Bioarchaeology of the Late Prehistoric Guale

SOUTH END MOUND I, ST. CATHERINES ISLAND, GEORGIA

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American Museum of Natural History, Anthropological Papers, Number 84

BIOARCHAEOLOGY OF THE LATE PREHISTORIC GUALE: SOUTH END MOUND I, ST. CATHERINES ISLAND, GEORGIA

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This monograph is the sixth in the series titled
The Anthropology of St. Catherines Island

ANTHROPOLOGICAL PAPERS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
Number 84, 104 pages, 22 figures, 27 tables
Issued July 24, 2002

ISSN 0065-9452

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ABSTRACT

South End Mound I is one of more than 50 mortuary sites (mostly burial mounds) excavated by Clarence Bloomfield Moore (1897) during his five-month expedition to the Georgia coast, and it is one of seven mounds he described on St. Catherines Island. The mound was subsequently tested by Larsen and Thomas (1986), who reported on a small sample of fragmentary human remains left at the site by Moore. This monograph reports on human remains recovered from a large-scale excavation undertaken by Larsen. This excavation revealed that Moore disturbed skeletal remains, but these remains were left in the general location of their original discovery. Our conjoining of fragmentary bones and teeth allowed identification of 26 of the 50 skeletons encountered by Moore. Importantly, this sample provides the only late prehistoric (Irene period) skeletal series from St. Catherines Island, allowing for the first time temporal comparisons with both earlier prehistoric populations (e.g., Johns Mound) and later historic populations (Santa Catalina de Guale) from the island.

Analysis of faunal remains and stable isotope ratios of carbon and nitrogen indicates that the population consumed a variety of terrestrial and marine fauna, along with significant amounts of maize in diet. Analysis of dental caries prevalence is consistent with this reconstruction. In addition, presence of skeletal infections indicates poorer health in general relative to prehistoric St. Catherines Islanders. At least some of the periosteal reactions displayed on tibiae reflect treponematosis (nonveneral syphilis). The overall pattern of health is strikingly similar to contemporary late prehistoric populations from the Georgia coast in particular and to the Eastern Woodlands of North America in general. Lastly, study of body size and postcranial skeletal morphology indicates a similar pattern of activity and lifestyle as for other groups from the Georgia Bight during the late prehistoric era. Overall, this bioarchaeological analysis reveals that the shift from a foraging lifeway to one that incorporated maize agriculture likely had a profound impact on health and lifestyle.

INTRODUCTION

This is the sixth scientific monograph in the series presenting the anthropology of St. Catherines Island, Georgia. The previous five monographs presented the natural and cultural history of the island (Thomas et al., 1978), the Refuge-Deptford mortuary complex and bioarchaeology (Thomas and Larsen, 1979), analysis of Georgia coastal biocultural adaptation and stress in early prehistoric and late prehistoric populations (Larsen, 1982), the St. Catherines period mortuary complex (Larsen and Thomas, 1982), and the mortuary archaeology and bioarchaeology of the South End Mound complex (Larsen and Thomas, 1986).[1] An earlier monograph described the comparative mortuary archaeology and bioarchaeology of three pre-Civil War burials, including two African-American enslaved adults from St. Catherines Island and one Euroamerican planter's teenage son from nearby Colonels Island (Thomas et al., 1977).

Since 1981, the American Museum of Natural History and cooperating institutions—with support from the Edward John Noble Foundation and the St. Catherines Island Foundation—have focussed on the archaeology, bioarchaeology, and ethnohistory of mission-era Guale, the tribe who lived on St. Catherines Island. Out of that research, four monographs have appeared, including an overview of the historical and archaeological context for Spanish missionization (Thomas, 1987), the bioarchaeology of Santa Catalina de Guale (Larsen, 1990), and the documentary context derived from the study of mission records and firsthand accounts of life in the Spanish missions (Bushnell, 1994; Worth, 1995).

More than two decades of archaeological and bioarchaeological research have been completed on the prehistoric and historic period Guale. The bioarchaeology itself is among some of the most comprehensive for native New World populations, with a fund of data now available on aspects of health, disease, lifestyle, and population history (see Larsen, 1990, 2001; Larsen et al., 1992a; Larsen et al., 2002). For the Georgia coast in general, there is a nearly unbroken record of past human biological history and adaptation.

For St. Catherines Island, the human biological record is especially comprehensive. However, the Irene period—the time corresponding to the late Mississippian period in eastern North America (ca. A.D. 1300–1550)—is poorly represented by human remains. In fact, only one mortuary site containing a substantial sample of Irene period individuals is known from St. Catherines Island, from South End Mound I (site 9Li3, AMNH 114). This site was originally excavated by Clarence Bloomfield Moore (1897) in his late nineteenth century expedition to the Georgia coast. Larsen and Thomas (1986) later tested the site and reported on a small sample of human, animal, and cultural remains they found. However, the remains were few in number, and given the need to have a more solid grounding in the bioarchaeology of the late prehistoric period, additional excavations and recovery of human remains from the site were undertaken.

The present volume reports on the most recent excavations at South End Mound I (what Moore called the "Mound Near South-End Settlement" [Moore, 1897: 74–81]) on St. Catherines Island, Georgia, excavated under my direction in 1991, 1992, and 1993. Laboratory research was conducted on the human remains at the Biological Anthropology Research Laboratory at Purdue University and the Bioarchaeology Research Laboratory at the University of North Carolina, Chapel Hill, with additional analysis performed at the University of Wisconsin, Madison. Animal remains were identified at the Zooarchaeology Laboratory, University of Georgia, Athens, and cultural materials (ceramic and nonceramic artifacts) were analyzed at the American Museum of Natural History Archaeology Laboratory, St. Catherines Island, Georgia.

Acknowledgments

This monograph is a contribution to the *La Florida Bioarchaeology Project* and the *St. Catherines Island Archaeological Project.* The excavation and study of South End Mound I was made possible by generous support for field research provided by the St. Catherines Island Foundation. I am especially grateful to Mr. and Mrs. Frank Y. Larkin for the interest that they have shown in the bioarchaeology of St. Catherines Island and for their personal interest in the anthropological and archaeological program overall over the last 30 years. Their support has translated directly into advancements in our understanding of human adaptation in this region of the world. Mr. John Toby Woods, Jr., former superintendent of St. Catherines Island, showed us the location of Moore's excavation at South End Mound I. His help, along with the kind assistance of the present superintendent, Mr. Royce Hayes, and his staff made it possible to undertake and complete excavations in a timely manner. Royce and Betsy Hayes also provided their kind hospitality, extending their home, pool table, and poker chips to the field crews for their relaxation after long days in the field and during the Blizzard of 1993.

The research presented in this monograph is part of an archaeological program directed by David Hurst Thomas, Division of Anthropology, American Museum of Natural History. I thank him for his collaboration over the last three decades on St. Catherines Island.

Thanks are extended to Margaret Schoeninger (University of Wisconsin, Madison) for her analysis of stable isotopes and to Daniel Weinand and Elizabeth Reitz (Zooarchaeological Laboratory, University of Georgia) for analysis of the animal remains. David Hurst Thomas and Jessica McNeil prepared the report on both ceramic and nonceramic artifacts. Camile Licate assisted them in the artifact analysis. Dale Hutchinson (East Carolina University) also helped in many ways, including consultation on analysis of human remains and their archaeological context.

I am especially grateful to my bioarchaeology field crews, who spent their spring breaks digging on St. Catherines Island: David Barondess, Molly Donovan, Jonathan Gray, Dale Hutchinson, Hong Huynh, Julie Kihlstrum, Christine Larsen, Scott Legge, Elizabeth Moore, Anastasia Papathanasiou, Shawn Phillips, Christopher Schmidt, and Leslie Sering. In addition to her field and excavation responsibilities, Christine Larsen served as the cook extraordinaire and helped to keep the operation running smoothly.

Bioarchaeological study was especially challenging due to the mixed and fragmentary nature of the human remains from South End Mound I. Students in my human osteology classes—first at Purdue University (1991, 1992) and then at the University of North Carolina (1993)—and I spent many hours in the laboratory conjoining bones, matching dentitions, and identifying skeletal individuals that had been scattered over several meters in some instances by Moore during his excavation of the site a century before our work. I especially acknowledge the contributions of osteology students Scott Legge, Elizabeth Moore, Anastasia Papathanasiou, Christopher Schmidt, and Leslie Sering at Purdue University, and Andrew Creekmore and Caroline Joyce at the University of North Carolina. Laura Dominkovic helped in the statistical analysis of the human remains and manuscript preparation. I thank Marianne Reeves and Amy Sullivan for their work in helping me to organize the massive skeletal database listing all of the bones and teeth, and Randy Townsend and Christopher Rodning for preparation of the computer-generated map showing the locations of skeletal and dental remains in figure 5. Amy Sullivan prepared the figures that contain graphs. R.P. Stephen Davis kindly provided his expertise in the use of the high-resolution digital camera (Kontron Progres 3012) in preparing the photographs of pathological long bones. Jarrod Burks prepared figure 4, and Dennis O'Brien prepared the maps for figures 1, 2, and 3. The comments of two anonymous reviewers greatly improved the clarity of the manuscript.

This volume is dedicated to Clarence Bloomfield Moore (1852–1936), whose inchoate field and laboratory bioarchaeological research on St. Catherines Island provided the first glimpse of the mortuary practices and biology of its original inhabitants.

THE SETTING

St. Catherines Island is one of a series of Atlantic coastal barrier islands in the Georgia Bight, a large embayment extending from Cape Hatteras, North Carolina, to Cape Canaveral, Florida. The region is subtropical and contains a plethora of animal and plant species that inhabit the immediate marine environment, the coastal barrier islands, the marsh islands, and the nearby mainland. Today, as certainly in the past, the marine and estuarine waters contain an abundance of food resources, among the most diverse and economically productive in the world (Reitz, 1988).

