail	Sylvilagus floridanus	5	0.0	4	1.3
gray squirrel	Sciurus carolinensis	10	0.1	3	1.0
squirrel	Sciurus sp.	40	0.2	11	3.7
beaver	Castor canadensis	7	0.0	4	1.3
muskrat	Ondatra zibethica	13	0.1	8	2.7
gray wolf	Canis cf. lupus	1	0.0	1	0.3
gray fox	Urocyon cinereoargenteus	2	0.0	1	0.3
black bear	Ursus americanus	11	0.1	5	1.7
raccoon	Procyon lotor	48	0.3	13	4.3
white-tailed deer	Odocoileus virginianus	418	2.6	24	8.0
striped skunk	Mephitis mephitis	2	0.0	2	0.7

Table 20 continued.

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
bobcat	Felis rufus	2	0.0	2	0.7
unidentified mammal		878	5.4		
Birds					
ducks	Anatidae	1	0.0	1	0.3
bobwhite quail	Colinus virginianus	1	0.0	1	0.3
wild turkey	Meleagris gallopavo	24	0.1	9	3.0
unidentified bird		83	0.5		
Reptiles					
snapper	Chelydra serpentina	127	0.8	17	5.7
cooter	Pseudemys sp.	10	0.1	5	1.7
box turtle	Terrapene carolina	37	0.2	9	3.0
unidentified turtle		1,258	7.7		
corn snake	Elaphe guttata	3	0.0	2	0.7
water snake	Nerodia sp.	3	0.0	1	0.3
cottonmouth	Agkistrodon piscivorus	8	0.0	3	1.0
unidentified snake		88	0.5		
Amphibians					
bullfrog	Rana catesbeiana	2	0.0	2	0.7
unidentified amphibian		16	0.1		
Fish					
sturgeon	Acipenser sp.	8	0.0	3	1.0
gar	Lepisosteus sp.	222	1.4	18	6.0
bowfin	Amia calva	354	2.2	37	12.4
minnows	Cyprinidae	1	0.0		
redhorse	*Moxostoma* sp.	1	0.0	1	0.3
catfish	Ictaluridae	136	0.8		
white catfish	*Ameiurus catus*	46	0.3	16	5.4
yellow bullhead	*Ameiurus natalis*	47	0.3	17	5.7
brown bullhead	*Ameiurus nebulosus*	6	0.0	3	1.0
bass, sunfish	Centrarchidae	11	0.1		
sunfish	*Lepomis* sp.	8	0.0	4	1.3
largemouth bass	*Micropterus salmoides*	2	0.0	1	0.3
bass	*Micropterus* sp.	1	0.0	1	0.3
bass	Moronidae	129	0.8		
white perch	*Morone americanus*	16	0.1	7	2.3
striped bass	*Morone saxatilis*	28	0.2	7	2.3

Table 20 continued.

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
pikes	Esocidae	6	0.0		
pickerel	*Esox* sp.	15	0.1	3	1.0
yellow perch	*Perca flavescencs*	10	0.1	3	1.0
American eel	*Anguilla rostrata*	9	0.1	5	1.7
Atlantic croaker	*Micropogonias undulatus*	72	0.4	34	11.4
Herring family	Clupeidae	302	1.8		
unidentified fish		6,058	37.1		
Unidentified		5,700	34.9		
Total		16,326		299	

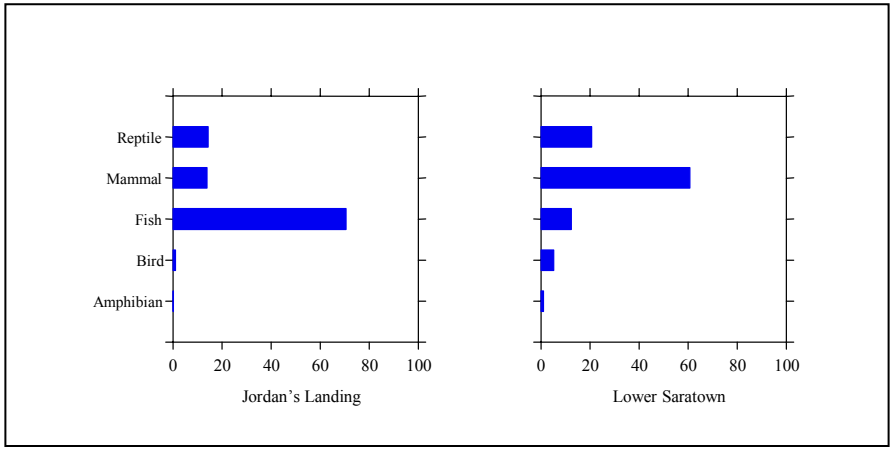

Figure 3. Comparison of the relative abundance of different animal classes for Jordan's Landing and Lower Saratown using %NISP.

Table 21. Top Five Taxa from Jordan's Landing (31Br7).

Rank	NISP
1	deer
2	bowfin
3	gar
4	snapping turtle
5	Atlantic croaker

The Lower Saratown Site (31Rk1)

The Lower Saratown site is located along Dan River in Rockingham County, North Carolina. The site is characterized by two occupations, the first during the Dan River phase (A.D. 1000–1450) and the second during the historic middle Saratown phase (A.D. 1620–1670) (Ward and Davis 1993). The faunal remains from this site were analyzed by Mary Ann Holm and are reported in Ward and Davis (1993). All of the faunal remains included in Holm's analysis derived from feature contexts and were fine-screened through 1/16-inch mesh. Given the fine-grained recovery methods used in the excavations at Lower Saratown, this site provides a nice comparison against which the study sites can be assessed in terms of recovery bias. Because only a small portion of the assemblage dates to the Dan River phase (n=618), I consider the middle Saratown component as it provides a much larger sample (n=32,975) that is more suitable for such comparisons (Table 22).

Generally, the recovery methods used in the excavation of Lower Saratown resulted in the collection and identification of a set of smaller-sized species not identified in the study sites. Even though soil from the Gravely site and the second excavation of the Koehler site was fine-screened, small mammals like mice and voles were not identified in those faunal samples. The sample sizes for these sites are much smaller than for Lower Saratown, however, which may account for these differences.

The top five ranked taxa from Lower Saratown are broadly similar to those from the study sites (Table 23). As with the study sites, white-tailed deer, box turtle, and wild turkey were clearly important food resources at Lower Saratown. The differences between Lower Saratown and the study sites in terms of ranking, however, may be more telling. That gar ranked second for NISP and white-footed mouse ranked fifth for MNI provides more evidence regarding differences in recovery between Lower Saratown and the study sites that were not fine-screened.

Table 22. Summary of Faunal Remains from the Middle Saratown Phase Component at the Lower Saratown Site (31Rk1).

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
Mammals					
opossum	*Didelphis virginianus*	10	0.0	2	1.3
shrews	Soricidae	2	0.0	1	0.6
cottontail	*Sylvilagus* sp.	15	0.0	1	0.6
gray squirrel	*Sciurus carolinensis*	23	0.1	2	1.3
fox squirrel	*Sciurus niger*	33	0.1	3	1.9
squirrel	*Sciurus* sp.	148	0.4		
beaver	*Castor canadensis*	32	0.1	1	0.6
white-footed mouse	*Peromyscus leucopus*	50	0.2	7	4.4
hispid cotton rat	*Sigmodon hispidus*	8	0.0	2	1.3
meadow vole	*Microtus pennsylvanicus*	17	0.1	2	1.3
muskrat	*Ondatra zibethicus*	1	0.0	1	0.6
mice, voles	Cricetidae	15	0.0		
wolf, dog, fox	Canidae	2	0.0		
gray fox	*Urocyon cinereoargenteus*	4	0.0	1	0.6
black bear	*Ursus americanus*	15	0.0	1	0.6
raccoon	*Procyon lotor*	136	0.4	5	3.2
white-tailed deer	*Odocoileus virginianus*	2,050	6.2	26	16.5
striped skunk	*Mephitis mephitis*	3	0.0	1	0.6
mountain lion	*Felis concolor*	1	0.0	1	0.6
bobcat	*Lynx rufus*	5	0.0	2	1.3
unidentified mammal		4,744	14.4		
Birds					
lesser scaup	*Aytha affinis*	1	0.0	1	0.6
wild turkey	*Meleagris gallopavo*	172	0.5	11	7.0
passenger pigeon	*Ectopistes migratorius*	7	0.0	2	1.3
yellow-shafted flicker	*Colaptes auratus*	4	0.0	2	1.3
cardinal	*Richmondena cardinalis*	2	0.0	1	0.6
unidentified bird		437	1.3		
Reptiles					
snapping turtle	*Chelydra serpentina*	56	0.2	1	0.6
mud turtle	*Kinosternon subrubrum*	600	1.8	14	8.9
musk turtle	*Sternotherus oderatus*	13	0.0	2	1.3
cooter	*Pseudemys concina*	1	0.0	1	0.6
box turtle	*Terrapene carolina*	880	2.7	31	19.6
soft-shelled turtle	*Trionyx* sp.	25	0.1	1	0.6

Table 22 continued.

Common Name	Taxonomic Name	NISP	%NISP	MNI	%MNI
unidentified turtle		274	0.8		
water snake	*Natrix* sp.	63	0.2	1	0.6
non-poisonous snakes	Colubridae	204	0.6		
poisonous snakes	Crotalidae	66	0.2	1	0.6
unidentified snake		312	0.9		
Amphibians					
spadefoot toad	*Scaphiopus holbrooki*	46	0.1	5	3.2
American toad	*Bufo americana*	7	0.0	2	1.3
toad	*Bufo* sp.	4	0.0		
bullfrog	*Rana catesbeiana*	4	0.0	1	0.6
toad/frog	*Bufo* sp./*Rana* sp.	65	0.2		
Fish					
bowfin	*Amia Calva*	15	0.0	1	0.6
gar	*Lepisosteus* sp.	946	2.9	1	0.6
white shad	*Alosa sapidissima*	28	0.1	1	0.6
suckers	Catostomidae	183	0.6		
white sucker	*Catostomus commersoni*	11	0.0	2	1.3
redhorse	*Moxostoma* sp.	2	0.0	1	0.6
catfish	*Ictalurus* sp.	30	0.1	5	3.2
American eel	*Anguilla rostrata*	6	0.0	1	0.6
bass, sunfish	Centrarchidae	31	0.1		
sunfish	*Lepomis* sp.	47	0.1	4	2.5
darters	Perciformes	42	0.1	6	3.8
unidentified fish		152	0.5		
Unidentified		20,925	63.5		
Total		32,975	1	158	1

The Lower Saratown faunal sample also yielded a greater %NISP of fish remains relative to other animal classes than the study sites (although the second excavation of the Koehler site is a notable exception) (Figure 3). This difference in %NISP of fish is also likely due to differences in recovery methods. Given the Lower Saratown figures for fish, we can hypothesize that the %NISP for fish remains from the study sites underestimates the contribution of fish by 10–15%. This is indeed a

Table 23. Top Five Taxa from Lower Saratown (31Rk1).

Rank	NISP	MNI
1	white-tailed deer	box turtle
2	gar	white-tailed deer
3	box turtle	mud turtle
4	mud turtle	wild turkey
5	wild turkey	white-footed mouse

significant bias that highlights the importance of fine-screening for future excavations in this region.

Concluding Remarks

In addition to presenting data that represent the culmination of two years of analysis, this report has addressed a variety of issues. First, this report has demonstrated a disparity in Late Woodland vertebrate subsistence practices between sites located along the Roanoke River and those located along its tributaries. This disparity may be tied to differences in local catchment zones.

Another major issue considered here regards the relevance and suitability of zooarchaeology for addressing problems concerning modern wildlife management. The identification of sturgeon at both Vir 150 and the Gaston site indicates that this fish swam further upriver to spawn in prehistoric times than is possible today. The zooarchaeological data are thus consistent with the hypothesis that dam construction has disrupted its reproductive cycle.

This study also provides information regarding the prehistoric distribution of largemouth bass, channel catfish, and walleye. The evidence presented here indicates that the native range of these taxa extended into the Roanoke River.[9] This information will likely become important for future fishery management. The partnership between the UNC Research Laboratories of Archaeology and the U.S. Fish and Wildlife Service has proven to be tremendously fruitful. It is both exciting and significant that this project has extended beyond the reconstruction of past subsistence practices and ecological conditions to address current environmental policy.

Notes

[1] Based on discussions with zoologists from the North Carolina Museum of Natural History, making specific determinations for osteological sturgeon remains (i.e., Atlantic versus shortnose) seems doubtful. Moreover, given the sturgeon elements identified at the Gaston site and Vir 150, speciation was not possible.

[2] The information summarized regarding the regional ecology of the Piedmont draws heavily upon Holm's (1994) synthesis of this material.

[3] Mesh size for either dry- or water-screening was not indicated in Coleman and Gravely (1992).

[4] The author does not plan to pursue identification of these specimens as their identification is unlikely to affect the findings of this study.

[5] As stated in the site descriptions, the Koehler site was excavated twice, first by Richard P. Gravely, Jr. and second by the Research Laboratories of Archaeology. I analyzed faunal materials from both excavations, and aggregate them separately because of differences in recovery methods.

[6] The Koehler site trash pits (Gravely excavations) are an exception given the abundance of pig remains.

[7] The remains of sturgeon, channel catfish, walleye, and largemouth bass were sent to Thomas Whyte at Appalachian State University for a second opinion, who concurred that these species were present at Gaston and Vir 150.

[8] Elizabeth Reitz assisted in the identification of the walleye (*Stizostedion vitreum*) specimens while the author was visiting the comparative collections at the University of Georgia Natural History Museum.

[9] It is highly unlikely that the bones of these species arrived at their respective sites through trade. Moreover, the contexts from which the bones were recovered strongly suggest that they are culturally and temporally associated with the Late Woodland period.

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Collections. All archaeological collections studied by this project are housed at the Research Laboratories of Archaeology, University of North Carolina at Chapel Hill.