Prehistorically, the mid-region of the Georgia Bight—the northern Georgia coast—was occupied by the ancestors of the Guale Indians. Prior to about A.D. 1000, the populations were exclusively hunters and gatherers, subsisting on a variety of terrestrial and marine animals and terrestrial, nondomesticated plants. Archaeological evidence indicates that these populations were relatively small, dispersed, and mobile (see Larsen, 1982). Stable isotope analysis of human remains from the Georgia Bight reveals that some time after A.D. 1000, maize was adopted (Hutchinson et al., 1998; and see below). Accompanying this dietary shift, native populations became more sedentary, and, at least in some settings, more socially and politically complex (e.g., Irene Mound site; Caldwell and McCann, 1941). It is this period of later prehistory of the Georgia Bight that forms the temporal and cultural backdrop for the present monograph, the bioarchaeology of South End Mound I.

During the late sixteenth century, the Spanish Crown took political control of the region as part of their larger effort to colonize La Florida (see Thomas, 1987). By the 1580s, a mission (Santa Catalina de Guale) was established on St. Catherines Island, serving as the center of native activity on the island until 1680. In that year, the native population and Spaniards were forced off the island by invading British troops and Indian allies. By 1684 or so, the Guale from St. Catherines Island resettled on Amelia Island, Florida. The new settlement of Santa Catalina lasted until 1702, when yet again British military and allies forced the abandonment of the mission. Isotopic, biomechanical, and paleopathological evidence indicates that maize played an increased role in native diets, populations were less mobile than were their prehistoric predecessors, and health declined overall (Larsen et al., 1992a; Larsen et al., 2002).

PREVIOUS WORK AT SOUTH END MOUND I

Located on the southern end of the Pleistocene section of St. Catherines Island (fig. 1), South End Mound I has been the focus of intermittent archaeological research for more than a century, beginning with Moore's (1897) comprehensive excavation at the site in the winter of 1896, continuing with Larsen and Thomas's (1986) test excavation, and culminating in a large excavation by the present author in the 1990s. The mound was only one of more than 50 archaeological mortuary sites partially or completely excavated by Moore in his five-month expedition on the Georgia coast in the fall and winter of 1895–1896. In that short time, he encountered about 1350 burials (see Thomas and Larsen, 1979; Larsen and Thomas, 1986). This work provided an important perspective on the prehistoric Indians who lived on the Georgia coast. Moreover, his findings were rapidly published in a high profile, widely available serial by the Philadelphia Academy of Natural Sciences (Moore, 1897; Larson, 1998). The skeletal remains found by Moore were described in some instances, and virtually all of the sites received detailed discussion. The descriptions of human remains, cultural materials, and mound construction are certainly limited by today's standards of archaeological and bioarchaeological research, but for the time, Moore's work represented state-of-the-art science. An assessment of Moore's research on St. Catherines Island and elsewhere on the Georgia coast is presented in L. H. Larson's (1998) introductory essay to the reprinted *Certain Aboriginal Mounds of the Georgia Coast.*

By his account, Moore excavated seven burial mounds on St. Catherines Island, exposing the remains of some 120 individuals (see Larsen and Thomas, 1986). Moore was careful to note locations of burials, unusual artifacts (e.g., well-preserved ceramic vessels), and in some instances he listed burials with identifications of individual age, sex, pathology, artifact associations, and other characteristics. The bioarchaeological record was made vastly richer by the presence of Moore's friend and confidant, surgeon M.G. Miller, on the expedition. The quality of the

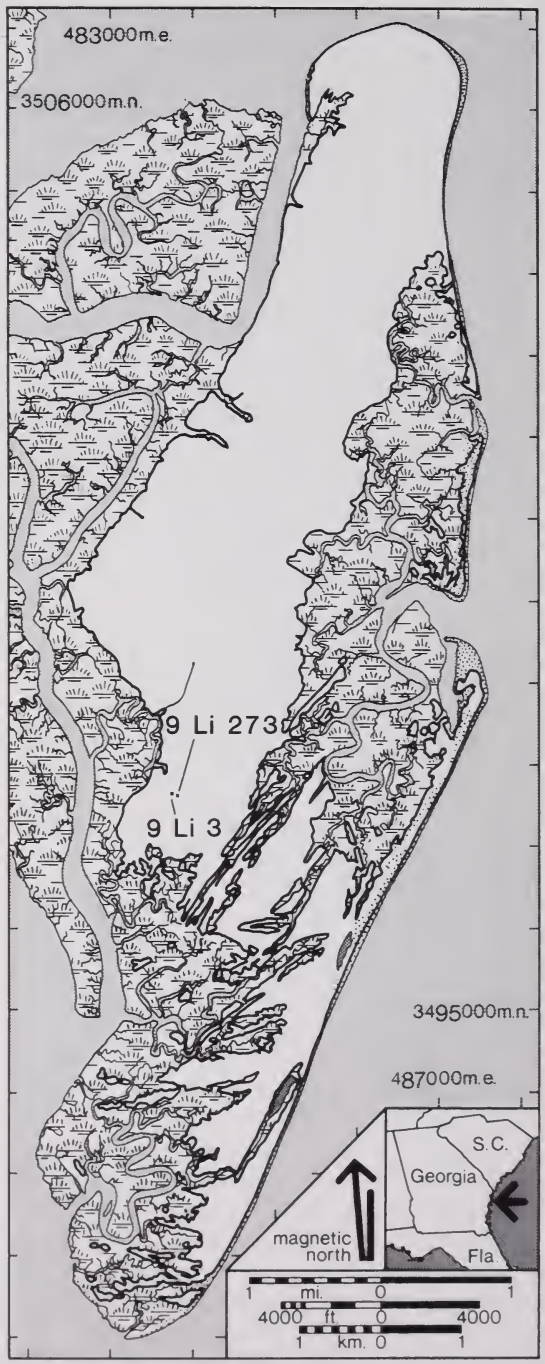


Fig. 1. Location of South End Mound I (9Li3) on St. Catherines Island. 9Li273 is South End Mound II, a St. Catherines Period mound (from Larsen and Thomas, 1986: fig. 1).

skeletal descriptions indicates that Dr. Miller was versed in human osteology and skeletal identification. As will be discussed below, his descriptions, along with the publication of a detailed map showing locations of burials (Moore, 1897: 74), made it possible for us to identify burials excavated by Moore and his archaeological crews a century ago.

Moore only retained a few selected crania and pathological bones, discarding the remainder of skeletal remains in his backdirt piles. Some ceramic vessels were also kept by him, and in the case of St. Catherines Island, the South End Mound vessels are described more fully elsewhere (Peter, 1986).

In Moore's (1897) report on South End Mound I, he described 50 burials, comprising nearly half of the remains he encountered on St. Catherines Island. The remains from South End Mound I included the following: one cremation burial containing many "calcined fragments of human bones" and located high enough in the mound to have been disturbed by agricultural plowing; four secondary (disarticulated) urn burials; 45 primary burials that were flexed and mostly on their right sides. The pottery descriptions included in Moore's report, along with our analysis of ceramics in our 1979–1981 test excavation (see Peter, 1986), indicate that the mound dates to the Irene period, ca. A.D. 1300–1550. Moore excavated most of the mound, except for a small area at the extreme western margin (fig. 2).

Archaeological research did not occur again at South End Mound I until John T. Woods, Jr. showed D.H. Thomas the location of the site in 1974. A detailed topographic map was made of the mound's surface, and in 1979 and 1981, a half-dozen 1 m × 1 m test units were placed along the margins of the large depression left in the wake of Moore's excavation (Larsen and Thomas, 1986). These test units identified the location of at least one of the burials Moore had encountered. We designated this person as individual A, an adult female, which we were able to identify as Moore's burial 22 (and see below). Three other individuals (B, C, and D) were also identified, including the dentition of a two-year-old, one tooth from an older child (deciduous second molar), and most of the skeletal elements of a newborn. With the exception of the feet of individual A, all remains were in highly disturbed contexts.

In addition to the human remains, ceramics, other material culture, and animal remains were found and described. A large number of oyster and clam shells were encountered in the excavation, which almost certainly represents the large concentration of oyster deposit originally described by Moore (1897). Importantly, we were able to locate our excavation in relation to that of Moore, including the mound's periphery and burial features.

LATER EXCAVATIONS AND BIOARCHAEOLOGICAL STUDY

Following the preliminary testing of South End Mound I in May 1981, bioarchaeological work on St. Catherines Island turned to the mission cemetery at Santa Catalina de Guale (Larsen, 1990). As the fieldwork and follow-up research progressed at Santa Catalina throughout the 1980s, it became clear to me that an understanding of patterns of health, disease, and lifestyle that were being pieced together from the study of the skeletal remains from Santa Catalina would be improved if we had a substantially larger late prehistoric human biological record from St. Catherines Island than just the several individuals we had earlier recovered from South End Mound I. Numerous other prehistoric skeletal remains had been studied from sites located elsewhere on St. Catherines Island (e.g., Johns Mound, South End Mound II, Seaside Mounds), but these remains dated to periods of occupation earlier than the Irene period. Our preliminary test excavations in South End Mound I suggested that it would be a worthwhile endeavor to recover additional human remains from the site, especially since the bone preservation was good (albeit fragmentary) and Moore apparently discarded most of the skeletons in his backfill at the site.