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BEYOND THE RESTORATION: RECONSTRUCTING A PATTERN OF ELITE LIFESTYLE AT COLONIAL TRYON PALACE

by
Thomas E. Beaman, Jr.

Abstract

This study seeks to determine whether the normative ranges of Stanley South's Carolina Artifact Pattern, as proposed in his 1977 seminal work *Method and Theory in Historical Archaeology*, are inclusive of high status and elite British colonial households. While the Carolina Artifact Pattern has been used (and in some cases, abused) by historical archaeologists over the past 24 years, it is posited that the expected ranges are not adequate to accommodate elite households. To test this hypothesis, an artifact profile was created in the Carolina Artifact Pattern format for Tryon Palace, one of the most unique elite colonial residences in North Carolina. Based on the results from Tryon Palace and four other high status households, deviations in the Kitchen, Architecture, Clothing and Activities artifact groups are considered as potential markers of elite households.

"We have found nothing which is French – we may have a little German somewhere but practically all is English and if you will trace down the dating on these and the fashion, you will find that everything was in the height of fashion – the latest thing and I think very choice in design." — Morley Jeffers Williams (Minutes of the Tryon Palace Commission, June 22, 1953, pg. 21).

The use of models and patterns are integral factors in the growth of historical archaeology, as they provide a standardized template for the analyses and interpretation of artifacts. Deviations from an established pattern may raise questions that otherwise might have been missed within an artifact assemblage, such as sampling biases or issues of interpretation (e.g., the identification of a specialized behavior or activity). One such example is the discovery of extensive tailoring activity at the Public House at Brunswick Town (South 1977:102). Of course, the intent of pattern recognition is a first step in the study of cultural processes responsible for behaviors reflected in such patterns.

One such pattern is Stanley South's Carolina Artifact Pattern, used in the analyses and interpretations of British Colonial households (South 1977:83–139). In this analytical method, artifacts are classified by their primary function into eight groups: Kitchen, Architecture, Furniture, Arms, Clothing, Personal, Tobacco Pipes and Activities. These groups

were intended to represent the range of domestic activities at British colonial sites. South also proposed that there were broad regularities, or patterns, in the relative proportions of these artifact groups across colonial sites that reflected a typical or "normative" range of activities on domestic sites. He termed the pattern of such regularities "The Carolina Artifact Pattern." Any deviations from the expected ranges of normative behavior noted in this pattern would therefore reflect different activities at a site.

As the frequency ranges for the Carolina Artifact Pattern were based on domestic refuse from suspected middle class and military sites, it is possible that assemblages from some households may not fall within the frequency relationships of artifact classes as defined by South. At the time South published his pattern, the attention of historical archaeologists had primarily shifted to investigations of "disenfranchised" and lower status households. While it has been demonstrated that a number of lower status households often do not fall within the normative ranges of the Carolina Artifact Pattern (cf. Wheaton et al. 1983; Singleton 1985), this pattern has not been as thoroughly tested on high status or elite households. This study seeks to test whether or not the normative frequency ranges of the Carolina Artifact Pattern are adequate to accommodate the elite lifestyle of Tryon Palace, the opulent, pre-Revolutionary, Palladian-villa style residence of loyalist governors William Tryon and Josiah Martin in New Bern.

Analysis of the "Palace" Assemblage

Tryon Palace is, in the words of historical anthropologist Rhys Isaac (1982:39), an "architectural pronouncement of social order," a residence that illustrated high status in house size, location, and style, and that required great wealth to construct, furnish, and maintain. The history of this grand structure and landscape has been thoroughly documented in Dill (1955), and a detailed account of architectural and archaeological features related to the original Palace buildings and landscape has since been amassed (Beaman 2000). Unfortunately, to date no specific contextual information has been discovered to restore provenience to any portion of this large artifact assemblage, recovered during excavations by Morley Jeffers Williams in the 1950s.

Supported by a generous grant from Tryon Palace Historic Sites and Gardens, the author began research on the artifacts in June 1998 and continued intermittently through August 2000. During this time, 72 of the 194 boxes of artifacts that comprise the collection were inventoried (a 37.11% sample of boxes) and 45,193 artifacts were cataloged. Fifty of

these boxes were arbitrarily chosen and 22 boxes were purposefully selected for artifacts dating to the period of the original Palace. The specific box selections and the "Williams' numbers" included within each box are detailed in Appendix A in Beaman (2001a). In addition, 108 miscellaneous Palace period artifacts recently returned from the North Carolina Museum of History were cataloged and included in the total artifact count. A table of the complete artifact catalog, with all of the datable artifacts assigned *terminus post quem* (TPQ) and other non-datable artifacts that were likely related to the Palace, is included as Appendix B in Beaman (2001a).

The complete artifact catalog was entered into East Carolina University's *Re:Discovery* computer database and a list of the artifacts that dated to the original Palace, specifically the period from 1770 to 1775, was generated. This period was chosen as it exemplifies a time when the occupants of the Palace were considered elite in wealth and status. After 1775, the buildings were used infrequently for a variety of purposes until the main building burned in 1798. Artifacts with a TPQ of after 1775 were not included in this list, nor were artifacts that were prehistoric, not datable to the Palace period, or not identifiable. All artifacts with an earlier TPQ were included, although due to the lack of provenience information some of those artifact types, such as stub-stemmed pipes and domestic lead-glazed earthenwares, may have continued to be made until the twentieth century and would not have been associated with the original Palace. These artifacts were then reclassified as necessary into the functional groups and classes from South's Carolina Artifact Pattern. Other artifacts potentially related to the Palace but not included in South's groups and classes, such as bricks, brick bats (brick fragment with two measurable dimensions), bricketage (brick fragments with one or no measurable dimensions), ballast stones, and marine shells, were eliminated as well. Table 1 illustrates the remaining 21,735 artifacts that form the comparable artifact profile for Tryon Palace.

Artifacts from the "Palace"

Based on the artifact profile compiled for Tryon Palace shown in Table 1, the artifact group with the highest percentage of artifacts is the Kitchen Group, followed, respectively, by the Architecture Group and Tobacco Pipe Group. The Furniture, Personal, and Activities groups have the next highest percentages, followed by the Clothing and Arms groups. Each of these artifact groups, as well as the artifact classes that comprise these groups, will be discussed in more detail in this section.

Table 1. Artifact Assemblage from Tryon Palace in Carolina Artifact Pattern Format.

Artifact Category	Count	% of Total Count	Artifact Category	Count	% of Total Count
I. Kitchen Group	**10,938**	**50.3**	**VII. Personal Group**	**226**	**1.1**
1. Ceramics	7,934	36.5	27. Coins	6	< 0.1
2. Wine Bottle	2,459	11.3	28. Keys	7	< 0.1
3. Case Bottle	404	1.9	29. Personal Items	213	1.0
4. Tumbler	56	0.3			
5. Pharmaceutical Bottle	30	0.1	**VIII. Tobacco Pipe Group**	**4,295**	**19.7**
6. Glassware	30	0.1	30. Tobacco Pipes	4,295	19.7
7. Tableware	19	< 0.1			
8. Kitchenware	6	< 0.1	**IX. Activities Group**	**201**	**0.9**
			31. Construction Tools	0	0.0
II. Bone Group	**48**	**n/a**	32. Farm Tools	0	0.0
9. Bone Fragments	48	n/a	33. Toys	4	< 0.1
			34. Fishing Gear	0	0.0
III. Architectural Group	**5,750**	**26.5**	35. Stub-Stemmed Pipes	52	0.2
10. Window Glass	1,050	4.8	36. Colonoware	114	0.5
11. Nails	1,337	6.2	37. Storage Items	13	< 0.1
12. Spikes	22	0.1	38. Ethnobotanical	0	0.0
13. Construction Hardware	3,325	15.3	39. Stable and Barn	8	< 0.1
14. Door Lock Parts	16	< 0.1	40. Misc. Hardware	10	< 0.1
			41. Other	0	0.0
IV. Furniture Group	**274**	**1.3**	42. Military Objects	0	0.0
15. Furniture Hardware	274	1.3			
			TOTAL (minus Bone Group)	**21,735**	**100.0**
V. Arms Group	**18**	**0.1**			
16. Musket Balls, Shot	4	< 0.1			
17. Gunflints, Gunspalls	14	< 0.1			
18. Gun Parts	0	0.0			
VI. Clothing Group	**33**	**0.1**			
19. Buckles	5	< 0.1			
20. Thimbles	8	< 0.1			
21. Buttons	18	< 0.1			
22. Scissors	0	0.0			
23. Straight Pins	0	0.0			
24. Hook & Eye Fasteners	2	< 0.1			
25. Bale Seals	0	0.0			
26. Glass Beads	0	0.0			

Table 2. Kitchen Group Ceramics from Tryon Palace.

Material	Type	Variety	Total Count	Percent of Total Count
Coarse Earthenware			**4,283**	**53.98**
	Tin-Enameled	Delftware	2,128	26.82
		Misc. (Possible Faience)	16	0.20
	Lead Glazed	American	1,118	14.09
		British	156	1.97
		Staffordshire	861	10.85
	Olive Jar		4	0.05
Refined Earthenware			**1,059**	**13.35**
	Astbury Ware		27	0.34
	Jackfield		22	0.28
	Whieldon Ware		79	1.00
	Creamware		931	11.73
Stoneware			**2,338**	**29.47**
	White Slip Dipped		13	0.16
	White Saltglazed		1,680	21.17
	Scratch Blue		310	3.91
	Fulham		6	0.08
	Nottingham		3	0.04
	Black Basalt		6	0.08
	Red Bodied		50	0.63
	Brown Saltglazed	British	61	0.77
	Grey Saltglazed	German	209	2.63
Porcelain			**254**	**3.20**
	Chinese		254	3.20
Total			**7,934**	**100.00%**

The largest single class within the Kitchen Group is Ceramics. As illustrated in Table 2, a total of 7,934 ceramic sherds were broken down into their material types. The majority of ceramic sherds were coarse earthenwares (53.98%), comprised almost equally of tin-enameled (delftware) and lead-glazed ware types. Examples of the delftware and British lead-glazed coarse earthenwares recovered and reconstructed from Williams' Tryon Palace investigation are shown in Figures 1 and 2. The second largest ceramic material type was stoneware (29.47%) with white salt-glazed stoneware being the primary ware type. Creamware was predominant in the Refined Earthenwares as the next largest material type (13.35%), with a small percentage of porcelain (3.20%) completing the total assemblage. The percentages of different material and ware types from Tryon Palace presented in Table 2 is decidedly different than the

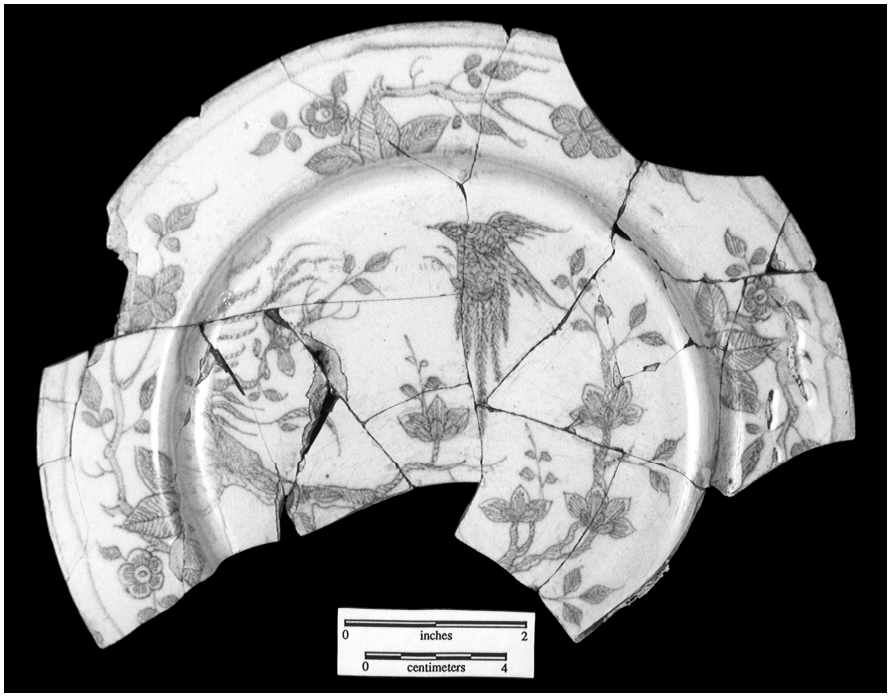

Figure 1. A reconstructed blue hand-painted delftware plate from the Palace assemblage.

ceramic profile of Russellborough, a contemporary equally high status residence in Brunswick Town (Beaman 2001a:70–71), and may be indicative of consumer choice patterns. While a vessel form analysis was outside the stated goal of this study, high percentages of certain vessel forms that may be indicative of high status, such as punchbowls, teacups (Figure 3), and teapots (Goodwin 1999:118–144), were observed in the Tryon Palace collections.