We undertook a series of three excavations in 1991, 1992, and 1993 that resulted in a large exposure extending from the western to the eastern margin of the mound as well as in the central portion and the southern half of the mound (fig. 3). Several test units from the 1979 and 1981 field seasons were incor-

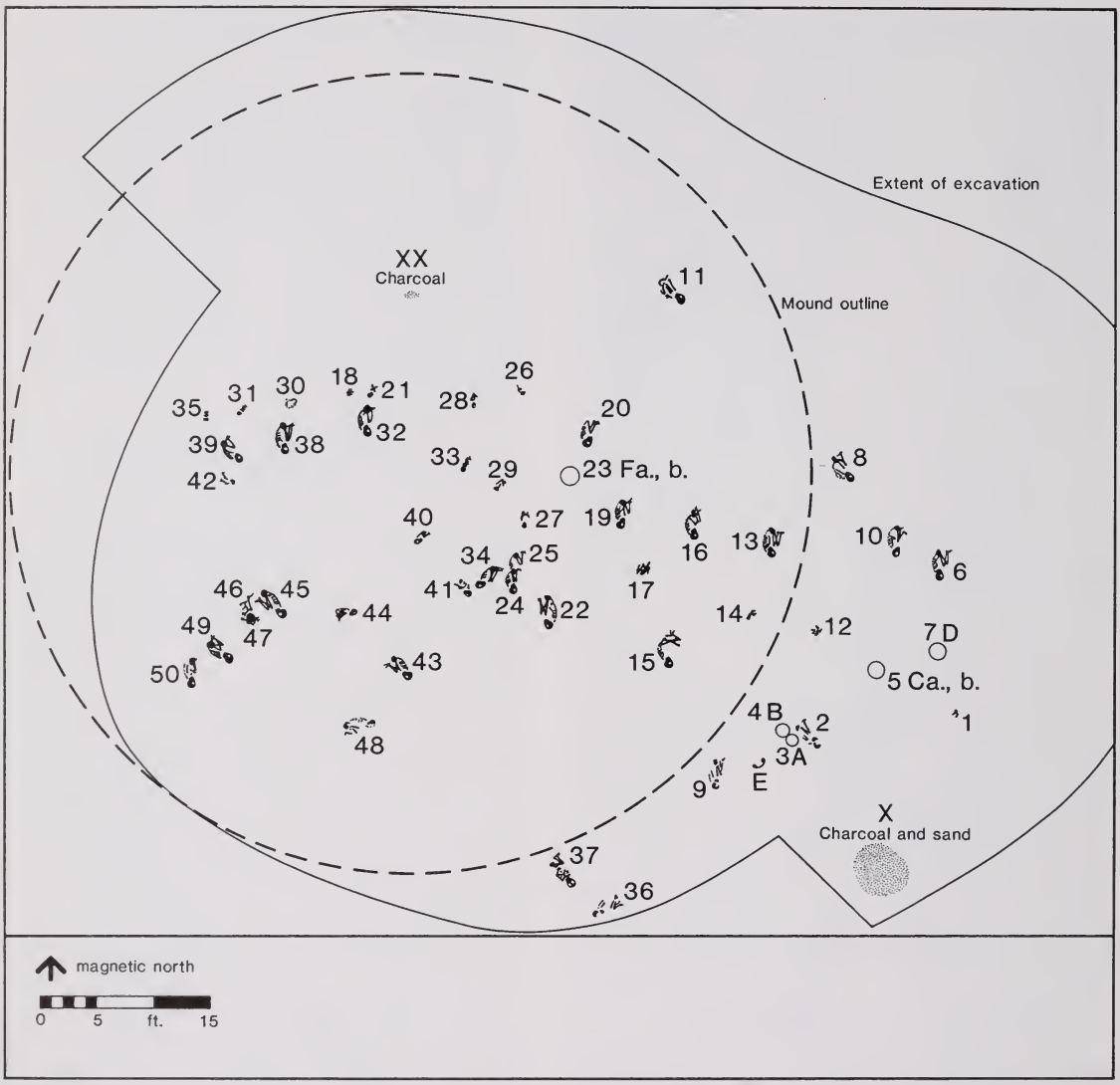


Fig. 2. C.B. Moore's excavations of South End Mound I; numbers indicate burials and letters indicate ceramic vessels (adapted from Moore, 1897; fig. 49; from Larsen and Thomas, 1986: fig. 2).

porated into this larger excavation, especially a short north–south trench located to the east and south of the mound center. 2 m × 2 m meter excavation units were laid out in a north–south grid. Each unit was excavated from the surface to sterile subsoil. The test units were named on the basis of letters running east–west and numbers running north–south (e.g., unit F10). In total, and including the aforementioned north–south test trench, 19 units and a single 1 m × 2 m unit were excavated. Although the depth of the disturbed mound fill varied, the average depth of most units was about 1 m.

The 1990s excavations confirmed our earlier finding that we had located our excavation in relation to that of Moore. In particular, in unit B8 the margin of his excavation was revealed in the south profile and horizontal excavation surface, helping us to locate our excavation with relation to his (fig. 4). Similarly, the pit associated with Moore's excavation in the far southeastern corner of the site was clearly displayed in the profile of

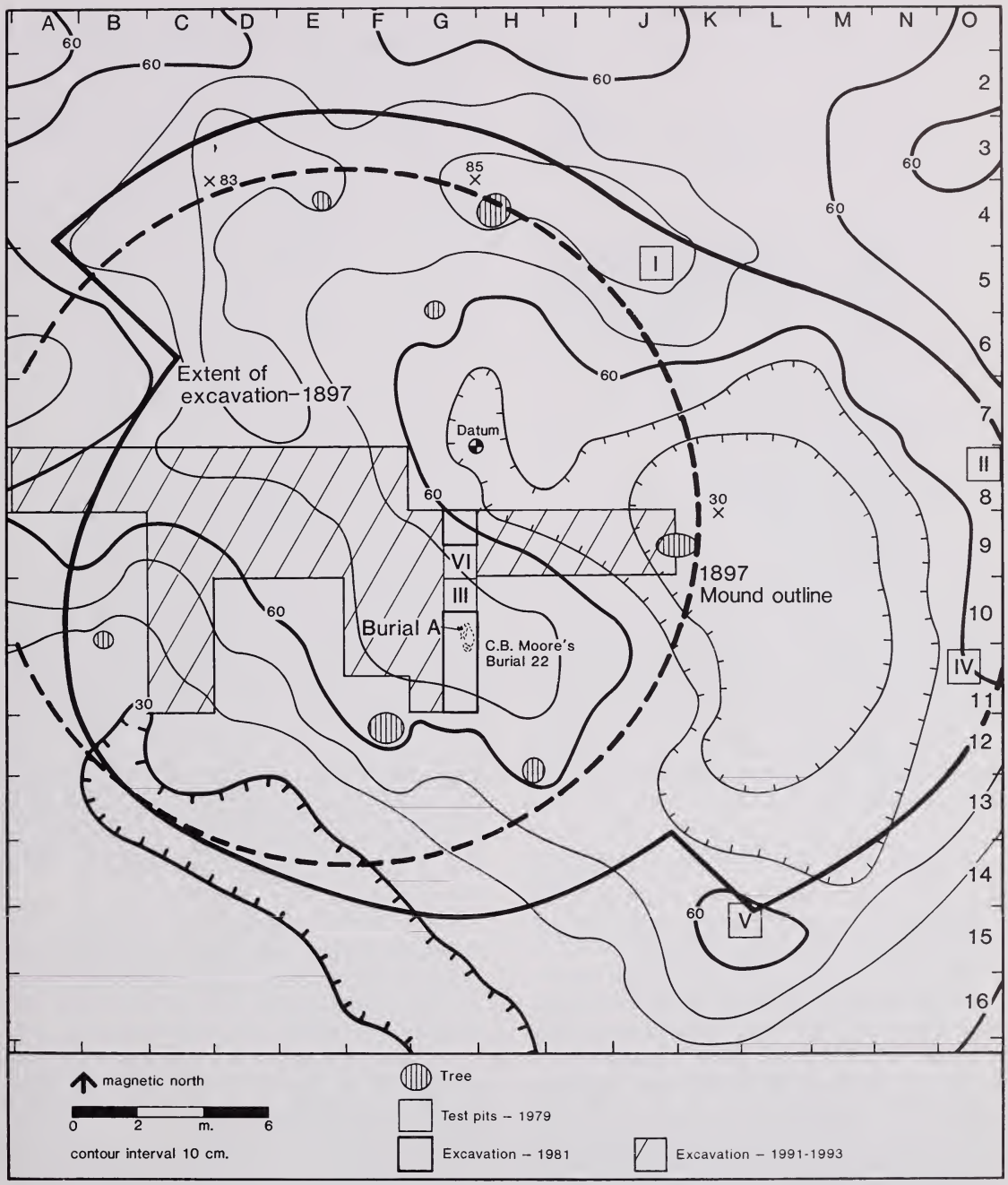


Fig. 3. Topographic map of South End Mound I, with outline of Moore's (1897) excavation, Larsen and Thomas's (1986) excavation, and Larsen's (this volume) excavation (adapted from Larsen and Thomas, 1986, fig. 5).

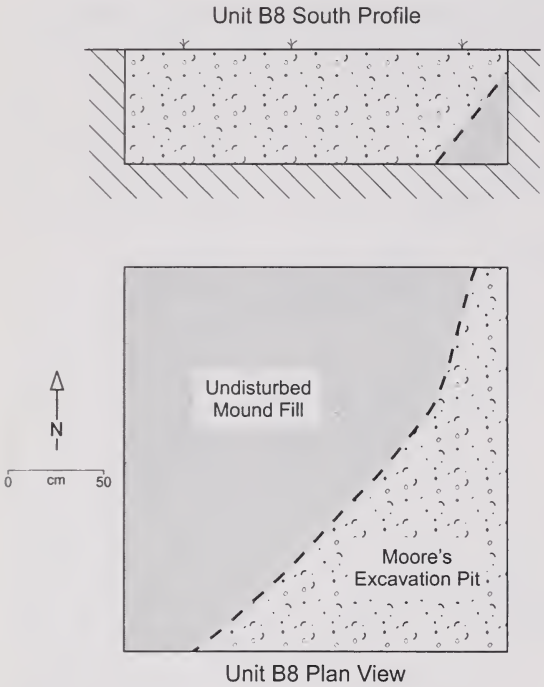


Fig. 4. Excavation unit B8 showing extent of Moore's excavation. The southeast corner of the unit is mottled fill from Moore's excavation pit, contrasting with the undisturbed mound fill in the remainder of the unit (bottom). The south profile of unit B8 shows undisturbed mound fill in the western corner and Moore's excavation fill in the remainder (top).

our test pit V in the 1979–1981 excavation (fig. 6 in Larsen and Thomas, 1986: 12). The matching of our excavation with that of Moore in these two locations aided us in identifying disturbed skeletal remains we encountered (see below) with the burial numbers shown on Moore's map (Moore, 1897: 74, fig. 49). Moreover, it revealed that although Moore's published map appears rough, it is accurate.