Wine Bottles constituted the next highest percentage at 11.3% (2,459 fragments) of the other classes in the Kitchen Group, followed by Case Bottles with 1.9% (404 fragments). Pharmaceutical bottles represented 0.1% of the total assemblage with 30 fragments and included a variety of hand blown styles and sizes of bottles (Figure 4). Of particular interest were two mended fragments of a Robert Turlington's "Balsam of Life" phial base with an embossed date of 1770 (Noël Hume 1969:74). There were 56 fragments (0.3%) of glass tumblers, including four hand blown bases with pontil scars. Glasswares included 30 fragments (0.1%) of hand

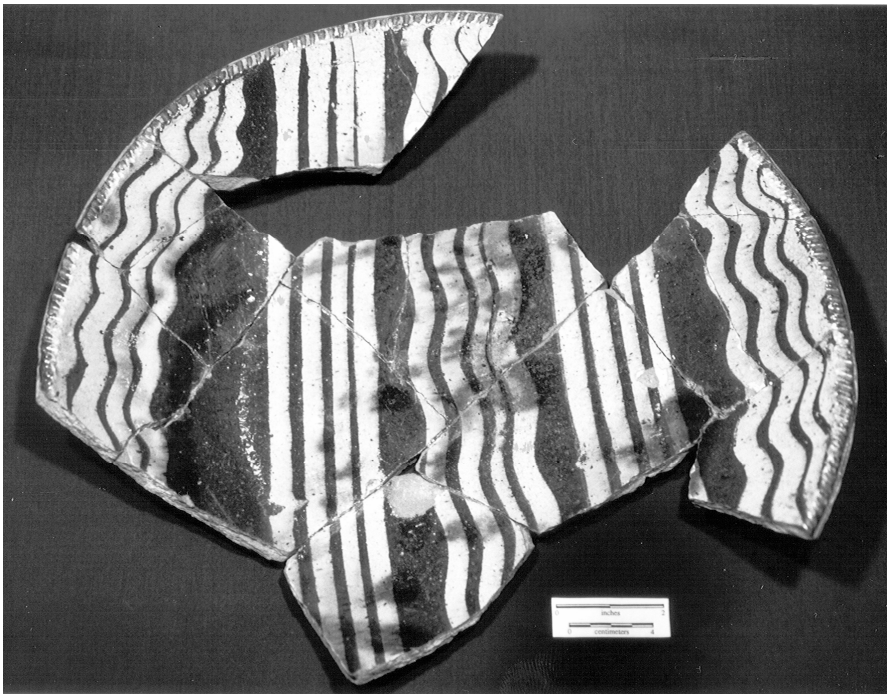

Figure 2. A reconstructed British lead-glazed earthenware platter with slip decoration and copper splashes, possibly Midlands (Grigsby 1993:52–53).

blown table glass, which represented a decanter (n=5), a fruit compote for a table stand (n=2), and five decorative varieties of stemware: plain (n=7), a drawn stem with an elongated tear (n=1), a drawn stem with an air twist (n=1), opaque hand blown white ribbon (n=2), and hexagonal faceted stems (n=12) (Noël Hume 1969:Figure 64). Two pewter spoons with oval-shaped bowls, two three-pronged forks, and 15 bone utensil handles comprised the Tablewares Class (< 0.1%). One of these handles was a pistol grip style, five exhibited carved designs, and the other 10 were plain. Kitchenware included only six iron artifacts (< 0.1%): a portion of a dangle spit cooking apparatus, a fragment of a cook pot, and four kettle fragments.

Architecture had the second highest percentage of the groups with 26.5%, or 5,750 artifacts, that dated to the period of the original Palace. Construction Hardware was the largest class within this group at 15.3% (3,325 artifacts) and contained the greatest diversity of architectural material. Iron artifacts in the class included hinges (n=5), a pintle, and two

Figure 3. Ceramic tea bowl forms from the Palace artifact collection. Top row (*left to right*): Delftware, "scratch blue" white salt-glazed stoneware, white salt-glazed stoneware. Bottom row (*left to right*): lead-glazed earthenware (possibly Whieldon's Jackfield [Noël Hume 1969:123]), creamware, Chinese import porcelain.

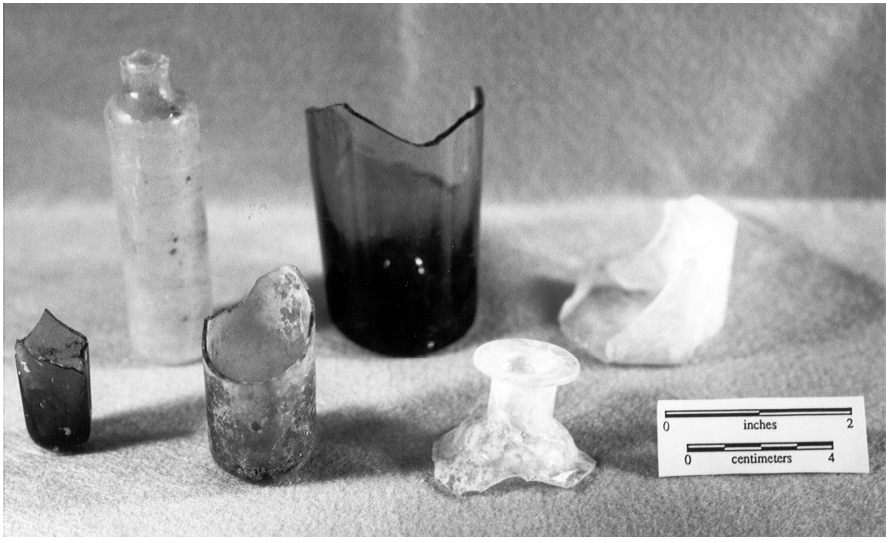

Figure 4. Fragments of hand blown medicine bottles and phials that date to the period of the original Palace (ca. 1767–1798).

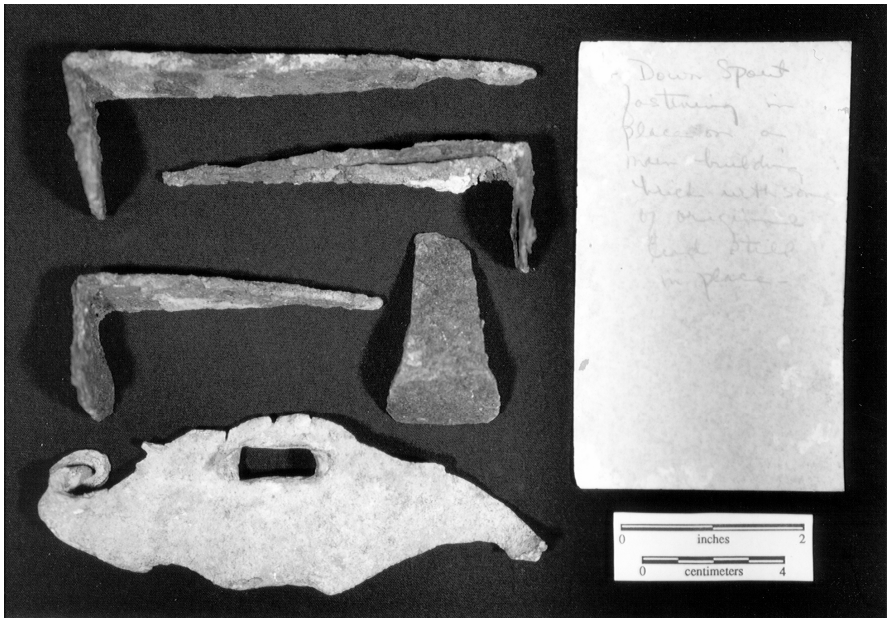

Figure 5. Fragment of lead gutter or downspout and wrought iron spikes from the original Palace. The note accompanying these artifacts states, "Down spout fastening in place on Main Building brick with some of original lead still in place."

shutter latches. Fragments of plain struck (non-ornamental) plaster (n=1,767) and marble mantle fragments (n=299) from the Palace period are part of this class as well. Several of the more interesting artifacts from the Construction Hardware Class are a fragment of lead guttering and downspout with iron fasteners for the original Palace (Figure 5) and a cast lead window weight. Small strips of lead solder (n=1,238) were also identified and included within this class. Williams described finding such fragments under the original Palace floor. He described them as, "That's a bit of lead—when they burned the lead as they called it, soldered as we call it, they had to get a fresh edge. These are the little edges they scraped off at that time, before the floor was laid" (Minutes of the Tryon Palace Commission, June 22, 1953, pg. 20).

The Window Glass Class contained 1,050 fragments (4.8%), broken down into crown glass (n=344, all of which were colorless) and fragments of colorless (n=654), light green (n=16), and aqua-tinted (n=36) sheet glass. An additional 8,790 fragments of what appeared to be melted window glass were noted in the catalog, but because they could not be positively identified as such, they were not considered in this analysis.

Unfortunately, the duration of this research project was too brief and the scope too narrow to fully describe each potential fragment of window pane glass with a Munsell color value and measured thickness. This limitation made it problematic to sort out which fragments of window glass dated to the original Palace versus the local neighborhood of the nineteenth and twentieth centuries.

The other three classes within the Architecture Group were Nails (6.1%), Spikes (0.1%), and Door Lock Parts (< 0.1%). A total of 1,337 wrought nails were cataloged within the assemblage, including 380 with rose-heads, 70 with T-heads, and 44 small enough to be considered tacks. The remaining 843 specimens were nail fragments. Only 22 wrought spikes were identified. The smallest class was Door Lock Parts with 16 artifacts. Iron parts included a knob shank, a locking bar, and nine fragments of a case lock. Other door lock parts were made of copper alloy and included a cast knob, a locking plate, and three keyhole escutcheons.

The Furniture Group, and its only class, Furniture Hardware, contained 274 artifacts. All of the artifacts within this group and class were made of copper alloy and included such furniture hardware as plates and drawer escutcheons (n=41), corner protectors (n=5), drawer pulls (n=3), finials (n=3), hinges (n=8), and inset moldings (n= 9). However, furniture tacks were the largest artifact type with 205 identified fragments. A sample of furniture hardware from Tryon Palace is shown in Figure 6.

The Arms Group is the smallest class with only 18 specimens, or 0.1% of the artifacts that date to the period of the original Palace. Four round lead shot constituted the Musket Ball/Shot Class. Based on their size (i.e., diameter), three of these shot were for longarms and the fourth was for a pistol. The second class, Gunflints/Gunspalls, contained 14 artifacts. Of the eight prismatic gunflints identified, seven were manufactured for use in longarms. Five of these were of light grey (Munsell 10YR 6/1–2), dark grey (Munsell 10YR 3/1), or black (Munsell 2.5YR 3/0) flint/chert, while two were from a honey-colored (Munsell 10YR 5/2–6) flint/chert. The remaining prismatic gunflint was from a honey-colored (Munsell 2.5Y 5/6) flint/chert and made for use in a pistol. Three spalls (two grey/black and one honey-colored) for longarm use and three retooling flakes (also two grey/black and one honey colored) were noted. No gun parts were identified during the artifact cataloging.

Clothing is the second smallest group with 33 artifacts (0.1%). The Buttons Class is the largest of this group with 16 specimens. These buttons were identified based on South's (1964) button typology and included Button Types 2 (n=1), 3 (n=5), 6 (n=2), 9 (n=3), 13 (n=1), and 15 (n=1), all of which have previously been recovered in archaeological

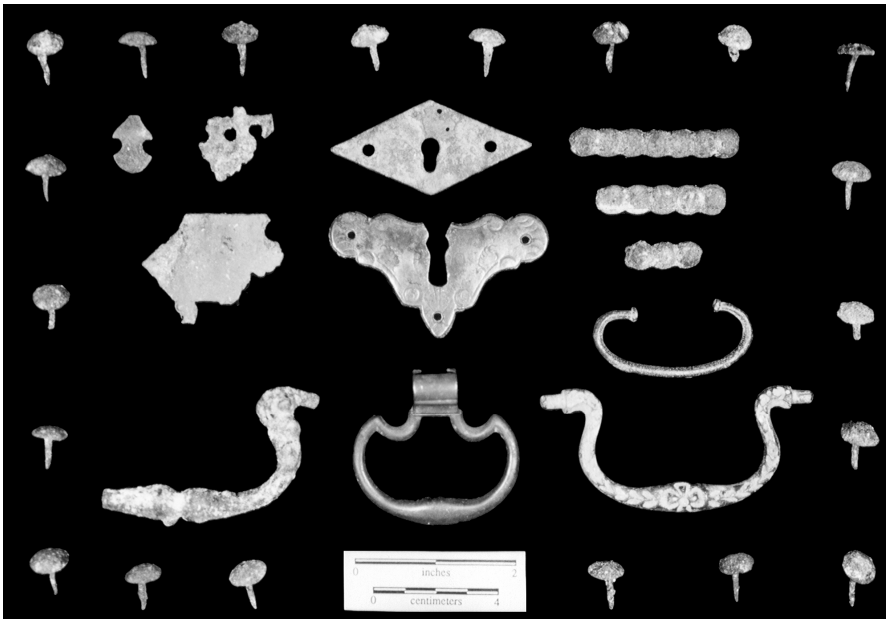

Figure 6. A sample of furniture hardware artifacts from the Palace collection.

contexts that date between 1726 and 1776. Three other buttons were identified, two of which were 2-hole buttons made of shell. The final button was a small, gold sleeve button with a bust of King George III of England (reigned 1760–1820), shown in Figure 7. This button was recovered from a well behind the West Wing (PDR 91). Two pair of copper alloy sleeve links with colorless cut glass insets were also assigned to the Button Class (South 1964:129–130). The Buckles Class had one shoe buckle, one belt or strap buckle, two britches buckles, and one tang, all of which were made of copper alloy (Noël Hume1969:84–88). The eight copper alloy thimbles identified belong in the Thimble Class, and two copper alloy "frogs" (fasteners) comprise the only artifacts from the Hook and Eye Fasteners Class (Noël Hume 1969:254–257).

The Personal Group contained 226 artifacts, or 1.1%, in three classes: Coins, Keys, and Personal Items. There were 14 coins from the total assemblage, but only six could be clearly identified as dating before or during the period of the original Palace. Five of these coins were copper alloy halfpennies with busts of King George II of England, who reigned from 1727 to 1760 (Brooke 1962:229). The other identifiable coin was a silver quarter piece of a Spanish Real (Noël Hume 1969:171). The other

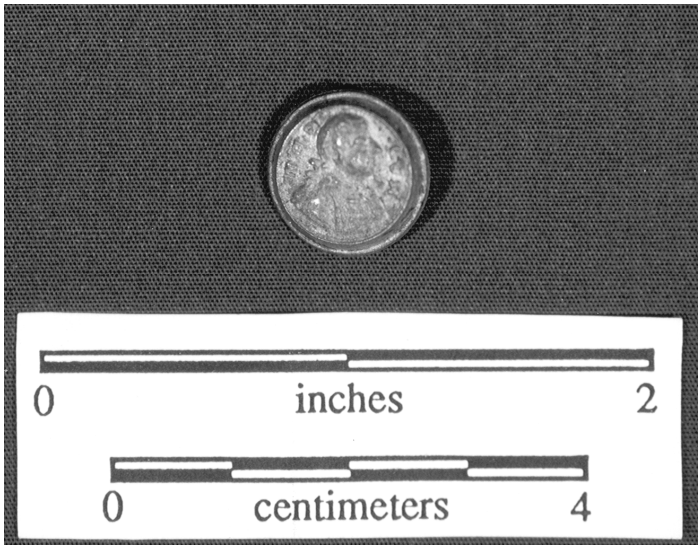

Figure 7. A gold sleeve button with a bust of George III recovered from the bottom of a well behind the West Wing of the Palace (PDR 91).

coins, including two other quarter fragments and two King George III of England coins, could not be clearly identified or dated to the period after the original Palace burned and were not considered as part of the Palace-period assemblage. From the Key Class, only seven fragments of iron keys were identified.

The remaining 213 artifacts belong to the highly diverse Personal Items Class. Artifacts related to grooming activities in this class include two eighteenth-century kaolin/ball clay wig curlers (Noël Hume 1969:321–323), two mirror fragments, and five fragments of a bone-handled hairbrush and toothbrushes. Chamber pots are part of this class, and fragments of a Staffordshire lead-glazed earthenware (n=47), a white salt-glazed stoneware (n=47), and at least two creamware chamber pots (n=73) were identified. This class also included many personal accessories from the colonial era, such as six copper alloy finger rings. Four of these have plain bands and settings with faceted glass "stones," one is a large plain band, and one is a signet-style ring (Noël Hume 1969:265–266). A cane tip of copper alloy, coated with a silver wash (Neumann and Kravic 1992:58), and three pocket knives with bone handles (secured by copper alloy rivets onto an iron frame) are included in this class. A lead cap with the embossed letters "W & N, London

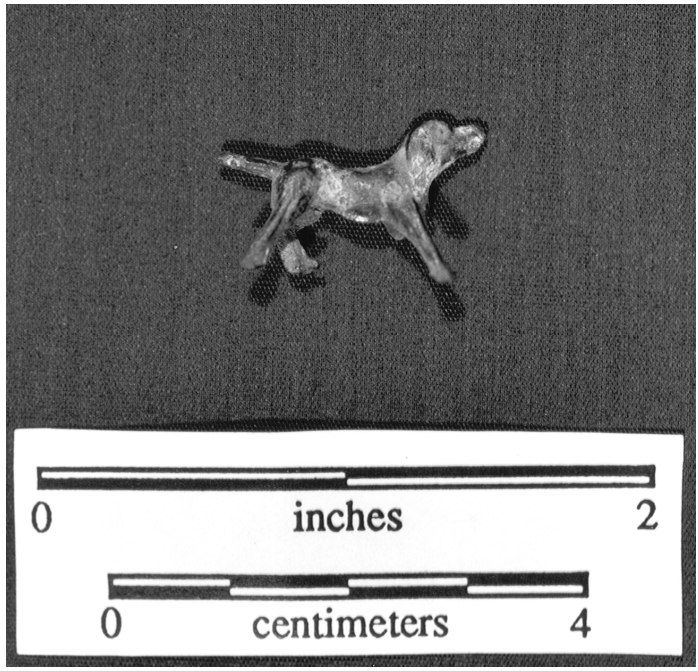

Figure 8. The decorative top of a copper alloy pipe tamp.

England," probably from a liniment or toothpaste tube, was also noted. Personal artifacts related to literacy included 10 fragments of slate pencils, nine fragments of writing slates, two glass spectacle lenses of different sizes (Neumann and Kravic 1992:246–247), and a probable book latch of copper alloy. On one of the writing slate fragments, a capital letter "A" was still visible. A Staffordshire lead-glazed candlestand fragment with brown slipped dots (Noël Hume 1969:96) was also identified. Finally, as shown in Figure 8, the decorative head of a cast copper alloy pipe tamp shaped like a dog, was cataloged as part of this class. Cast copper alloy pipe tampers, also referred to as "stoppers," were manufactured as early as 1660 but the most datable portion, the tamper itself, had broken off and was not located (Noël Hume 1969:310).

The Tobacco Pipe Group represents an astounding 19.7% of the Palace-period artifacts. This group and its only class, Tobacco Pipes, contain a large quantity of imported kaolin/ball clay stem (n=3,867) and bowl (n=428) fragments. This could theoretically be interpreted as each pipe breaking into nine pieces. The forms of the identifiable bowl shapes were all determined to be British in origin (Oswald 1975). A measurement

of the pipe stems revealed three sizes of bore diameters: $^{4}/_{64}$ inch (n=1,357, 35%), $^{5}/_{64}$ inch (n=2,485, 64%) and $^{6}/_{64}$ inch (n=25, 1%).

The final group, Activities, contained only 201 artifacts (0.9%) but contained the most artifact diversity in the assemblage that dated to the Palace period. These artifacts were classified into six classes: Colonoware, Stub-Stemmed Pipes, Toys, Storage Items, Stable and Barn, and Miscellaneous Hardware. To some it may be enigmatic as to why colonoware is classified within the Activities Group instead of the Kitchen Group with other ceramics. While a good argument may be posited to include these low-fired coarse earthenwares within the Kitchen Group, their uncertain origin and function places them in the Activities Group. The underlying cultural values and differences that accompany the manufacture of colonoware versus British ceramics in the Kitchen Group make the Activity Group a logical place to classify this ware when considering households where the primary occupants are of European descent. For structures where the primary occupants are of African descent, Wheaton et al. (1983:277–286, Wheaton and Garrow 1985:251–256) have previously proposed the "Carolina Slave Pattern," where colonowares are included as part of the Ceramics Class in the Kitchen Group.

Within the Colonoware Class were 114 sherds, of which two distinct types (as described by Beaman 2001b) of this coarse earthenware could be differentiated. All of the sherds contained small amounts of fine sand, but were generally without temper. The first type (n=50) had a moderately thick body (6–7 mm), with both plain and burnished surface treatments. The second type (n=64) noted has a thinner body (4–5 mm) and a finely burnished exterior. Both types exhibited incised decoration on several sherds. While a minimum vessel count was outside the scope of research for this project, it was noted that all of the sherds were from small, shallow bowl forms.

The Stub-Stemmed Pipe Class contained a total of 52 fragments. Some of these coarse earthenware pipes were plain (n=16), others were fluted (n=33), and three were anthropomorphic in design. None of the three anthropomorphic pipes appear to have originated from Moravian potters in the Wachovia area, as the manufacture of stub-stemmed pipes was a side-line cottage industry with many indigenous potters in North Carolina (South 1965, 1999; Carnes-McNaughton 1997). These pipes likely received their own class in the Activities Group rather than the Tobacco Pipe Group because they had a lengthy period of production from the late eighteenth through the nineteenth centuries and were not as datable as the imported kaolin/ball clay pipes.

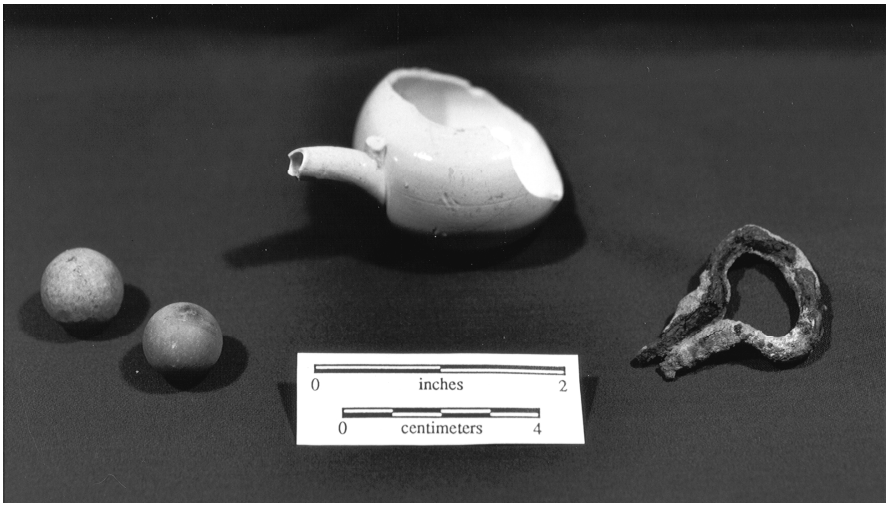

Figure 9. Artifacts identified as toys from the Palace collection include two clay marbles, a miniature white salt-glazed stoneware teapot, and a mouth harp.

The remaining classes from the Activities Group each contained <0.1% of the Palace period artifacts. Only four artifacts were classified as Toys: two clay marbles, an iron mouth harp, and a miniature white salt-glazed stoneware teapot (Figure 9). Miniature white salt-glazed stoneware teapots were very popular from ca. 1730–1765 when, like their larger counterparts, potters began to manufacture the form in creamwares (Noël Hume 1969:313). Thirteen fragments of iron barrel bands comprised the Storage Items Class. Artifacts from the Stable and Barn Class include six iron buckles, and iron handle, and a copper alloy decorative carriage boss. Finally, an andiron, a hook, an S-hook, a wick trimmer, and a padlock (all iron), and a lead hook were classified into the Miscellaneous Hardware Class.

Discussion

As illustrated in Table 3, the artifact profile for Tryon Palace does indicate a deviation from the expected normative ranges of the Carolina Artifact Pattern. This profile, based on a 37.11% sample of the storage boxes for the artifacts recovered during Williams' excavations in the 1950s, shows a deviation in all functional artifact groups except Architecture, Arms, and Activities. The Furniture, Personal, and Tobacco Pipe groups exceed the upper end of the expected range, while the Kitchen

Table 3. A Comparison of Tryon Palace Artifacts with Carolina Artifact Pattern Normative Ranges and Mean Values.

	Carolina Artifact Pattern		Tryon Palace	
Functional Artifact Groups	Normative Ranges (%)	Calculated Mean (%)	Total Artifact Count	Percentage of Total Count
Kitchen	51.8 – 69.2	63.1	10,938	50.3
Architecture	19.7 – 31.4	25.5	5,750	26.5
Furniture	0.1 – 0.6	0.2	274	1.3
Arms	0.1 – 1.2	0.5	18	0.1
Clothing	0.6 – 5.4	3.0	33	0.1
Personal	0.1 – 0.5	0.2	226	1.1
Tobacco Pipe	1.8 – 13.9	5.8	4,295	19.7
Activities	0.9 – 2.7	1.7	201	0.9
Totals	n/a	100.0	21,735	100.0

and Clothing groups were below their respective ranges. Though within the ranges for the Carolina Artifact Pattern, the Architecture Group is slightly above the mean value and the Arms and Activities groups are below the mean value for those groups.

The Kitchen and Clothing groups do not meet the minimum of the expected ranges. It is possible that the Palace was occupied for too brief a time for a large midden of broken Kitchen Group debris to form. As suggested by Deetz (1977), another possibility is the occupants of the Palace had a more ordered "Georgian worldview" that resulted in a different pattern of refuse disposal. Still another possibility is that primary and secondary middens with material from the "Kitchen Group" were destroyed in the construction of George Street or subsequent development in the area. The small quantity of zooarchaeological material observed in the Palace collection supports all of these possibilities. A possible preference for traditional British ceramics and glasswares over domestic wares may also argue for a higher degree of curation for Kitchen Group artifacts. This higher degree of curation of material may also account for the low percentage of artifacts in the Clothing Group. For example, even though some individuals may hold an elite status within a society, typical high status items such as gold sleeve buttons and buckles washed in silver are not as easily replaceable as common buttons and buckles.

The Architecture Group is within the expected ranges of the Carolina Artifact Pattern at 26.5%. This finding was unexpected, as the Palace is

considered a unique residence among others in the town of New Bern. While historical accounts such as those from Morse (1789:412) and Schoepf (1968, II:128–129) describe how the Palace was clearly anything but a typical residence, the reason this value may hold within the normative range is due in large part to its construction material. The Carolina Artifact Pattern was defined on sites where the structures were made predominantly made from wood, whereas by contrast the Main Building, East Wing, and West Wing of the Palace were constructed of brick. Though nails and spikes, as necessary materials in wooden structures, are considered part of South's quantitative pattern, bricks, brickbats, bricketage and mortar fragments are not. Even though these materials related to brick construction are not part of the Carolina Artifact Pattern, the remaining architectural artifacts (e.g., nails, spikes, window glass, shutter latches, etc.) for the Palace do exceed the mean value of 25.5%. Schoepf's (1968, II:129) description of architectural material removed from the Palace by the residents of New Bern in the 1780s should also be considered as a factor for a less than expected higher percentage. These pilfered items, such as "pannels of glass" and "locks," would not appear in the archaeological assemblage for the Palace and could not be factored into a quantitative artifact analysis.

The Arms and Activities groups are also within the expected ranges of the Carolina Pattern, though both are below what has been calculated as a mean for each artifact group. The Arms Group is only 0.1% for the Palace while the mean value is 0.5%. Zierden and Calhoun (1986:39) have suggested a reduced dependency on firearms in urban residences may account for a lower than normative Arms Group value. In colonial society, firearms traditionally were used for self-protection and for hunting wild game to supplement dietary needs. The environment of a colonial village, city, or urban area, where there usually was some form of law enforcement and consumables were available at a central market, would not be the same as on an isolated plantation or frontier community where firearms would be more of a necessity. A lower than normative value for the Activities Group may be because structures representing a diversity of activities simply were not located or excavated. The West Wing of the Palace, which served as the stable in the eighteenth century, was a standing structure during the restoration and received limited archaeological investigation. Other outbuildings of the Palace that contained material that would increase the count and percentage of the Activities Group (e.g., the smokehouse, pigeon house, and poultry house) were not located in the excavation (Perry 1956:1–2).