The mound fill was hand-troweled in arbitrary 20-cm levels and subsequently passed through ⅛-in.-mesh window screen. All human remains and artifacts were exposed in situ, mapped on a unit record form in relation to the site datum, drawn on the form, photographed, and removed to the laboratory on St. Catherines Island for initial processing. Some of the more fragile human remains were treated with a consolidant consisting of a 5% solution of polyvinyl acetate dissolved in acetone. Additional small fragments of bones, teeth, and artifacts (mostly potsherds) were recovered in screening. Each bone or tooth encountered in the excavation was given a field number and identified as to skeletal element or tooth type.

Owing to the manner in which Moore excavated the site, it is not possible to reconstruct the sequence of mound construction based on stratigraphic interpretation, such as was done at other burial mounds on the island (e.g., Thomas and Larsen, 1979). Nor was it possible to identify intact features, such as pits or intrusions, seen at other mound sites on St. Catherines. We encountered an abundance of oyster shells in the disturbed fill, which is consistent with Moore's observation that the mound contained a dense deposit of shell matrix at its center. The presence of a large amount of shell neutralized an otherwise acidic soil typical of this island, resulting in the excellent state of skeletal preservation, albeit fragmentary. Very soon into the excavation, we located scattered human remains. The scattering of bones and teeth, however, was not haphazard. Rather, human bones were generally concentrated close to the burial locations shown on Moore's map (fig. 5). The bones were mostly fragmentary, but estimation of age and identification of sex and close proximity to burials shown on his map allowed us to match these remains with Moore's burials (and see below).

Once skeletal remains were brought back to the St. Catherines Island laboratory, they were washed with tap water using soft brushes. The remains were then air-dried and catalogued according the archaeological grid and numbering system. All remains were transported to my home institution (Purdue University, followed by the University of North Carolina) for study.

METHODS OF ANALYSIS

Individual Identification

Skeletal remains were described according to skeletal element and other characteristics that might facilitate their identification (appendix 1). Bones and teeth were matched according to excavation unit, color, texture, and other physical characteristics. Given the large

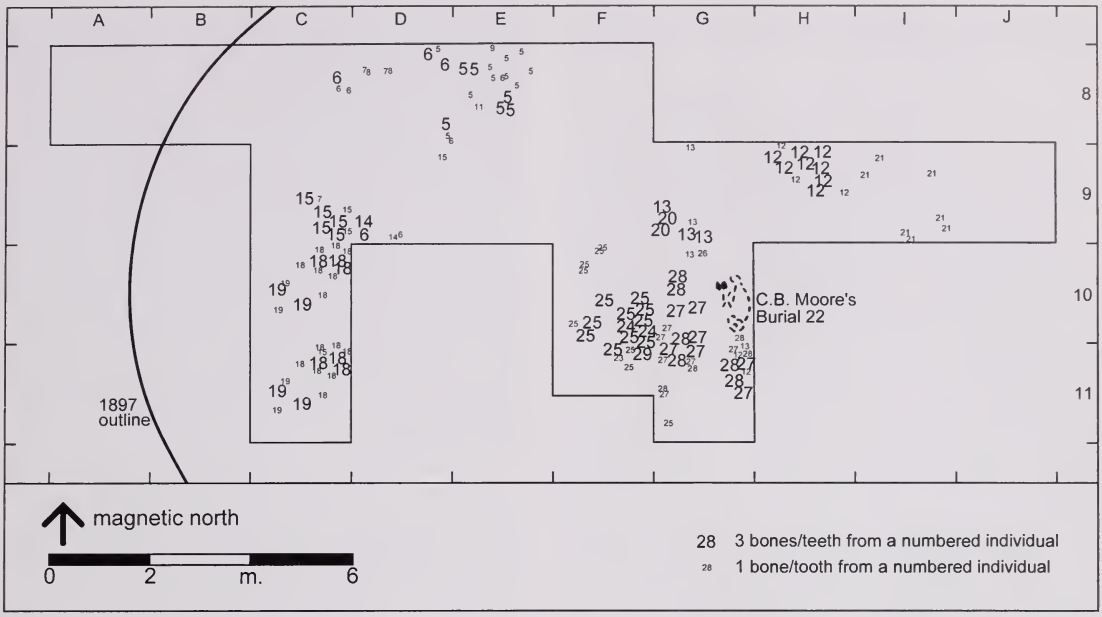


Fig. 5. Map showing locations of bones and teeth recovered in the 1991–1993 excavation of South End Mound I. The articulated feet of Moore's burial 22 were exposed in the 1981 excavation. The numbers refer to the skeletal individuals and show the distribution of elements following Moore's excavation. The 1897 outline refers to the western margin of Moore's excavation in the mound. See table 2 and appendix 1 for corresponding Moore burial numbers. Note that the number in large font represents three bones or teeth and the number in small font represents a single bone or tooth.

volume of fragmentary remains in South End Mound I, the process of piecing together individuals and matching them with Moore's burial numbers took much time. When the conjoinment of the thousands of bones and teeth was completed, however, nearly all of the remains could be matched with Moore's burial numbers described in his 1897 monograph.

TABLE 1
Long Bone Maximum Lengths, Juveniles

Bone	Individual 8	11	25
Femur, left	—	—	296.7
Femur, right	—	80.3	292.5
Tibia, left	—	69.7	244.3
Tibia, right	106.3	69.2	245.1
Clavicle, left	—	47.2	—
Clavicle, right	—	46.9	103.0
Ulna, left	—	63.9	—
Ulna, right	100.2	64.0	—
Radius, left	—	55.7	—
Radius, right	79.4	55.9	—
Humerus, left	107.0	66.8	—
Humerus, right	—	67.7	—
Ilium, left	—	—	—
Ilium, right	—	37.3	—

Age Estimation and Sex Determination

Age was estimated and sex (for adults) was determined following standard osteological procedures (Ubelaker, 1989; Buikstra and Ubelaker, 1994; White, 2000). Age for juveniles was derived mostly from observations of dental development (Ubelaker, 1989). Several juveniles had long bones that were complete enough for measurement, thereby providing information for estimation of age at death (Ubelaker, 1989; table 1).

Sex was mostly determined from degree of robusticity, cranial morphology, and pelvic indicators of the postcranial remains. The relatively high degree of sexual dimorphism in size and morphology documented in other Georgia coastal remains (and see Larsen, 1982; Ruff et al., 1984; Larsen and Ruff,

1994) made sex identification straightforward for most adults.

Pathology Identification and Health

The following pathological conditions were identified for their presence or absence: periosteal reactions, cribra orbitalia/porotic hyperostosis, and dental caries (Ortner and Putschar, 1985; Larsen, 1997). Owing to the fragmentary nature of the remains, observations were not made on osteoarthritis. Enamel hypoplasias—growth-arrest markers on the teeth—were noted. The data were not subjected to formal analysis, but will be presented elsewhere (Hutchinson and Larsen, 2001).

Periosteal reactions (also called periostitis) are inflammatory responses involving the outer bone surface. In the unhealed form, the bone surface shows areas of loosely organized, newly formed woven bone giving a coarse or porous surface. In the healed form, the bone is less coarse and the surface is smooth, undulating, and oftentimes expanded in comparison with the original contour of the bone. Periosteal reactions result from two primary causes, either infection or trauma, such as a blow to the leg. Sometimes, the pathological involvement can be extensive, involving much of the cortical bone and the medullary cavity. In these instances, there is exuberant proliferation of the endosteal (inner) and periosteal surfaces and drainage holes (cloacae) for pus. These reactions are clearly caused by infection, such as by the microorganism *Staphylococcus aureus*.

In eastern North America, various workers have documented an increase in frequency of periosteal reactions in later prehistory (see review in Larsen, 1997). This pattern appears to be related to population increase, sedentism, and the increase in spread of infectious disease due to more crowded living circumstances. Most periosteal reactions are nonspecific; that is, it is not possible to identify the exact cause, such as the specific pathogenic agent responsible. However, for many examples of skeletal inflammation in the American southeast and midwest, the pattern of skeletal involvement suggests some form of treponematosis, the group of diseases that includes four modern disease syndromes—venereal syphilis, nonveneral (endemic) syphilis (also called bejel), yaws, and pinta (Ortner and Putschar, 1985)—all of which are caused by spirochetes of the genus *Treponema*. The presence of skeletal inflammation, especially involving the tibia, was first identified in prehistoric southeastern Native Americans by J. Jones (1876) in his study of skeletal remains from prehistoric sites in Tennessee. He attributed the disease to "syphilis". The pattern of bone involvement in a wide range of late prehistoric settings suggests that the disease in eastern North America was likely the nonvenereal form of the disease.

Cribra orbitalia and porotic hyperostosis are lesions characterized by a high degree of porosity of the roof areas of the eye orbits (cribra orbitalia) or flat bones of the cranium (porotic hyperostosis). These lesions are caused by iron-deficiency anemia and have also been linked with scurvy, rickets, and infection (see Schultz, 1993; Schultz et al., 2001; Ortner, 1999).

Dental caries is a disease process caused by bacterial fermentation of dietary carbohydrates on exposed tooth surfaces. The bacterial fermentation produces lactic acid, which dissolves the enamel and underlying dental tissue, resulting in what is commonly called "cavities". In prehistoric Native Americans, caries is highly prevalent in populations who ate maize. Maize is a carbohydrate that is especially cariogenic (Larsen et al., 1991).

For dental caries and periosteal reactions, the respective percentages of teeth and bones affected were calculated. Crania were too fragmentary and incomplete to allow calculation of prevalence of cribra orbitalia or porotic hyperostosis.

Skeletal and Dental Measurement

Although the skeletal series from South End Mound I is highly fragmentary, conjoining of skeletal elements resulted in the reconstructions of a number of postcranial remains, thus allowing some measurements. Where possible, standard measurements of long bones were taken following procedures outlined in a previous monograph (Larsen, 1982). From maximum lengths of adult fem-

ora, individual statures were estimated using regression formulae (Sciulli et al., 1990). Calculation of the femur midshaft index (ratio of mediolateral to anteroposterior diameters) is used as an indicator of "shape" of the diaphysis and for drawing inferences about activity (Ruff, 2000; Larsen, 1997).