The Furniture, Personal, and Tobacco Pipe groups well surpassed the expected ranges for these artifact groups. The greater-than-expected percentage of Furniture Group may have resulted from the later occupation of the Palace. The instructor from the New Bern Academy and his family lived on the second floor of the Main Building, and the Masonic Lodge of New Bern still met intermittently in the structure when it burned in 1798 (Dill 1940:27–30). At that time, these occupants likely had furniture in the Main Building. This may also explain the high percentage of artifacts from the Personal Group. While some of the items could have resulted from this latter occupation, some of the artifacts, such as a bone handle hairbrush and silver-washed copper alloy cane tip, point to a more high-status occupation and likely originated during the Tryon-Martin era of the Palace.

The artifact group that most exceeded its expected range is the Tobacco Pipe Group with 19.7%. Though the use of tobacco was a societal norm for both men and women in the Colonial Era, the large percentage of tobacco pipes likely represents a sampling bias within the artifact collection. While a 37.11% sample represents over one-third of the total collection and constitutes a viable statistical sample, based on the method of choosing boxes for analysis, some groups may be either over represented or under represented in the artifact profile shown in Table 1. This delineation of artifacts by the author may be based on the immediate recognition of artifacts that likely dated to the Palace period. Two examples of artifact classes in which this may have occurred are Tobacco Pipes and Window Glass. The Tobacco Pipe Class may have been sampled too greatly while the Window Glass Class may be under-represented for a 37.11% sample. Such a sampling bias in one or more functional artifact groups would affect the percentages for other groups.

As a result of the excavation methodology and history of artifact curation from Williams' excavation of the Palace, two other factors may have affected the artifact profile for the Palace. The first factor is the recovery techniques used during the excavations. It is not known what size screens were used, but many of the artifacts appear no smaller than approximately $^1/_2$-inch in diameter. This suggests that $^1/_2$-inch or a larger size mesh screens may have been used. Even with $^1/_4$-inch mesh screens (the current standard), small items such as straight pins, buttons, fasteners, and tiny glass beads occasionally slip through unnoticed. The other factor is the lack (or co-mingling) of proveniences for artifacts within the collection. Artifacts cataloged and analyzed may be from structures of differing functions, such as the Main Residence, the Kitchen, wells, privies, the yard and garden areas, and even perhaps from the enigmatic

Table 4. Tryon Palace Artifacts Compared with Other Reported High Status Residences and the Carolina Artifact Pattern.

	Carolina Pattern						
Functional Artifact Groups	Normative Ranges (%)	Normative Mean (%)	Russell-borough (%)	Tryon Palace (%)	Hill House (%)	Aiken-Rhett House (%)	Gibbes House (%)
Kitchen	51.8 – 69.2	63.1	50.5	50.3	42.12	64.24	51.40
Architecture	19.7 – 31.4	25.5	46.8	26.5	55.80	32.49	41.30
Furniture	0.1 – 0.6	0.2	1.8	1.3	0.01	0.30	0.00
Arms	0.1 – 1.2	0.5	0.1	0.1	0.44	0.96	0.53
Clothing	0.6 – 5.4	3.0	0.3	0.1	0.27	0.32	0.16
Personal	0.1 – 0.5	0.2	0.1	1.1	0.03	0.17	0.28
Tobacco	1.8 – 13.9	5.8	0.2	19.7	0.96	0.72	4.71
Activities	0.9 –2.7	1.7	0.2	0.9	0.37	0.76	1.61
Totals	n/a	100.0	100.0	100.0	100.0	100.0	100.0

"ballast stone cellar." A structure or feature of a particular function (such as a kitchen or stable) will affect the artifact frequency ratios and may not meet the ranges of the pattern designed for normative eighteenth-century households.

Comparison and Interpretation

The statistical profiles for artifacts from Tryon Palace did not meet the normative frequency ranges of the Carolina Artifact Pattern in the majority of functional artifact groups. However, a pattern of high status and elite households cannot be identified solely on the analysis of one residence. A search through archaeological literature identified four contemporary residences: Russellborough at Brunswick Town (Beaman 2001a); the Hill House from Shirley Plantation, Virginia (Reinhart 1984); and the Aiken-Rhett House and the Gibbes House, townhouses from Charleston, South Carolina (Zierden and Calhoun 1990). These four residences were suitable choices to compare with Tryon Palace in this study, as each structure represents a high status household with artifact data organized in the Carolina Artifact Pattern format. A comparison of the functional artifact groups for all five residences is summarized in Table 4.

Each of the five high status or elite structures profiled in Table 4 illustrate some deviation from the calculated mean and expected ranges of the Carolina Artifact Pattern. While no single factor appears to readily

identify high status or elite residences, such status may be revealed through a combination of groups. Several general trends among artifact groups are apparent. The Architecture Group values are consistently higher than the normative totals for the Carolina Artifact Pattern, while the Kitchen, Clothing, and Activities groups are uniformly lower than normative levels. The Furniture, Arms, Personal, and Tobacco groups appear to vary highly between structures. The variation among these latter four groups suggests more immediate factors within these residences that may not necessarily be linked to high status, such as location (e.g., plantation versus urban), individual behaviors (e.g., smokers versus non-smokers), and choices made by the residents (e.g., varieties of consumer goods and the degree of curation items received). The similarities among the five high status structures noted in the Kitchen, Architecture, Clothing, and Activities groups suggest that high status and elite households may be detected through variations in the normative ranges of Stanley South's Carolina Artifact Pattern. The challenge now becomes how to provide meaning to these statistical deviations and attempt to explain why they are representative of elite households.

The Architecture Group is the only group that exceeds the normative mean, and in some cases the normative expected ranges, in each high status or elite residence. The proposed Carolina Elite Pattern, however, is not the first pattern to reflect a significant increase in architectural artifacts based on high status. In a comparative study of three plantation houses in South Carolina and Georgia, Lynne Lewis (1985:130) suggested that one of the more reliable indicators of status in the coastal Southeast may be the relationship between the Kitchen and Architecture groups, where a higher percentage of architectural artifacts may indicate high status. Lewis based this assertion on the hypothesis that high status households will produce more architectural artifacts than lower status households because they are larger and more elaborate. This hypothesis holds true in the high status residences examined here (Table 4). The Architecture Group exceeds the expected ranges of the Carolina Artifact Pattern for each structure, Tryon Palace excepted (for reasons discussed above). High percentages of architectural artifacts are not a surprise when one considers that most high status or elite households would be larger, of a different architectural style, and more ornamental, both functionally (e.g., gutters and downspouts, door lock parts, and shutter dogs) and decoratively (e.g., delftware tiles, marble mantles and facings, and lead window cames), than normative residences. These ornaments and decorations are correctly classified as architectural artifacts and do result in a higher frequency for the Architecture Group. As such, each of these five residences represent what

Isaac (1982:39) aptly described as "architectural pronouncements of social order."

Lower than mean values for Kitchen, Clothing, and Activities groups are also common trends among the high status and elite residences described in Table 4. With the exception of the Aiken-Rhett House, the Kitchen Group for each residence is not only below the mean value but is also below the lower end of the expected range. A lower than normative Kitchen Group may suggest that a different structure was used for food preparation, cooking, and storage. Lower percentages for Kitchen groups may also suggest a potentially higher degree of curation if certain kitchen artifacts (e.g., ceramics and table glass) are of a higher quality or are more unique or expensive. This hypothesis would require a comparative qualitative assessment for artifacts in this group at each residence. Additionally, the possibility exists that a much larger than normative Architecture Group could also statistically overshadow the Kitchen Group in the Carolina Artifact Pattern, as these two groups are consistently the largest two artifact groups by percentage.

The lower than normative Clothing Group percentage may be a result of more unique and expensive materials that received greater curation in high status residences. For example, Goodwin (1999:114) asserts that certain items of material culture were used as "props to display character and access to certain types of information, but they also provided a distraction and gave something to which one might pay attention when otherwise at a loss in company." As buckles, pins, and buttons were common components of both male and female clothing during the Colonial Period, Goodwin (1999:117–118) suggests that high quality clothing items, such as silver washed buckles, wrapped head pins, and varieties of buttons, were one such prop purchased by the wealthy to distinguish themselves from those who could not afford such luxuries. Such "precious" items would be more highly curated than similar, readily available artifacts and likely would have been accidentally lost, as opposed to intentionally discarded. Goodwin's explanation may offer potential insight into why the Clothing Group exhibits lower frequencies in high status households than in normative households; however, further qualitative studies of the Clothing Group in each of the five residences represented in Table 4 would be necessary to support or refute this hypothesis.

Finally, the Activities Group value for each residence is lower than the calculated mean and, in Russellborough, Hill House, and the Aiken-Rhett House, the group is lower than the expected range of the Carolina Artifact Pattern. At Tryon Palace, the Activities Group value of 0.9% is at

the bottom end of the range. The Activities Group is intended to measure a more diverse array of activities than any other group, and it includes such items as construction tools, farm tools, and stable and barn related artifacts. It is very likely that such items would not be found in the main residence of a high status household. Instead, these artifacts may have been kept in an outbuilding dedicated to a specific function (e.g., a stable, barn, or a blacksmith shop). It is also possible such items may not have been owned at all. Rather, such services may have required artifacts of a specific nature and were contracted to others in a shop or at a different location.

Conclusion

Even without thorough documentary records or specific context, artifacts from previous archaeological investigations, such as those from Tryon Palace, can still be used in meaningful archaeological research. This study has demonstrated the potential that previously excavated collections have for future research. Likewise, this study has shown that analytical methodologies discarded by many modern archaeologists can still produce significant results when the appropriate questions are posed. The Carolina Artifact Pattern remains a viable model to assist in the analysis and interpretation of eighteenth-century British Colonial households.

This study of artifacts from Tryon Palace and other high status residences has provided a glimpse into how high status and elite households in Colonial America defined themselves through the Kitchen, Architecture, Clothing, and Activities artifact groups. The emphases on these artifact groups may be viewed in part as the shift toward a Georgian worldview with an emphasis on reason, order, and the individual. This shift is reflected stylistically by elaborate residences with outbuildings for specific functions (e.g., kitchens and stables) and clothing adornment. Outbuildings with specific functions provided an alternative location to keep certain artifacts, be they vessels and utensils for food preparation or construction tools. Similarly, more expensive and elaborate clothing served to distinguish higher status individuals from individuals of a lower status who could not afford or obtain such luxury items (Goodwin 1999:117–118).

Yet it must be remembered and reiterated that any pattern is not an end to itself but a means to an end. All such studies of pattern recognition are simply a first step in the study of cultural processes responsible for behaviors reflected in artifact patterns. While Colonial Period economic

theorist Adam Smith's (1991 [1776]: 394) definition of wealth includes gold and silver, land, houses, and "consumable goods of all different kinds," archaeologists may illuminate how high status and elite households defined themselves only through a combination of qualitative and quantitative artifact analyses.

By virtue of affordability, accessibility, and desirability, high status and elite households in Colonial America represent the purest reflection of the cultural traits and traditions derived from its mother country. As observed by the late James Deetz (1977:117), "And in every instance, the new order has its origins among the urban sophisticates, from whom it was passed slowly to their rural neighbors. By the time of the American Revolution, large numbers of Anglo-Americans partook of a new outlook on the world, acquired from an England under the impact of the Renaissance."

Notes

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Disclaimer. The author assumes full responsibility for any factual errors and the interpretations presented in this article.

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"EXCAVATING IN THE FORT AREA:" MILTON F. PERRY AND THE HISTORY OF ARCHAEOLOGY AT FORT MACON STATE PARK

by
John J. Mintz
and
Thomas E. Beaman, Jr.

Abstract

Milton Perry conducted the first archaeological research at Fort Macon as part of the 1952–1953 restoration project. Investigations centered on the glacis, parade ground, covertway, the cemetery, and beaches surrounding the fort. Perry's investigations are compared with subsequent archaeological projects at Fort Macon State Park and found to be an excellent example of the relevant and meaningful contributions that archaeology can make to the study of the Civil War.

The development of historical archaeology as a discipline in North Carolina can be subdivided into five distinct eras: the Antiquarian Era, the Forefathers, an Era of Transition, an Age of Mitigation and Interpretation, and a Renaissance (Mintz and Beaman 2001). The second era, the Forefathers, is a unique category based on two criteria. This 22-year period from 1947 to 1969 represents the first generation of experienced and professionally trained archaeologists who investigated historic period sites in North Carolina with formal, scientific excavation methods. It is important to note that all of these men were either professionally trained or were career archaeologists, but all had previous excavation experience before undertaking these projects. Second, the archaeological excavations conducted during this period were primarily for the restoration and development of public historic sites. Notable projects during this era include: the search for the Roanoke settlements at Fort Raleigh National Historic Site by J.C. Harrington; the location of paths and foundations of outbuildings at the main house, the formal garden, and the "slave street" at Somerset Place by William S. Tarlton (1954); Morley Jeffers Williams' extensive investigation of Tryon Palace prior to its reconstruction (Beaman 2000); and a decade of excavation by Stanley South (1994, 1999) at Brunswick Town, Bethabara, and numerous other historic sites in North Carolina (Beaman et al. 1998).

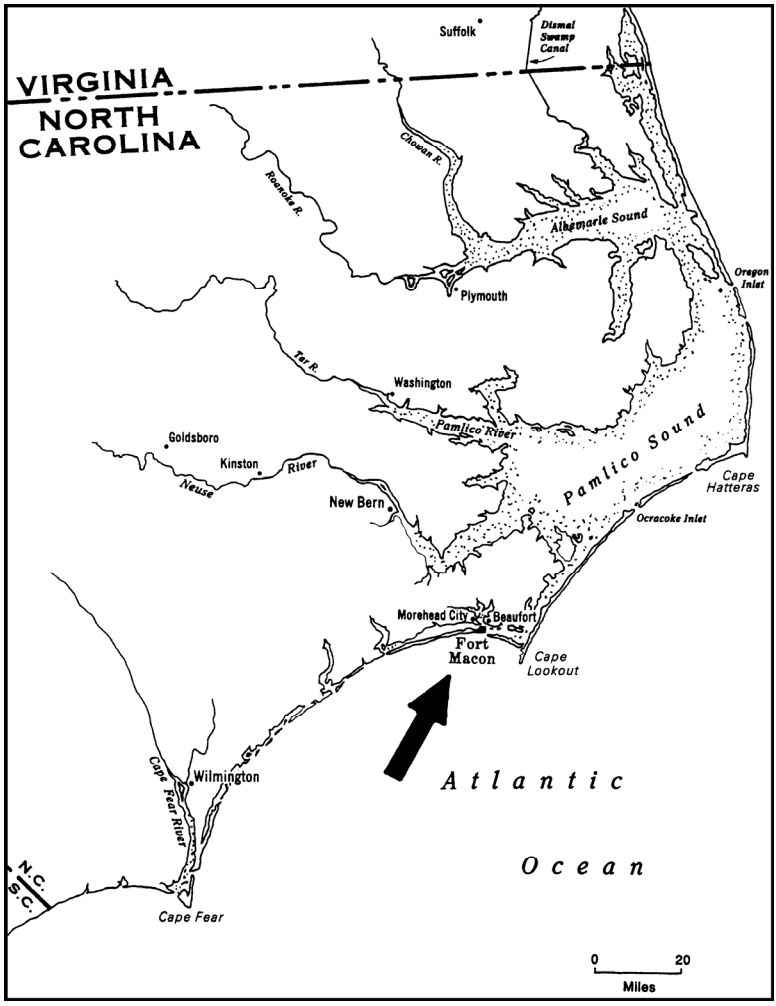

Figure 1. The location of Fort Macon along the Coast of North Carolina (after Branch 1999).

Another restoration project that included archaeological investigations during this era occurred at Fort Macon State Park, located east of Atlantic Beach in Carteret County (Figure 1). From March 1952 until May 1953, Milton F. Perry served as both curator and restoration overseer on the Civil War fortification. In his recently published history of the fort, Branch (1999:234) states of this restoration only that, "The museum was expanded during an interpretive program of 1952–53, along

with other historic restoration work." No mention is made of Perry or his contributions during these years. This study will recount Perry's previously unreported archaeological investigations to further explore his role in the restoration of Fort Macon and to compare the scope of archaeological research in this project to others of the same era.

This study will also consider Fort Macon as an example of what archaeological investigations can add to the study of the Civil War. This five-year conflict and its aftermath is one of the most researched and historically documented in the history of the United States, where primary sources are abundant, and Union and Confederate military artifacts are well-known. While this project did not involve as much excavation as some of the other restoration projects mentioned above, Perry's investigations do represent the first use of archaeology as a research tool on a Civil War era military site in North Carolina. A comparison of other archaeological investigations conducted at the state park reveals that the goals and results of these projects well typify what archaeology can contribute to Civil War sites and justifies their continued exploration.

A Brief History of Fort Macon

As the history of the construction and occupation of Fort Macon is discussed at some length in Branch (1999), it will only be recounted briefly here to provide historical context and to frame the discussion of Perry's work. Fort Macon was built between 1826 and 1834 as part of a chain of permanent coastal fortifications (later known as the "Third System") along the coast of the United States. It was the third fortification constructed to guard the entrance to Beaufort Inlet and Beaufort Harbor, North Carolina's only major deep-water ocean port, and it replaced a small, masonry structure known as Fort Hampton, which had previously replaced the eighteenth-century Fort Dobbs (shown on Sauthier's 1770 map of Beaufort). However, due to limited funding by the United States Congress, in the mid-nineteenth century Fort Macon was garrisoned infrequently, often only by a single ordnance sergeant who acted as caretaker of the facility.

On April 14, 1861, just two days after the attack on Fort Sumter in Charleston harbor, a local militia force from Beaufort seized Fort Macon. North Carolina Confederate forces held the fort for just over a year, until April 26, 1862, when it was surrendered to Union forces after sustaining heavy damages from continued naval bombing. The Union Army occupied Fort Macon for the remainder of the Civil War. Following the war, the United States Army used the fort as both a civil and military

prison until it was deactivated in 1877. Troops were briefly stationed at the fort during the Spanish-American War in the summer of 1898. In 1903, the US Army finally abandoned Fort Macon, declaring the facility totally obsolete.

A 1924 Congressional Act led to the sale of Fort Macon to the State of North Carolina for one dollar and to the establishment of a state park system. Between 1934 and 1935, the Civilian Conservation Corp (CCC) restored much of the fort and installed public facilities, allowing Fort Macon to officially open on May 1, 1936 as North Carolina's first functioning state park. Fort Macon State Park was leased by the US Army and briefly garrisoned with troops during World War II, but reopened to the public in October 1946. Since the 1950s, Fort Macon has remained North Carolina's most visited state park with over one and a half million annual visitors (Branch 1999:234).

Milton Perry and the Restoration of 1952–1953

The State Parks system (then part of the North Carolina Department of Conservation and Development) hired Milton F. Perry as the Curator of Fort Macon in March 1952 to conduct restoration work on the fort. A native of Bertie County, North Carolina, Perry graduated from William & Mary in 1950 with an undergraduate degree in history. For a time he was employed as an assistant in the craft shop at Colonial Williamsburg, but later worked as assistant director of the archaeological laboratory in the museum (*Carteret County News-Times*, March 18, 1952, page 1).

From his experience at Colonial Williamsburg, Perry knew the value that archaeological research as an investigative technique could bring to the fort restoration. The goal of the restoration was to return a portion of the fort to its original appearance prior to the 1862 bombardment by the Union Army. In May 1952, Perry described his role in the project as "doing historical research; collecting maps, pictures, sketches, etc.; chasing down legends and stories; and excavating in the fort area" (Young 1952).

Perry's archaeological discoveries at the fort have been distilled from weekly reports he filed with Mr. T. W. Morse, then Superintendent of State Parks. These "Activities Reports" (FMAR) were generally filed on Mondays and concern activities from the previous week (Monday to Sunday). They describe the general location of Perry's archaeological investigations and the discoveries made, though not in much detail. Additional information has been gleaned from newspaper articles in the

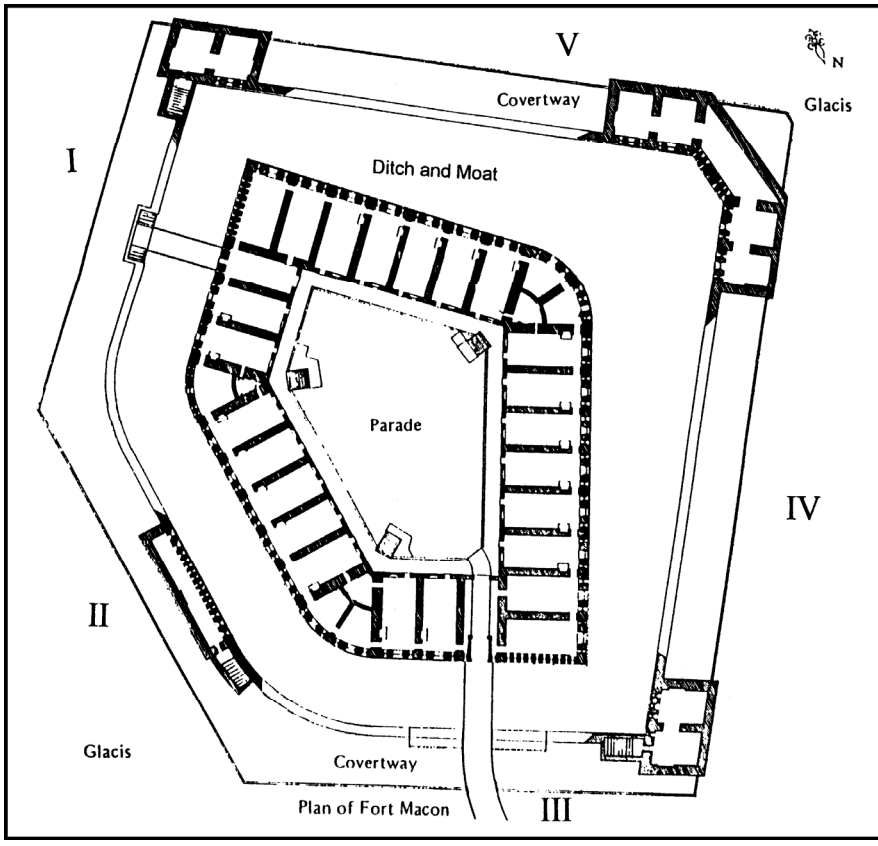

Figure 2. Map of Fort Macon illustrating parts of the fortification. Roman numerals designate the historically identified "fronts" of the fort.

Raleigh *News and Observer* (Young 1952) and the *Carteret County News-Times*.

Perry's investigations primarily focused on four locations: the glacis, the parade ground, the covertway (all visible on Figure 2) and the post cemetery. Test holes placed on the western glacis (defined as a slope leading down from a fortification) revealed two brick platforms, plaster, a number of cut nails, and glass and ceramic fragments. Perry interpreted this area as the former location of a building used for living quarters, though he did not specify a period of use (FMAR April 14, 1952; FMAR April 21, 1952). Parade ground excavations uncovered an alternate gun platform that dated to 1898 (FMAR July 1, 1952). Perry conducted extensive probing on the covertway and along Front I to locate the second

hotshot furnace built in 1845. The furnace foundation was not found, but he did note detecting an iron plate buried two feet below the surface along Front V (FMAR November 18, 1952).

Finally, Perry located a cemetery that he associated with the fort. An article in the *Carteret County News-Times* (April 15, 1952, page 1) reported that with the assistance of a former park employee, Perry had located a burial ground on the south side of the park approximately half a mile west of the fort. Only two markers were visible. The first was a single headstone, bearing the inscription "Sacred to the Memory of Mary Jane Stewart, Born October 24th, 1848, age 7 days." Perry identified the young girl as the daughter of Peter D. Stewart, an ordnance sergeant who was stationed at the fort with his family. The second was a rotted wooden marker with no inscription. A wooden coffin, sized for a small child, was found empty on the surface of this area. The top of this coffin is visible in Figure 3. Perry expected to further define the cemetery through probing, though it is not known if he ever did (*Carteret County News-Times*, April 15, 1952, page 1).

Perry also patrolled the beaches regularly for artifacts. His descriptions of what he located on the beach varied. Once, he described the discovery of "several shell fragments, railroad spike from r/r built from fort to Bogue Sound, 1840–1862, and early 19th century wine bottle" on the beach east of the Fort (FMAR July 8, 1952). Several times he simply noted, "Patrolled beach east of fort, several relics recovered" (FMAR September 2, 1952; FMAR November 25, 1952). There are tantalizing statements in other accounts, such as, "Patrolled beach near fort for relics. A number of interesting ones recovered" (FMAR September 8, 1952) and "Patrolled beach; recovered wheelbarrow full of relics" (FMAR January 6, 1953). Figure 3 shows Perry with a few of the artifacts he recovered from his investigations at the fort and from the surrounding beaches, including a cannon ball, a Parrot shell, a strap hinge, and the lid from a child's coffin.

Perry used artifacts he recovered to expand the fort's museum and to aid in the restoration. As with prehistoric Native American spear points and stone tools, artifacts from the Civil War often arouse public interest and attract attention. An initial museum display was established for the public inside the fort in 1950, which Perry expanded with displays of a number of the artifacts he recovered from the excavations (Branch 1999:234). One of these displays is shown in Figure 4.

As was the restoration philosophy of the time, Perry also attempted to use other Civil War era artifacts in the restoration. A number of these were not associated with Fort Macon. He procured several "antique" iron

Figure 3. Photograph of Milton Perry with artifacts recovered from Fort Macon State Park that appeared in the May 4, 1952, Raleigh *News and Observer*. Courtesy of the North Carolina Division of Archives and History.

locks and hinges from Morley Jeffers Williams, the landscape architect who conducted the archaeological investigation of Tryon Palace in New Bern from 1952 to 1958 (FMAR September 2, 1952). Perry consulted with Williams as to the best type of brick to use in a reconstruction of the hotshot furnace (FMAR November 3, 1952; FMAR December 17, 1952), although this furnace was not reconstructed until many years later. He also arranged to use the laboratory facilities at Tryon Palace to process artifacts he recovered, noting "I feel that Fort Macon will not have enough of these [artifacts] to warrant establishing a lab" (FMAR July 29, 1952). In addition, Perry searched for artifacts at Bentonville battleground to use in the restoration (FMAR September 30, 1952). Unfortunately, it is not known which artifacts collected by Perry were used as part of the active restoration or in the expansion of the museum.

Figure 4. Many of the artifacts recovered by Perry were used in museum displays at Fort Macon State Park. Courtesy of the North Carolina Division of Archives and History.

In May 1953, due to a lack of funds for further restoration work, Milton Perry left Fort Macon for a staff position with the West Point Military Academy Museum (*Carteret County News Times*, May 19, 1953, page 1). Daniel W. Jones took over as curator of Fort Macon State Park. But Perry's work was not forgotten. As part of the Twenty-first Annual Meeting of the Archaeological Society of North Carolina, sponsored by the New Bern Historical Society in February 1954, Jones presented a talk on Perry's archaeological investigations and restoration work at Fort Macon. Other featured speakers at that meeting included Morley Williams reporting on the excavation of Tryon Palace, Lawrence Lee discussing potential excavations at Brunswick Town, and William S. Tarlton on the archaeological investigations and restoration of Somerset Place (ASNC 1954b). Interestingly, Jones' talk was a late addition that was not on the original agenda for that meeting (ASNC 1954a).

Conclusion

Milton Perry's archaeological investigation as part of the 1952–1953 restoration project at Fort Macon was one of three restoration projects in North Carolina that year which employed archaeology as a research tool. The other two projects were William S. Tarlton's (1954) investigations at Somerset Place and Morley Jeffers Williams' excavations at Tryon Palace (Beaman 2000). While Tarlton and Williams conducted extensive trenching and excavation to locate structural features and define cultural landscapes for large-scale restoration, Perry's investigative techniques involved limited probing and excavation. This methodology was tailored to research questions about the specific elements of the fort, as opposed to the large-scale structural and landscape restoration at Somerset Place and Tryon Palace. The time he could devote to archaeological research was also limited, as his duties involved overseeing the restoration (including the expansion of the museum) and general site operation. It would be interesting to know what other archaeological projects Perry had planned at Fort Macon when the restoration fund was exhausted.