Several crania were partially reconstructed, but none were complete enough for meaningful measurement. Several hundred teeth were recovered in the 1991–1993 excavations. From these teeth, in addition to pathology (especially dental caries; see below), size (mediodistal and buccolingual dimensions; Larsen, 1982) was recorded and is reported here.

Dietary Reconstruction and Nutritional Inference: Food Remains and Stable Isotopes

Diet is a fundamental part of human health. Reconstruction of diet from archaeological materials offers insight into earlier foodways from which to draw inferences about nutrition. For most of the history of archaeology, diet has been identified by the analysis of plant and animal remains recovered from domestic or other settings. For the subtropical Georgia coast, plant remains rarely survive in archaeological settings, and thus they have provided limited perspective on past foodways. Animal remains are far more abundant, and their analysis and study have presented important information on the kinds of fauna that prehistoric and historic-era native groups exploited (e.g., Reitz, 1988, 1993). Indeed, for South End Mound I, animal remains are well preserved (see below). However, owing to the complete mixture of mound fill, the context of the animal remains is missing. Some of these animal remains likely do not derive from human activity, but rather represent later intrusions. On the other hand, there are animal remains from species that were eaten by humans. The presence of butchering cutmarks indicate that the fauna had certainly been processed by late prehistoric populations for food (and see O'Brien, 1986).

In the last 20 years or so, stable isotope analysis of human bone has become an essential tool for paleodietary research. Stable isotopes of carbon (^{13}C and ^{12}C) and nitrogen (^{15}N and ^{14}N) have received extensive attention in regard to dietary reconstruction and nutritional inference in North America and elsewhere. Field and laboratory studies of modern plants and animals have shown that ratios of stable isotopes of carbon and nitrogen found in their tissues reflect the ratios in the foods animals eat (see Schoeninger, 1995). This means that the bones and teeth of humans should also retain these ratio differences. The amounts of isotopes differ very little between foods. As a result, the ratios are expressed in parts per thousand (called "per mil", or ‰) as lower case Greek delta (δ) values in relation to an international standard (Pee Dee belemnite, or PDB, for carbon, and atmospheric nitrogen [ambient inhalable reservoir], or AIR, for nitrogen).

$^{12}C/^{13}C$ ratios ($\delta^{13}C$ values) vary depending on the photosynthetic pathway of the plants consumed. For St. Catherines Island, the economically important plants eaten by late prehistoric populations followed either one of two types of photosynthetic pathways, C_3 or C_4. The pathway is determined based on how efficiently carbon is extracted from atmospheric carbon dioxide (CO_2) and utilized by the plant during photosynthesis. As a rule, C_4 plants discriminate less against the isotopically heavier ^{13}C from the atmosphere. Thus, C_4 plants, and the people consuming these plants, have higher (less negative) isotope ratios than do C_3 plants. For St. Catherines Island, the only major economically significant C_4 plant eaten by native populations was maize.

Nitrogen isotopic variation, measured as ratios of $^{15}N/^{14}N$ ($\delta^{15}N$ values), distinguishes terrestrial and marine foods and their consumers, owing mostly to the fact that nitrogen enters the ecological domain of these settings in different ways. Because of the differences in how nitrogen is acquired by terrestrial and marine organisms, there is a tendency for marine organisms to have more positive $\delta^{15}N$ values than do terrestrial organisms, and these differences are ultimately reflected in the human consumers and their bone tissues.

For St. Catherines Island and other coastal settings, carbon isotope ratios for maize and for marine organisms overlap, precluding clear dietary reconstruction and the relative

importance of maize versus marine foods. However, use of bivariate plots of stable isotope ratios of carbon and nitrogen helps to distinguish the two food sources, terrestrial (maize) and marine (Schoeninger et al., 1990). Therefore, for this study we have determined stable isotope ratios for both carbon and nitrogen in order to track the use of maize and seafood in native populations.

Our determination of carbon- and nitrogen-stable isotope ratios from human bone from South End Mound I followed procedures developed earlier (Schoeninger et al., 1990; Larsen et al., 1992b, 2001; Hutchinson et al., 1998, 2000). In brief, bone samples were cleaned in the laboratory and the organic component (collagen) was extracted and analyzed by mass spectrometry. The quality of samples and appropriateness for this study were assessed by examining the collagen weight yield and the carbon-to-nitrogen ratios (Schoeninger et al., 1990; Ambrose and Norr, 1992), which determine if the results are true biogenic signals of diet or artifactual due to post depositional factors. In total, 10 samples from South End Mound I were analyzed, of which five produced meaningful, biogenic information (for individuals 5, 6, 16, 24, and 27). Stable isotope ratios were determined following standard equations,[2] and the ratios were compared with other individuals from St. Catherines Island and the Georgia Bight (coastal Georgia and northern Florida).

In addition to presenting findings on the South End Mound I remains, we draw comparisons with other Georgia Bight skeletal series in order to place this series in a larger temporal and spatial context, especially identifying key changes in skeletal morphology and pathology in relation to adaptive shifts that took place in this region (e.g., shift from foraging to farming). The comparative samples are from various mortuary localities representing four temporal groups, namely Georgia coastal prehistoric foragers, Georgia coastal prehistoric farmers, Georgia coastal early mission farmers, and Florida coastal late mission farmers.[3] These temporal groups represent prehistoric Guale and their mission-era descendants who lived on St. Catherines Island and other Georgia coastal localities, and later on Amelia Island, Florida (see Larsen, 1982; Larsen et al., 1992, 2002).

THE SOUTH END MOUND I INDIVIDUALS

The individual human remains encountered in the excavations at South End Mound I are described. The summary of skeletal remains by individual is presented in table 2. All of the skeletal and dental remains are presented in appendix 1, including the individual number assigned in the laboratory, the corresponding Moore burial number, excavation unit, level, catalog number, sex, age, element type, side, portion of element present, and relevant comments. Some fragmentary elements could be matched in the laboratory, and they are so indicated in the comments in appendix 1.

During the analysis of the remains recovered in 1991–1993, it became clear that the remains representing individuals 1–3 (A–C in Larsen and Thomas, 1986) are part of individuals 5–28 and are combined with them. The only individual from the 1979–1981 excavation that remained as a distinct skeleton and not part of any one of the individuals recovered in 1991–1993 is individual 4 (called D in Larsen and Thomas, 1986) and is redescribed below, along with individuals 5–28.

The locations of the remains from South End Mound I are shown in figure 5. All observations, comparisons, and discussion regarding the South End Mound I human remains in this monograph combines the 1979–1981 and the 1991–1993 skeletal remains into a single dataset. Comments on animal remains refer only to remains recovered in the larger 1991–1993 excavation of the site (see O'Brien, 1986, for report on 1979–1981 fauna).

Representation of human dental and skeletal elements by individual is highly variable, ranging from a few teeth or bone fragments for some to nearly complete dentitions and skeletons for others. For juvenile dental remains, the maxillary deciduous molars are represented in higher frequency than are other tooth types (table 3, fig. 6). In adults, the teeth are evenly distributed across the different tooth types (table 4, fig. 7). The skeleton

TABLE 2
South End Mound I Individual Summary

Individual no.[a]	Moore's burial no.	Unit no.	Age	Sex
1	22	G10–G11	adult	♀
2	?	G9	2	indet
3	?	G9	8	indet
4	?	G9	birth	indet
5	32	E8	25	♂
6	39	D8	18+	♀
7	31	C8, D8	6–12 mo	indet
8	42 (or 35)	C8	2–3	indet
9	30	A8–F8, C9	adult?	indet
10	28	F8	6–9 mo	indet
11	18	E8	birth–3 mo	indet
12	23	H9	40+	♀
13	27	G9–G11, H9	1–3	indet
14	38	D9	17–25	♂
15	45	C10	30+	♂
16	46	C10	17–23	♀
17	47	C10	17–23	♂
18	49	C11	40+	♀
19	50	C11	35–45	♀
20	29	G9–G10	1–3	indet
21	16	I9–J9	adult	♂
22	13	J9	adult	♀
23	44	F11	5	indet
24	34	F10	35+	♀
25	41	F10, G10–G11	7–8	indet
26	25	G10	1–3	indet
27	24	G10–G11	38+	♀
28	22	G10–G11	adult	♂
29	43	F11	adult	♀

Key: indet, sex indeterminate; mo, months.

[a] Individuals 1–4 were previously described in Larsen and Thomas (1986). Based on the new remains found in the 1991–1993 excavations and conjoining of these materials with skeletal and dental elements recovered from the earlier excavations (1979, 1981), most of individual 1 is probably the same as individual 27 (or individual 28), most of individual 2 is probably the same as individual 26, and individual 3 is an unassociated tooth. Only individual 4 remains a viable number from the 1979–1981 excavation. Individual numbers 1, 2, and 3 (A, B, and C in Larsen and Thomas, 1986) are, therefore, dropped from the roster of persons recovered from South End Mound I.

shows a predictable pattern of denser and larger bones having the best representation (tables 5, 6; figs. 8, 9). For example, the representation of numbers of long bones for adults is around 60% (radius, ulna, humerus, femur, tibia) (table 6, fig. 9). A similar pattern is present for juveniles, although juvenile remains are less well represented by element than are adult bones (table 5, fig. 8). The poorer representation of juvenile remains reflects their smaller size and greater vulnerability to post-depositional deterioration.

INDIVIDUAL 4: This person is represented by the partial cranial and postcranial remains of a newborn or slightly older (possibly several months into life). Age at death was determined on the basis of long bone length (Ubelaker, 1989), since no teeth are represented. There is no obvious pathology. It was not readily apparent which individual of those excavated by Moore is represented in

TABLE 3
Juvenile Dental Preservation[a]

	Left		Right		Unsided		Total[b]	
Tooth	N	%	N	%	N	%	N	%
Maxilla								
dI1	5	50	2	20	—	—	5	50
dI2	2	20	—	—	—	—	2	20
dC	3	30	5	50	—	—	5	50
dM1	8	80	4	40	—	—	6	60
dM2	5	50	4	40	—	—	6	60
I1	4	40	1	10	—	—	4	40
I2	2	20	2	20	—	—	4	40
C	2	20	1	10	—	—	2	20
P3	1	10	1	10	—	—	1	10
P4	—	—	1	10	—	—	1	10
M1	4	40	2	20	—	—	4	40
M2	1	10	1	10	—	—	1	10
M3	—	—	—	—	—	—	—	—
Mandible								
dI1	4	40	1	10	—	—	3	30
dI2	—	—	1	10	—	—	1	10
dC	1	10	1	10	1	10	3	30
dM1	4	40	3	30	—	—	5	50
dM2	3	30	3	30	—	—	3	30
I1	1	10	1	10	—	—	2	20
I2	—	—	2	20	—	—	2	20
C	1	10	—	—	—	—	1	10
P3	1	10	—	—	—	—	1	10
P4	—	—	—	—	—	—	—	—
M1	2	20	3	30	—	—	3	30
M2	1	10	2	20	—	—	2	20
M3	—	—	—	—	—	—	—	—

[a] Includes teeth that are part of associated individuals (N = 10 juveniles).

[b] Total refers to the number of individuals represented by the tooth type, regardless of side.

this skeleton. It is likely that he did not assign a number to this person.

INDIVIDUAL 5: The remains of this person include a partial skeleton and dentition. The very pronounced skeletal robusticity and narrow sciatic notch indicate that this person is a male. The amount of occlusal surface tooth wear, the appearance of the auricular surface of the innominate, and closure of cranial sutures indicate that the person was at least in his mid-20s at the time of death. No pathology was observed by us. The location and characteristics of the skeleton indicate that he was likely Moore's burial 32.

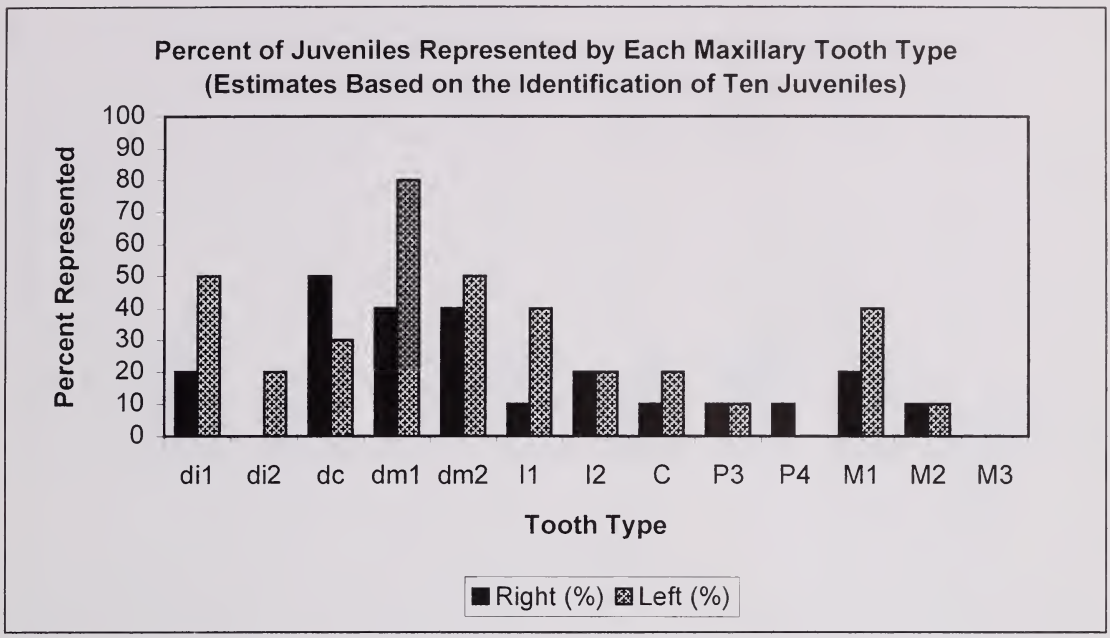
INDIVIDUAL 6: This person is represented by few skeletal remains. The very gracile nature of the skeletal elements suggests that the person is female. Based on the fact that epiphyses for the medial epicondyle and the proximal epiphysis of the ulna are completely fused, the person was at least 18 years old at the time of death. No pathological conditions are present. Location and description of the remains in Moore's report indicate that the individual was his burial 39.

INDIVIDUAL 7: This individual is represented by cranial (most of the mandible without rami) and postcranial fragments and a partial dentition. The age at death is younger than individual 8. However, there could be mixture of cranial and postcranial elements between the two. The left and right maxillary first deciduous incisors and the mandibular lower left deciduous incisor show initial root formation, the maxillary and the mandibular deciduous canines show about two-thirds crown formation, and mandibular deciduous left first molar and maxillary left second molar crowns are approximately completed. These characteristics of dental formation indicate that the individual was less than one year of age at the time of death, but was probably not less than six months of age (Ubelaker, 1989).

The location and age at death of this individual suggests that he or she corresponds with Moore's burial 31.

INDIVIDUAL 8: Individual 8 consists of cranial fragments (including a left mandibular ramus with a crypt for a molar), postcrania, and a partial dentition. Although this individual is older than individual 7, there is likely mixture of cranial and postcranial elements for the two individuals. The dental development indicates that the age at death was between two and three years: the deciduous central mandibular incisor shows complete root formation (with some occlusal surface wear); the permanent first and second left maxillary incisors are about one-third developed; and the maxillary first deciduous molar is in functional occlusion (or nearly so) and the maxillary second deciduous molar is in its crypt and unerupted. Lengths of long bones are consistent with this age estimation (table 1; see Ubelaker, 1989).

Based on the presence of periosteal reactions on the diaphyses of the left humerus, left femur, and right tibia, this individual ap-



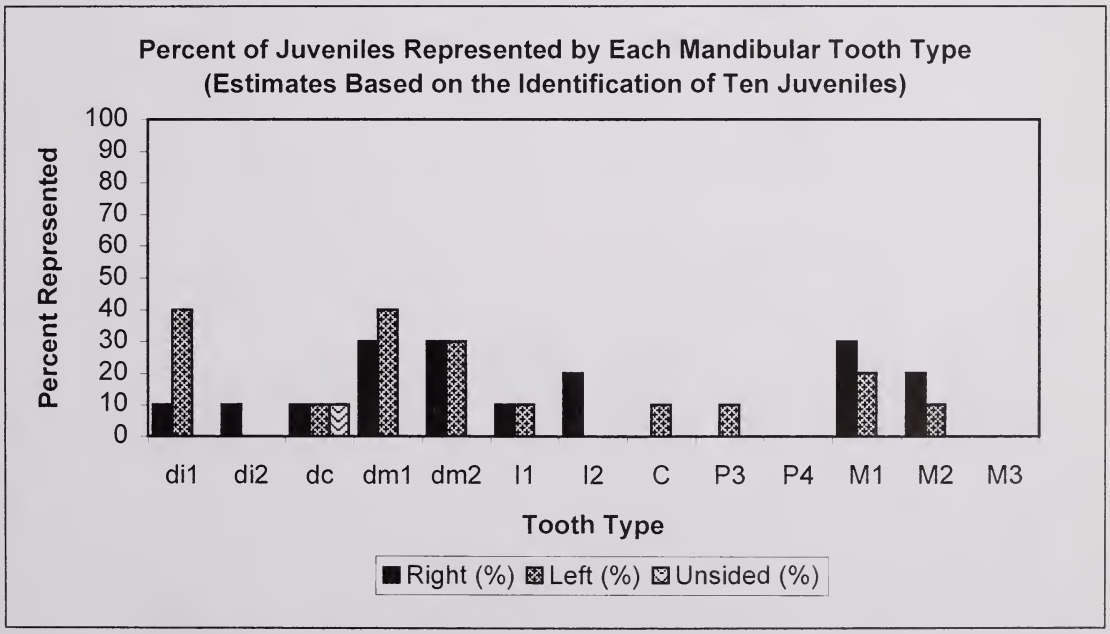


Fig. 6. Percent of juveniles represented by tooth types. The frequencies are in relation to 10 juveniles.

TABLE 4
Adult Dental Preservation[a]

	Left		Right		Unsided		Total[b]	
Tooth	N	%	N	%	N	%	N	%
Maxilla								
I1	7	43.8	6	37.5	—	—	7	43.8
I2	5	31.3	4	25.0	—	—	6	37.5
C	6	37.5	4	25.0	—	—	6	37.5
P3	5	31.3	5	31.3	—	—	7	43.8
P4	5	31.3	4	25.0	—	—	7	43.8
M1	6	37.5	5	31.3	—	—	9	56.3
M2	5	31.3	4	25.0	—	—	5	31.3
M3	3	18.8	2	12.5	—	—	4	25.0
Mandible								
I1	3	18.8	5	31.3	—	—	6	37.5
I2	5	31.3	4	25.0	—	—	5	31.3
C	5	31.3	3	18.8	—	—	6	37.5
P3	6	37.5	5	31.3	—	—	7	43.8
P4	5	31.3	5	31.3	—	—	7	43.8
M1	3	18.8	3	18.8	—	—	6	37.5
M2	4	25.0	5	31.3	—	—	8	50.0
M3	3	18.8	6	37.5	—	—	7	43.8

[a] Includes teeth that are part of associated individuals (N = 16 adults).

[b] Total refers to the number of individuals represented by the tooth type, regardless of side.

pears to have suffered from a major systemic infection. The inflammation was most pronounced in the metaphysis of the left proximal femur.

The age at death of this person indicates that it is probably Moore's burial 42, a two-year-old described by him. Alternatively, the burial may be Moore's number 35, another individual he identified as an "infant".

INDIVIDUAL 9: Individual 9 is represented by calcined bone fragments scattered across a number of excavation units. The bones range in color from dark black to deep gray. Some cortex fragments were burned white. The fragments are very small, and neither age estimation or sex identification is possible. The general location and burned nature of these bone fragments indicate that they are from the single cremation identified as burial 30 by Moore.