While Perry conducted the first archaeology at Fort Macon, Thomas Funk, Thomas Hargrove, John Clauser, and Charles R. Ewen have more recently investigated different areas of the fort and surrounding grounds. Funk (1979) proposed a research design for the site that included a detailed historical records analysis, probing and shovel testing, a magnetometer test, and the investigation of anomalies. To date Funks' proposals, unfortunately, have not been realized. In June 1987, the late Thomas Hargrove of Archaeological Research Consultants (ARC) conducted an archaeological survey of certain proposed wastewater treatment lines and fields within the boundaries of Fort Macon State Park, though no features, structural ruins, or artifacts were recorded during this limited investigation (Hargrove 1987). Four years later, John Clauser (1997), along with Steve Claggett and Dolores Hall of the Office of State Archaeology, monitored the removal of an unexploded ordnance from the park. In February 1995, Clauser excavated an extant shot furnace to insure that reconstruction of the furnace would be accurate and that no significant archaeological resources would be destroyed during the process (Clauser 1997). This excavation also located one of the drains that extend from the cistern in the southeast corner of the parade ground to the central drain. Finally, under the direction of Charles R. Ewen, the 2001 East Carolina University Summer Archaeological Field School determined the location and general configuration of the original commandant's house on the grounds outside

the fort. All of these investigations certainly confirm that there is much more to be learned about the historic fortifications and landscape of Fort Macon State Park through continued archaeological research.

The archaeology conducted by Milton Perry and other investigators at Fort Macon State Park serve as excellent examples of the contribution archaeology can make to Civil War sites. Smith (1994:9) defines the challenge of investigating Civil War sites as not in the excavation or methodology, but the enhancement of the relevance of the findings by "becoming historical archaeologists." Smith (1994:9) makes a distinction in this statement, which he elaborates as "scientists using and integrating the information provided by both documents and archaeology, rather than simply archaeologists excavating sites of the historic period." Funk's (1979) research design of Fort Macon remains an important step in this direction, as it outlines future research goals based on combined archaeological and documentary evidence.

Smith (1994:16–17) notes the immediate goal of the archaeology of Civil War sites should be to establish "basic, but necessary, archaeological facts" towards building culture histories for sites. Archaeology can contribute germane information to establish solid statements that can be added to others towards the interpretation of a single site (e.g., what was planned versus actually built or modified). Investigations by Perry, Hargrove (1987), Clauser (1997) and Ewen all fall within Smith's "immediate goal" for Fort Macon by contributing unique information on the fort not available in documentary sources. Yet several of these projects fall short of achieving relevance (as defined by Smith) by not offering documentary context for their findings. Smith (1994:20) recommends the present focus of archaeology for Civil War sites should be on excavation and factual, descriptive reporting, for it is only through "small, carefully researched steps" that ultimately a comparative data base will be available for "larger steps and grander statements."

Archaeologists can and must contribute toward the continued study of the Civil War. Smith's (1994) study illustrates how archaeologists can make their investigations of Civil War sites more relevant and meaningful. At Fort Macon, Milton Perry started such a search almost 50 years ago through the investigation of specific features of the fort and collecting artifacts for museum displays, and it continues through modern archaeological research. It is hoped this study will serve as a solid, factual, and descriptive reporting of Perry's early archaeological investigations at Fort Macon, and also will be a step toward the construction of a larger database for Fort Macon and all Civil War sites.

Notes

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BOOK REVIEWS

A World Engraved: The Archaeology of Swift Creek Culture, edited by J. Mark Williams and Daniel T. Elliott. University of Alabama Press, Tuscaloosa, 1998. xviii + 356 pp., illus., tables, notes, bibliography. $29.95 (paper).[1]

Reviewed by Christopher B. Rodning

The fifteen chapters of this fascinating and very readable book explore the material culture and lifeways of Middle Woodland groups collectively known to archaeologists as Swift Creek culture. Swift Creek culture is represented by pottery bearing a variety of curvilinear complicated stamped motifs, which generally date between AD 100 and 750. Swift Creek groups were semi-sedentary communities in what are now Georgia, southeastern Tennessee, northern Florida, eastern and southwestern Alabama, and the westernmost corner of the Carolinas. This book spans the whole Swift Creek landscape and touches upon many different dimensions of the lives that these Middle Woodland groups led.

The culture to which archaeologists refer as Swift Creek is best known for its public architecture and for naturalistic and abstract iconography carved in wood, although archaeologists have not found carved wooden artifacts themselves. Woodcarving traditions are preserved on pieces of pots that were stamped with handheld wooden paddles. Potters carved motifs on these wooden stamps. They then slapped them against the wet clay after shaping but before firing their pots. Firing preserved a negative impression of the motifs on the carved wooden paddles. Stamp motifs on Swift Creek pottery include elements that may represent birds, insects, snakes, bears, wolves, rabbits, and other denizens of Southeastern forests (see drawings on pp. 64–94). Other designs on Swift Creek ceramics have cosmological themes, and some may represent precursors to the iconography added to pottery and engraved on gorgets by much later Mississippian groups (see discussions on pp. 69–96). It is likely that the imagery and symbolism conveyed through these ceramic designs was replicated in other forms of material culture, perhaps on baskets and wooden posts, for example. Archaeologists tend to think of Swift Creek and other Middle Woodland peoples associated with these ceramics as relatively egalitarian communities of hunters and gatherers dispersed across riverine and montane landscapes, but who often gathered

at mound centers for mortuary and other rituals through which regional and panregional social ties were developed and renewed.

This book originated at an archaeological conference held at Ocmulgee National Monument in Georgia. One such conference in 1986 set the stage for *Ocmulgee Archaeology* (Hally 1994), a collection of essays about the whole spectrum of native cultural history along the Ocmulgee River and surrounding areas of central and northern Georgia. Another gathering in 1986 led to *Lamar Archaeology* (Williams and Shapiro 1990), a book about the late prehistoric chiefdoms in Georgia, northern Florida, eastern Alabama, eastern Tennessee, and the western part of the Carolinas. The conference on Swift Creek archaeology was put together by Mark Williams and Daniel Elliott and held in May of 1993 (see pp. xv–xvi). This event came more than fifty years after the original formal description of Swift Creek culture in 1939 (see pp. 1–9). All of these books are significant contributions to archaeology in Georgia and are certainly relevant to current archaeological pursuits in neighboring areas of the Carolinas.

Although the chapters in *A World Engraved* are not arranged in groups by the coeditors, they fit within the following sets of papers. The first group (Chapters 1, 2, and 15) outline the regional significance of archaeological studies of Swift Creek culture and other Middle Woodland cultural phenomena. The second set (Chapters 3, 5, 11, 12, 13, and 14) concentrate on the archaeology of Middle Woodland groups at the geographic core and edges of the Swift Creek cultural area. The third set (Chapters 6, 7, 8, 9, and 10) reconstruct spheres of Middle Woodland interaction from clues offered by complicated stamped motifs on Swift Creek pottery and analyses of the sources of ceramic raw materials from which pots were made. The very interesting chapter by Mark Williams and Jennifer Freer Harris about stone and earthen mounds does not really fit neatly within these categories—it explores the spacing of rock cairns and platform mounds and argues that these shrines were evenly spaced across the Swift Creek cultural landscape as were later Mississippian mound centers.

Williams and Elliott (Chapter 1) review the history of Swift Creek archaeology, and they introduce the main themes and common threads of each chapter in the book. They briefly compare and contrast the intricate designs stamped on Swift Creek pottery to later forms of complicated stamped ceramics (see pp. 1–2). They characterize these Swift Creek designs as forms of communication about group identity and group history (see pp. 10–11). From this perspective these motifs become valuable clues about Middle Woodland regional cultural and social interaction. The first

chapter further notes the likelihood that Swift Creek groups applied their woodcarving expertise towards art forms other than the wooden paddles made for stamping clay pots.

National Park Service historian Alan Marsh (Chapter 2) reviews the early history of Swift Creek studies in archaeology, to which many unsung field hands contributed. There was considerable debate in 1935 about the appropriate roles of African Americans in federal archaeology programs in Georgia, soon after the very successful excavations at Macon Plateau had begun. The spring of 1936 found some thirty to forty African American women doing archaeological fieldwork along the Ocmulgee River, not at the Macon or Lamar mounds themselves but at the nearby mound and village where Swift Creek culture was originally recognized and described.

National Park Service archaeologist David Anderson (Chapter 15) reviews Swift Creek material culture from a regional perspective, relating the contributions of this book to other archaeological literature. He argues that broad trends in the evolution of stamp motifs on Swift Creek ceramics—which generally seem to become more and more abstract throughout the Middle Woodland period—reflect changes from egalitarian ceremonialism to ritual traditions guided by aspiring elites within Woodland societies (see pp. 295–296). He relates Swift Creek moundbuilding and other ritual traditions to Hopewellian ceremonialism—widespread across the Eastern Woodlands at this time—and argues that Swift Creek and succeeding Weeden Island mound centers offer excellent opportunities to study the rise and fall of regional community centers and to compare these patterns to cycling within later southern Appalachian chiefdoms (see pp. 297–298). Anderson reviews the geographic spread of Swift Creek material culture across southeastern North America (see pp. 278–282), and he argues that Swift Creek people were primarily hunters and gatherers whose foraging strategies probably became a stepping stone towards the village farming lifeways characteristic of later centuries. Anderson argues that Swift Creek moundbuilding is most elaborate in areas where people were clearly involved in trade and exchange with people from faraway places in eastern North America (see pp. 286–289), and he speculates that aspiring community leaders sought to conduct rituals and to build residences at and beside the mounds that formerly were settings for communal mortuary rituals performed by more egalitarian groups. His chapter ties the book together nicely, and it outlines several topics in Swift Creek archaeology worthy of further study.

Another set of chapters in the book are those that review the archaeology of different areas within the Swift Creek cultural landscape. Daniel Elliott (Chapter 3) describes Swift Creek and related material

culture in the upper Tennessee and upper Savannah watersheds, where Swift Creek ceramics are found most commonly at mounds or other major regional centers. David Chase (Chapter 5) compares Swift Creek ceramics from different parts of Georgia and Alabama and areas much further afield, suggesting that the genesis of Swift Creek culture is archaeologically visible in the ceramics from mounds in central Georgia or eastern Alabama and that this tradition spread outward through time. Karl Steinen (Chapter 11) argues that the Swift Creek and later Weeden Island mound centers in southwestern Georgia were placed there not because of surrounding farmland but because of the accessibility and abundance of natural resources in the riverine and upland forests of the region. Keith Ashley (Chapter 12) argues that Swift Creek ceramics at sites in northeastern Florida may reflect the southward migration of Swift Creek people from their Georgia homeland or perhaps some other form of seasonal movement and regional interaction. Calvin Jones (Chapter 13) and colleagues figuratively reconstruct the early Swift Creek regional center at the Block-Sterns site in northwestern Florida, where once stood four mounds and a village of oval houses. Judith Bense reviews the Middle Woodland material culture complex known to archaeologists as Santa Rosa-Swift Creek in northwestern Florida, positing that Swift Creek ring middens like those at Bernath Place served as the centers for communities of people scattered across the surrounding landscape in relatively mobile household groups. Her chapter characterizes ring middens and plazas as public architecture, speculating that they may have been a precursor to the mounds and plazas characteristic of architectural centers within later Mississippian societies.

Other chapters develop models of Middle Woodland social and cultural interaction from the clues of decorative motifs carved on wooden paddles designed for stamping pots. One gem of this book are descriptions by Frankie Snow (Chapter 6) of different Swift Creek motifs found on potsherds from Georgia and his interpretations about regional social relationships and interactions as revealed by examples of potsherds bearing identical motifs but found at different sites—some of his reconstructions of whole motifs are admittedly speculative. Having dedicated many years to this interest, Snow can here reconstruct whole iconographic themes from the sometimes fragmentary stamp patterns visible on potsherds and can even recognize some impressions whose corresponding paddles were likely carved by one person. In other chapters, Snow teams up with Keith Stephenson and James Stoltman to differentiate between archaeological evidence of people moving pots or moving paddles across the landscape. Snow and Stephenson (Chapter 7)

argue that the presence of a stamp motif on sherds from many spatial contexts at a single site indicates that the carved paddle itself probably belonged to a local potter or group of potters, whereas the presence of a certain Swift Creek motif on sherds from only one context at a site indicates that the finished pot or pots were brought there. Stoltman and Snow (Chapter 9) apply the kind of petrographic analysis that Stoltman has pioneered towards pinpointing the clay sources for complicated stamp potsherds that Snow had recognized as having identical motifs, and their combination of design and petrographic analysis shows that both pots and carved wooden paddle stamps were brought to and traded from one Swift Creek community to another. Frankie Snow's interest (Chapter 6) in exploring the significance of Swift Creek complicated stamp motifs began with his study of ceramics from the mound and submound midden at Hartford along the middle Ocmulgee River, which then led him to comparisons with motifs found on sherds at Milamo and on sherds at sites much farther away from the Ocmulgee River itself. Betty Smith's paper (Chapter 8) builds upon this growing knowledge of shared Swift Creek iconography to test another archaeological method for studying Woodland period trade and exchange across southeastern North America, but her neutron activation analysis of ceramic artifacts from the Swift Creek and Mandeville sites offered ambiguous results about the raw materials with which potters in different areas made their pots. An interesting essay by Rebecca Saunders (Chapter 10) about Swift Creek complicated stamp motifs on ceramics from the southeastern Georgia coastal region traces the movement of one group of people from one settlement to another with reference to general similarities of complicated stamp designs on potsherds from the Kings Bay and Mallard Creek sites. It is unclear as yet whether these would have been seasonal movements or if they represent movements from one settlement to another every few years. This approach to the spatial distribution of complicated stamp motifs holds great promise for further study of these designs as they are represented in archaeological collections of potsherds from different kinds of sites in the western Carolinas and surrounding areas, especially in trying to trace the movement of different groups of people across the landscape and reconstructing networks of exchange and other forms of interaction.

This interest in complicated stamped ceramics is one of the significant links of the book to North Carolina archaeology, especially archaeology in the western part of the state. The southwestern corner of North Carolina is of course formed by crisscrossing mountain ranges between the headwaters of the Tennessee and Savannah rivers, which are the geographic focus of Elliott's chapter on Middle Woodland societies

along the Swift Creek cultural frontier (see p. 19). Elliott (see p. 21; Keel 1976:116–120) notes the presence of some Swift Creek sherds at the Garden Creek and other Connestee phase sites in western North Carolina—the Connestee ceramic series of the Appalachian Summit province in western North Carolina dates from AD 200 to 800 (see Ward and Davis 1999:155).

Another significant link between this book and North Carolina archaeology are the interests of contributors in public architecture and patterns of trade and exchange. One mound and village at Garden Creek along the Pigeon River of North Carolina dates to the Middle Woodland period and has revealed the presence of some Swift Creek ceramics, and Garden Creek thus becomes an interesting point of comparison with the Swift Creek mounds noted in Anderson's concluding chapter (see p. 290). Anderson (see p. 289; Dickens 1976:12–13) notes the participation of Middle Woodland groups in southern Appalachia within the interaction sphere that linked many different societies with major Hopewell centers in the Ohio Valley and elsewhere across eastern North America. Connections with Hopewellian and Swift Creek interaction spheres must have affected settlement patterns and community development in southwestern North Carolina in some way during the period from AD 200 to 800 (see Ward and Davis 1999:153).

This book is an excellent and very readable introduction to Swift Creek culture and its place within the broad sweep of eastern North American archaeology. Some papers are more interesting than others—chapters that apply their findings towards specific aspects of the social history of Swift Creek groups are good reading. Several chapters would have benefited from maps or clearer maps—some regional maps and maps of individual Swift Creek sites are hard to read at the scale they are printed in the book. Descriptions and illustrations of Swift Creek carved paddle motifs are rich contributions to the archaeological literature. Descriptions and comparisons of different forms of Middle Woodland architecture likewise are very valuable. Practicing archaeologists and students should read this book for summaries of current knowledge about Swift Creek culture and insightful recommendations for further archaeological inquiries. I think that specialists and avocational archaeologists alike would appreciate these creative yet careful studies of such Swift Creek arts as pottery and moundbuilding. I commend the coeditors and chapter authors for their significant contributions to the archaeological study of native peoples of the southeastern corner of the Southeast during the four or five centuries before the emergence of hierarchical Mississippian chiefdoms across this diverse cultural and natural landscape.

Notes

[1] For another review of this book, see the essay by Charles Cobb in *Southeastern Archaeology* 18:76–77.

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Mississippian Towns and Sacred Spaces: Searching for an Architectural Grammar, edited by R. Barry Lewis and Charles B. Stout. University of Alabama Press, Tuscaloosa, 1998. xvi + 304 pp., illus., tables, notes, bibliography. $29.95 (paper).[1]

Reviewed by Christopher B. Rodning

The ten chapters in this book reconstruct the layouts of late prehistoric towns in different parts of southeastern North America in an effort to better understand the cultural rules guiding these architectural arrangements in different parts of the Mississippian cultural landscape. Mississippian cultures flourished across the Southeast from AD 1000 to 1700. These were the chiefdoms whose descendants encountered Europeans beginning in the sixteenth century. The late prehistoric and protohistoric native peoples of western and southern North Carolina lived at an edge of this Mississippian cultural sphere in communities comparable to some of those described and interpreted in the chapters of this book.

I would characterize this book as the third of a lineage of major scholarly studies of Mississippian settlement patterns. The first is *Mississippian Settlement Patterns* (edited by Bruce Smith [1978]) with a

chapter by the late Roy Dickens about the late prehistoric and protohistoric settlement of western North Carolina), whose contributors outlined the relationships between different kinds of settlements in several cultural and natural provinces across the Southeast and Midwest to understand the ways that native chiefdoms adapted to different kinds of natural environments. The second is *Mississippian Communities and Households* (edited by Daniel Rogers and Bruce Smith [1995]), which built upon the foundation set by chapters in *Mississippian Settlement Patterns*), whose chapter authors concentrated on the spatial layout and social composition of Mississippian towns and the hamlets that in many parts of the Southeast were commonplace in the woods and old fields between towns. Chapters in *Mississippian Towns and Sacred Spaces* concentrate on the social implications of the ways that Mississippian towns were built and rebuilt during the centuries from AD 1000 to 1600 (see also Smith 1986:57–63 and Steponaitis 1986:387–393).

I would divide the chapters in this book into four groups of papers about the Mississippian cultural landscape. One pair of papers (Chapters 3 and 4) are those about towns in the greater southern Appalachians—eastern Tennessee and northern Georgia, which of course are relevant to archaeology in the western part of the Carolinas. Another set (Chapters 2, 5, and 6) are studies of towns in the lower Southeast—northern Florida and western Alabama, and the Lower Mississippi Valley. The third group (Chapters 7, 8, and 9) are studies of towns at the edge of the Midwest—western Kentucky and Ohio, and the greater Cahokian region of Illinois. The introductory and concluding chapters outline the main themes of the book and assess the collective significance of the case studies offered here—"Our goal is to understand the congruencies of design in time and space, the main elements of the designs, how and why these congruencies existed, and the regional variants, and, generally, to begin to answer questions about these towns that consider them more as *communities* than as archaeological sites, settlement patterns, site plans, or excavations" (see p. 2; italics in original).

The introduction develops the major premise of this book, which is that the architecture and layout of native towns and their arrangement across regional landscapes reflects widely shared cultural meanings. Contributors to the book certainly recognize the ecological factors that affected the settlement patterns that archaeologists study. Nevertheless their main interests here are the social dynamics within communities that guide the creation of different architectural spaces within them. The introduction sketches these themes and reviews related archaeological

literature about household and community plans, before giving brief descriptions of each chapter that follows.

The concluding chapter characterizes Mississippian towns as architectural clues about Mississippian cosmology. Lewis and Stout argue that the layouts of these towns reflect greater social differentiation within these communities than was present within Woodland villages and the mounds sometimes associated with them. The mounds and plazas at the centers of Mississippian townships reflect both town planning and in some cases major landscaping projects by Mississippian groups. Their emphasis on plazas beside the more visible landmarks of mounds is a welcome contribution to the literature—these were likely the settings where some kinds of feasts and other communal rituals would have been held (see pp. 11–16). They argue convincingly that there were often rules guiding the ways that people entered and left town centers—whether guided by actual palisades and gates or by the arrangement of mounds and other buildings and landmarks (see pp. 16–19). One shortcoming of the book as a whole is the relative lack of consideration of town poles—hard to find archaeologically but architecture that would have been prominently visible landmarks of town centers or of spaces reserved for future moundbuilding (see pp. 8–9). Lewis and Stout comment that there is great variation in the longevity and architectural histories of Mississippian towns. Reconstructing architectural histories of late prehistoric towns in the Southeast and Midwest and studying the ways they were rebuilt and abandoned is thus a valuable direction for further archaeological inquiry building upon the contributions of this book.

This topic does come to the fore in a chapter by David Hally and Hypatia Kelly about the town dating between AD 1500 and 1600 at the King site along the Coosa River in northwestern Georgia. They reconstruct household compounds at King—including summer houses and winter lodges, storage structures, and graves of household members—and they argue that the history of these households is visible in the archaeological record. Different kinds of evidence at King—overlapping arrangements of postholes from different architectural stages of houses, household hearths built and rebuilt atop burials of significant household members, the placement of newer buildings in cramped spaces between households and the town palisade—all show that the architectural spaces associated with specific household groups communicated something significant about the identity and history of these groups within the town.

The chapter by Gerald Schroedl adopts a broader chronological and spatial perspective on the development of Mississippian towns from AD 1000 to 1600 in the upper Tennessee Valley and lower Hiwassee Valley of

eastern Tennessee. Just before AD 1000, villages often were placed beside earlier communal burial mounds. Soon after AD 1000, platform mounds were built close to these palisaded villages and these early mounds. Gradually, people began planning these settlements with more rigidly defined rules of design, and distinct architectural spaces became associated with different members of increasingly hierarchical societies—these platforms often covered earlier forms of public architecture and supported new kinds of temples and chiefly residences. Eventually, graves were placed within and beside the buildings of these towns rather than at their edges, communicating the relationships between the dead with different groups within the community—the older distinction between space for the living and communal mound burials for the dead changed to reflect ties not between a community and *its* ancestors but the ties between groups *within* a community and the ancestors associated with them. By the sixteenth century, the architectural precursors to historic native council houses were moved off mounds, but they were still built beside plazas that separated these public buildings from the residential architecture and activity areas in villages. Throughout this period, hamlets and farmsteads may have been arranged in changing configurations across the landscape between towns, although further archaeological study of these trends and of the relationships among town residents and people living between towns is needed.

One set of chapters in the book are those about Mississippian towns in the lower Southeast. Claudine Payne and John Scarry offer a fascinating reconstruction of the town at the Lake Jackson mounds in northern Florida, arguing that the wealth and power of this Mississippian town stemmed from its role as a gateway for trade and exchange between Mississippian communities further northwest and Timucuan groups in peninsular Florida. They describe the layout of architectural spaces and graves at Lake Jackson and place this mound center at the top of the Mississippian settlement hierarchy in the historic homeland of the Apalachee (see Rogers and Smith 1995, Chapter 10). Their approach to town structure at the edge of the Mississippian landscape proper holds promise for the archaeological study of other edge communities like those in the Fort Ancient region in Ohio and those along the Arkansas River in Oklahoma (see Smith 1978, Chapters 6 and 7, and Rogers and Smith 1995, Chapters 4 and 10). Cameron Wesson draws from archaeology and Creek ethnohistory to interpret the layout of the multimound center at Moundville as a cosmological map of late prehistoric and protohistoric societies of western Alabama, arguing that Mississippian elites created a sacred landscape of mounds and plazas at Moundville to confirm and

communicate their status to people living in the surrounding countryside and more distant provinces where Mississippian chiefdoms flourished (see Knight and Steponaitis 1998, Chapter 3). Tristram Kidder traces the development of Mississippian centers out of the earlier traditions of building and rebuilding mounds and plazas during the Woodland period along the lower reaches of the Mississippi, where aspiring Mississippian elites began to lay claim to mounds and plazas that before the tenth century had been communal gathering spaces for less sharply differentiated Woodland societies (see Steponaitis 1986:385–387). Here and in other regions are excellent opportunities for archaeologists to study not only the layouts of towns but the ways that household groups were dispersed across the landscape between mound centers at different points in the past.

Another group of papers in the book are those about Mississippian towns at the northern edge of what archaeologists call the Southeast. Charles Stout and Barry Lewis describe Mississippian towns in Kentucky and argue that town layouts were significantly affected by local topography and access to pathways for regional travel and communication. They take the presence of plazas as the diagnostic characteristic of Mississippian towns rather than clusters of mounds or households. Jon Muller compares Mississippian towns in southern Ohio to written descriptions of native towns in Alabama in the eighteenth century. One especially valuable insight developed in this essay is that Mississippian towns represented significant social entities rather than neatly bounded spatial entities. Scott Demel and Robert Hall interpret the Cahokian landscape of mounds and other landmarks in western Illinois as a cosmological map of the rigidly hierarchical Mississippian chiefdom centered there from the tenth through the fourteenth centuries. Their consideration of palisades and other wooden landmarks adds a valuable dimension to their reconstruction of the architecture and viewsheds of Cahokian mounds at and surrounding the paramount center itself. One value of these and other chapters of this book is that they look past the relationship between people and the natural environment to explore the ways that people created towns in areas where there are far more good locations for towns than bad ones (see pp. 232–239). Along most major rivers there would have been lots of room for farming households to spread out across the landscape (see pp. 64–66). And yet there were reasons why towns with and even some without mounds served as vital community centers for several generations and in some cases several centuries. Certainly there is much for archaeologists to learn from the variation in the layouts of towns and their architectural histories.

Archaeologists have often sought to identify distinct cultural groups, and to study patterns of interaction between them. Thus their focus has sometimes become archaeological cultures, their spatial distributions, and their chronological longevity. This approach to the archaeological record has its merits, especially because archaeologists rely on remnants of architecture and other artifacts to study the history of past societies, and archaeologists have to describe the variation they find in the archaeological record. However, native Southeasterners of the late prehistoric past certainly did not recognize themselves, nor differentiate their own groups from others, in the same ways that archaeologists have. Instead, people would have affiliated themselves with one or perhaps a group of Mississippian towns, each of which shared a common cultural background at some level but each of which had its own unique history. Archaeologists can contribute much towards deeper anthropological knowledge about Mississippian culture by studying the ecological and cultural history of individual towns and the landscapes surrounding them, and by continuing to differentiate the many kinds of towns and other settlements people built in different areas of the Southeast at different points in the past.

The chapters in the book are well written, and the maps in them complement their descriptions and interpretations. They fit together nicely, and they collectively cover much of the southeastern corner of the continent. Although there is not a chapter in this collection of essays about pre-Columbian towns in North Carolina, the book is a valuable contribution to archaeologists here. Mississippian towns were present in the Appalachian Summit region of southwestern North Carolina and in the Catawba River Valley (Ward and Davis 1999:158–192). Mississippian communities were centered at Town Creek and probably other sites in the southern Piedmont (Anderson 1994; Coe 1995; Ward and Davis 1999:123–124). *Mississippian Towns and Sacred Spaces* outlines problems in studying the layouts of settlements that are applicable to the study of Mississippian towns in North Carolina as well as the study of villages associated with different cultural traditions. Chapters in this interesting and very readable book are fascinating reviews of the architectural and social histories of Mississippian towns in the Southeast. These studies contribute much to our knowledge of how historically known towns and groups of towns formed as such during the 1600s and 1700s.

Notes

[1] For another review of this book, see the essay by Mark Williams in *Southeastern Archaeology* 18:73–74.

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