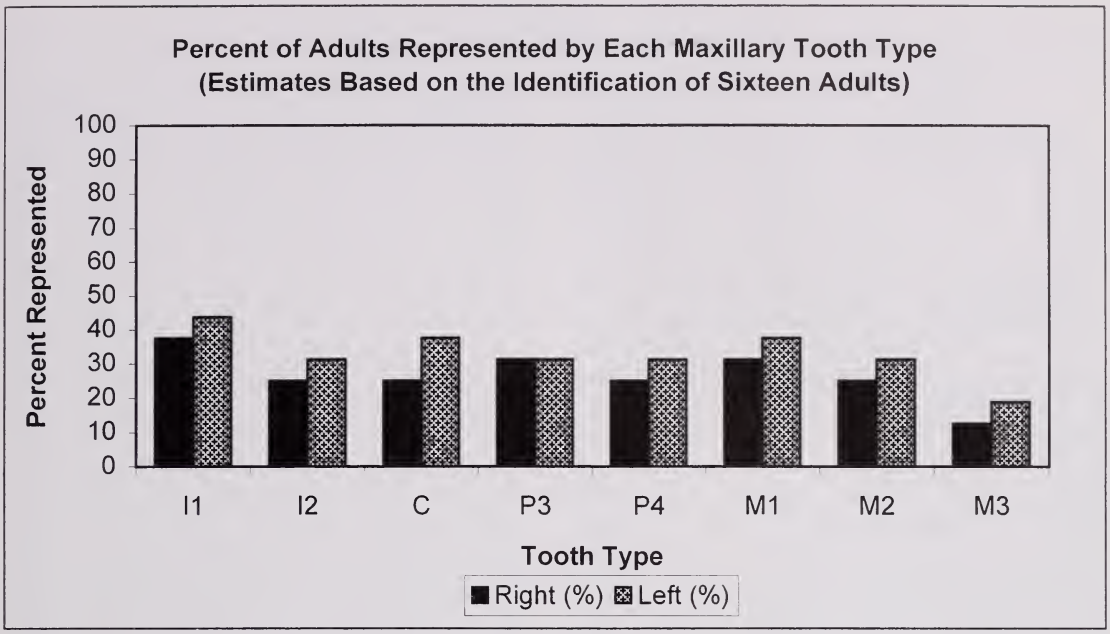
INDIVIDUAL 10: The remains of this juvenile are represented by the dentition only. It is also possible that some of the rib fragments assigned to individuals 7 and 8 are part of individual 10. The dental development shows the following characteristics: the left maxillary deciduous lateral and central incisors show the beginnings of a root formation; the left mandibular deciduous central incisor has a root which is 25% complete; the crown of the right maxillary deciduous canine is about 75% complete and has a large linear enamel hypoplasia; and the crowns of the maxillary deciduous left and right first molar and right mandibular deciduous second molars are complete. The crowns of the left and right mandibular and maxillary deciduous second molars are about half formed. These characteristics indicate an age of about six to nine months at the time of death. Individual 10 probably corresponds with the infant that Moore described in the northeast corner of unit F8 (burial 28).

INDIVIDUAL 11: This individual is represented by a disturbed, but remarkably complete skeleton (the most complete skeleton recovered by us in the mound). Most cranial, mandibular, and postcranial bones and teeth are present. Based on dental development, the individual was a newborn to a few months of age at the time of death: the crowns of the deciduous maxillary and mandibular first incisors are nearly fully formed, and the crowns of the deciduous mandibular canine and maxillary first molar are about half formed. The length of the long bones is consistent with this age at death (table 1; see Ubelaker, 1989).

The upper deciduous first incisors have unusually large lingual tubercles, extending nearly the height of the tooth crowns. No pathology is present.

Individual 11 is probably Moore's burial 18. His monograph describes a "very young infant" buried 4 feet below the surface associated with shell beads. Individual 11 was interred with small shell beads and was found more than 80 cm below the surface. It is also possible that individual 11 is Moore's burial 21. However, Moore reported that the base of the pit associated with burial 21 extended into a layer of oyster shells, which we did not observe in our excavation of individual 11.

INDIVIDUAL 12: Individual 12 is a large cluster of bones and highly worn teeth. Moore indicated the presence of two adult female skeletons in the general area of the



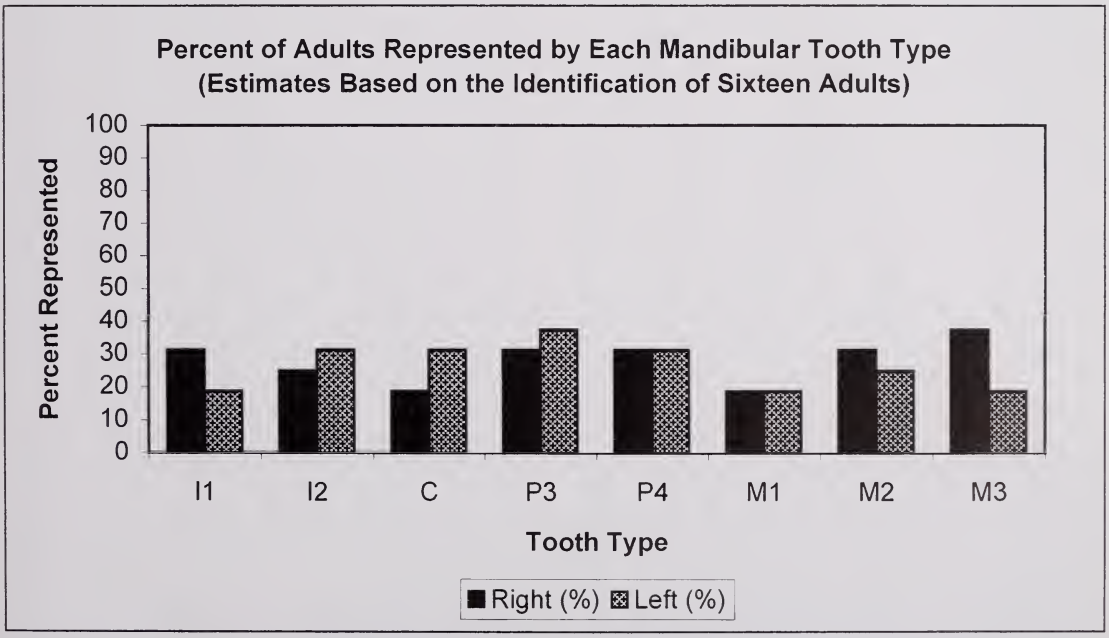


Fig. 7. Percent of adults represented by tooth types. The frequencies are in relation to 16 adults.

TABLE 5
Juvenile Skeletal Element Preservation[a]

Element	Left		Right		Unsided		Axial		Total[b]	
	N	%	N	%	N	%	N	%	N	%
Cranium	—	—	—	—	—	—	7	70	7	70
Mandible	—	—	—	—	—	—	6	60	6	60
Hyoid	—	—	—	—	—	—	—	—	—	—
Vertebra(e) (unidentifiable)	—	—	—	—	—	—	3	30	3	30
Cervical vertebra(e)	—	—	—	—	—	—	2	20	2	20
C1	—	—	—	—	—	—	—	—	—	—
C2	—	—	—	—	—	—	1	10	1	10
Thoracic vertebra(e)	—	—	—	—	—	—	—	—	—	—
Lumbar vertebra(e)	—	—	—	—	—	—	—	—	—	—
Sacrum	—	—	—	—	—	—	—	—	—	—
Rib(s)	—	—	—	—	4	40	—	—	4	40
Sternum	—	—	—	—	—	—	—	—	—	—
Clavicle	3	30	1	10	2	20	—	—	4	40
Scapula	2	20	1	10	2	20	—	—	3	30
Humerus	1	10	3	30	—	—	—	—	3	30
Radius	2	20	3	30	2	20	—	—	5	50
Ulna	2	20	1	10	1	10	—	—	3	30
Carpal(s)	—	—	—	—	1[c]	10	—	—	1	10
Metacarpals	—	—	—	—	—	—	—	—	—	—
Hand phalange(s)	—	—	—	—	—	—	—	—	—	—
Proximal hand phalange(s)	—	—	—	—	1	10	—	—	1	10
Intermediate hand phalange(s)	—	—	—	—	1	10	—	—	1	10
Terminal hand phalange(s)	—	—	—	—	—	—	—	—	—	—
Ilium	1	10	2	20	—	—	—	—	2	20
Ischium	2	20	1	10	—	—	—	—	2	20
Pubis	1	10	1	10	1	10	—	—	2	20
Femur	4	40	3	30	—	—	—	—	5	50
Patella	1	10	—	—	—	—	—	—	1	10
Tibia	4	40	3	30	1	10	—	—	4	40
Fibula	1	10	1	10	2	20	—	—	2	20
Calcaneus	2	20	—	—	—	—	—	—	2	20
Cuboid	—	—	—	—	—	—	—	—	—	—
Intermediate cuneiform	—	—	—	—	—	—	—	—	—	—
Lateral cuneiform	—	—	1	10	—	—	—	—	1	10
Medial cuneiform	—	—	—	—	—	—	—	—	—	—
Navicular	—	—	—	—	—	—	—	—	—	—
Talus	—	—	1	10	—	—	—	—	1	10
Metatarsal(s)	—	—	—	—	—	—	—	—	—	—
Foot phalange(s)	—	—	—	—	—	—	—	—	—	—

[a] Includes postcranial elements that are part of associated individuals (N = 10 juveniles).
[b] Total refers to the number of individuals represented by the element, regardless of side.
[c] Unidentifiable carpal.

mound. One of the adult female skeletons (burial 19) was located in the southeast quadrant of unit H9, and the other adult female skeleton (burial 23) was located in the north half of unit H9. The remains representing individual 12 are probably from Moore's burial 23 because of its location. In addition, a series of potsherds, which appear to be from the same vessel, were found adjacent to individual 12. Moore reported that burial 23 was associated with a burial jar that was "very badly crushed" (Moore, 1897: 78).

The skeleton of individual 12 is gracile, which is suggestive of a female. The cranial sutures are largely obliterated, and the occlusal surfaces of teeth are severely worn, showing a great deal of dentine exposure. Age at death is at least 40, and probably older. The tooth wear is similar to that of individual 27/28A. There may be some mixture of the dentitions from these two individuals (and see below).

One maxillary right fourth premolar is rotated approximately 90° clockwise from the normal position. Aside from this unusual condition, no other pathology was observed.

Individual 13: This individual is represented by cranial and postcranial bones and numerous teeth (mostly deciduous). Dental development suggests an age of one to three years (permanent first molar crowns either complete or show initial root formation). Based on their location and Moore's description, these remains are probably from his burial 27. The individual, some of which was found in association with a submound pit, is about the same age at death as another juvenile located nearby (individual 20). However, the occlusal surface wear on individual 13's deciduous maxillary canine is slightly less than on individual 20's canine. Given the similarity in the ages of individuals 13 and 20, some of the remains may be mixed between the two individuals. No pathology was observed.

Individual 14: This individual is comprised of cranial and postcranial fragments and a partial dentition. The overall robusticity, especially involving a prominent supraorbital torus, suggests that this individual is a male. Occlusal surface wear on the maxillary left third premolar and right second molar is very minimal, suggesting that the person's age at death is from 17 to 25 years. Moreover, the major cranial sutures are distinctive and largely unfused. There is no obvious pathology for this person.

The location of the remains and Moore's description indicate that individual 14 is probably his burial 38.

Individual 15: This individual is represented by cranial and postcranial elements and a partial dentition. Based on the relatively high degree of robusticity and the lack of preauricular sulci, the person is probably a male. All of the epiphyses are completely closed (distal left humerus, proximal clavicle, proximal ulna; medial clavicle), suggesting that age at death is at least 30 years. Moreover, occlusal surface wear is pronounced, with significant dentine exposure on most teeth.

The skeletal remains of this individual are in close association with the remains of another more robust adult male and an adult female. Bones attributed to this individual were in size intermediate to the other male and the female. The other male, individual 17, was much larger than individual 15 and was represented by only a few bones.

Individual 15 exhibited an extensive proliferative periosteal response on a proximal humerus diaphysis (fig. 10) and a periosteal reaction on the diaphysis of the right tibia. Both distal humeri displayed septal apertures. In addition to pronounced occlusal surface wear, he had lost six teeth antemortem (i.e., the mandibular right first and second molars, left first and third molars, and maxillary left and right fourth premolars). Adjacent teeth are carious, especially in the cementoenamel junctions. These lesions were most often on the side of the tooth adjacent to a lost tooth, although some lesions were found on the lingual side of the tooth. Carious teeth include the mandibular right first incisor and left third premolars, and maxillary right first molar.

Moore described burial 45 as an adult male in association with burial 46, an adult female disarticulated skeleton, and with burial 47, an adult male represented by only a few bones ("a cranium, a femur, and a humerus"). Most of the remains of individual 15 were found in unit C10 with its bones scattered intermittently among those of buri-

TABLE 6
Adult Skeletal Element Preservation[a]

Element	Left		Right		Unsided		Axial		Total[b]	
	N	%	N	%	N	%	N	%	N	%
Cranium	—	—	—	—	—	—	14	87.5	14	87.5
Mandible	—	—	—	—	—	—	8	50.0	8	50.0
Hyoid	—	—	—	—	—	—	1	6.3	1	6.3
Vertebra(e) (unidentifiable)	—	—	—	—	—	—	7	43.8	7	43.8
Cervical vertebra(e)	—	—	—	—	—	—	4	25.0	4	25.0
C1	—	—	—	—	—	—	3	18.8	3	18.8
C2	—	—	—	—	—	—	3	18.8	3	18.8
Thoracic vertebra(e)	—	—	—	—	—	—	3	18.8	3	18.8
Lumbar vertebra(e)	—	—	—	—	—	—	2	12.5	2	12.5
Sacrum	—	—	—	—	—	—	1	6.3	1	6.3
Rib/s	—	—	—	—	10	62.5	—	—	10	62.5
Sternum	—	—	—	—	—	—	—	—	—	—
Clavicle	3	18.8	6	37.5	2	12.5	—	—	7	43.8
Scapula	5	31.3	1	6.3	5	31.3	—	—	8	50.0
Humerus	5	31.3	6	37.5	5	31.3	—	—	9	56.3
Radius	4	25.0	1	6.3	6	37.5	—	—	9	56.3
Ulna	8	50.0	6	37.5	2	12.5	—	—	10	62.5
Capitate	2	12.5	1	12.5	—	—	—	—	3	18.8
Hamate	2	12.5	1	6.3	—	—	—	—	2	12.5
Lunate	2	12.5	2	12.5	—	—	—	—	4	25.0
Pisiform	—	—	—	—	2	12.5	—	—	2	12.5
Scaphoid	3	18.8	—	—	—	—	—	—	3	18.8
Trapezium	3	18.8	—	—	—	—	—	—	3	18.8
Triquetral	—	—	1	6.3	—	—	—	—	1	6.3
Metacarpals	1	6.3	1	6.3	6	37.5	—	—	7	43.8
MC1	1	6.3	1	6.3	1	6.3	—	—	1	6.3
MC2	2	12.5	2	12.5	—	—	—	—	3	18.8
MC3	2	12.5	2	12.5	—	—	—	—	4	25.0
MC4	2	12.5	1	6.3	—	—	—	—	3	18.8
MC5	1	6.3	—	—	—	—	—	—	1	6.3
Hand phalange(s)	—	—	—	—	5	31.3	—	—	5	31.3
Proximal hand phalange(s)	—	—	—	—	4	25.0	—	—	4	25.0
Intermediate hand phalange(s)	—	—	—	—	4	25.0	—	—	4	25.0
Terminal hand phalange(s)	—	—	—	—	3	18.8	—	—	3	18.8
Innominate	3	18.8	5	31.3	5	31.3	—	—	7	43.8
Femur	6	37.5	8	50.0	6	37.5	—	—	10	62.5
Patella	4	25.0	1	6.3	—	—	—	—	4	25.0
Tibia	7	43.8	5	31.3	9	56.3	—	—	11	68.8
Fibula	2	12.5	—	—	7	43.8	—	—	7	43.8
Calcaneus	—	—	—	—	2	12.5	—	—	2	12.5
Cuboid	—	—	—	—	—	—	—	—	—	—
Intermediate cuneiform	1	6.3	—	—	—	—	—	—	1	6.3
Lateral cuneiform	—	—	—	—	—	—	—	—	—	—
Medial cuneiform	1	6.3	—	—	—	—	—	—	1	6.3
Navicular	1	6.3	2	12.5	—	—	—	—	3	18.8
Talus	—	—	1	6.3	3	18.8	—	—	4	25.0

TABLE 6
(Continued)

Element	Left		Right		Unsided		Axial		Total[b]	
	N	%	N	%	N	%	N	%	N	%
Metatarsal(s)	1	6.3	1	6.3	3	18.8	—	—	4	25.0
MT1	—	—	—	—	—	—	—	—	—	—
MT2	—	—	—	—	1	6.3	—	—	1	6.3
MT3	—	—	—	—	—	—	—	—	—	—
MT4	—	—	—	—	1	6.3	—	—	1	6.3
MT5	—	—	—	—	—	—	—	—	1	6.3
Foot phalange(s)	—	—	—	—	2	12.5	—	—	2	12.5
Proximal foot phalange(s)	1	6.3	1	6.3	3	18.8	—	—	4	25.0
Intermediate foot phalange(s)	—	—	1	6.3	3	18.8	—	—	3	18.8
Terminal food phalange(s)	—	—	1	6.3	—	—	—	—	1	6.3

[a] Includes postcranial elements that are part of associated individuals (N = 16 adults).
[b] Total refers to the number of individuals represented by the element, regardless of side.

als 46 and 47. Some bones from unit D9 were assigned to individual 15. These bones were found at shallow depths in the southeastern corner of that excavation unit. They closely matched individual 15's skeletal robusticity. Individual 15 is probably Moore's burial 45.

INDIVIDUAL 16: This individual is represented by a partial skeleton, including a calvarium, other cranial fragments, postcrania, and dentition. The calvarium consists of a complete frontal, left and right parietals, left and right temporals, and occipital. The calvarium is the only measurable portion of a skull in the South End Mound I series (maximum length, 175 mm; maximum cranial breadth, 150 mm; minimum frontal breadth, 99.7 mm; interorbital breadth, 103.2 mm; frontal chord, 123.1 mm; parietal chord, 105.3 mm; bi-asterionic chord, 115.6 mm). The cranium is short anteriorly-posteriorly (cranial index of 85). The mastoid process is small, the supraorbital torus is gracile, and there is a distinctive preauricular sulcus. The cranium and postcranium are generally gracile. These characteristics suggest that the person is a female. All major epiphyses are closed, the sutures show very little closure, and all teeth are erupted and have slight to moderate occlusal surface wear. These characteristics suggest that the person was between 17 and 23 years of age at the time of death.

Moore indicated that the skeleton of an adult female, burial 46, was present in this area of the mound. The only other adult female in the area was found in the adjacent unit C11. However, the skeletal remains of the two females, from units C10 and C11, are distinctive in their degree of gracility, color, and texture. These differences in location and other characteristics indicate that the adult female bones comprising individual 16 are likely the same as Moore's burial 46. Our 1992 excavations revealed a concentration of bones that matches Moore's location of his burial 46 (fig. 11).

This individual possesses a number of pathological conditions, including healed cribra orbitalia, and periosteal reactions on the right ulna, fibula, and right distal tibia. The periosteal reaction on the right ulna represents a large proliferative infectious lesion active at the time of death and is located on the distal third of the diaphysis (fig. 12). The lesion may be associated with a fracture. The presence of periosteal reactions on multiple bones suggests some type of systemic infection, such as treponematosis. Carious lesions are present on the mandibular left second and third molars and right canine (called individual 16/17A since the teeth could not be as-

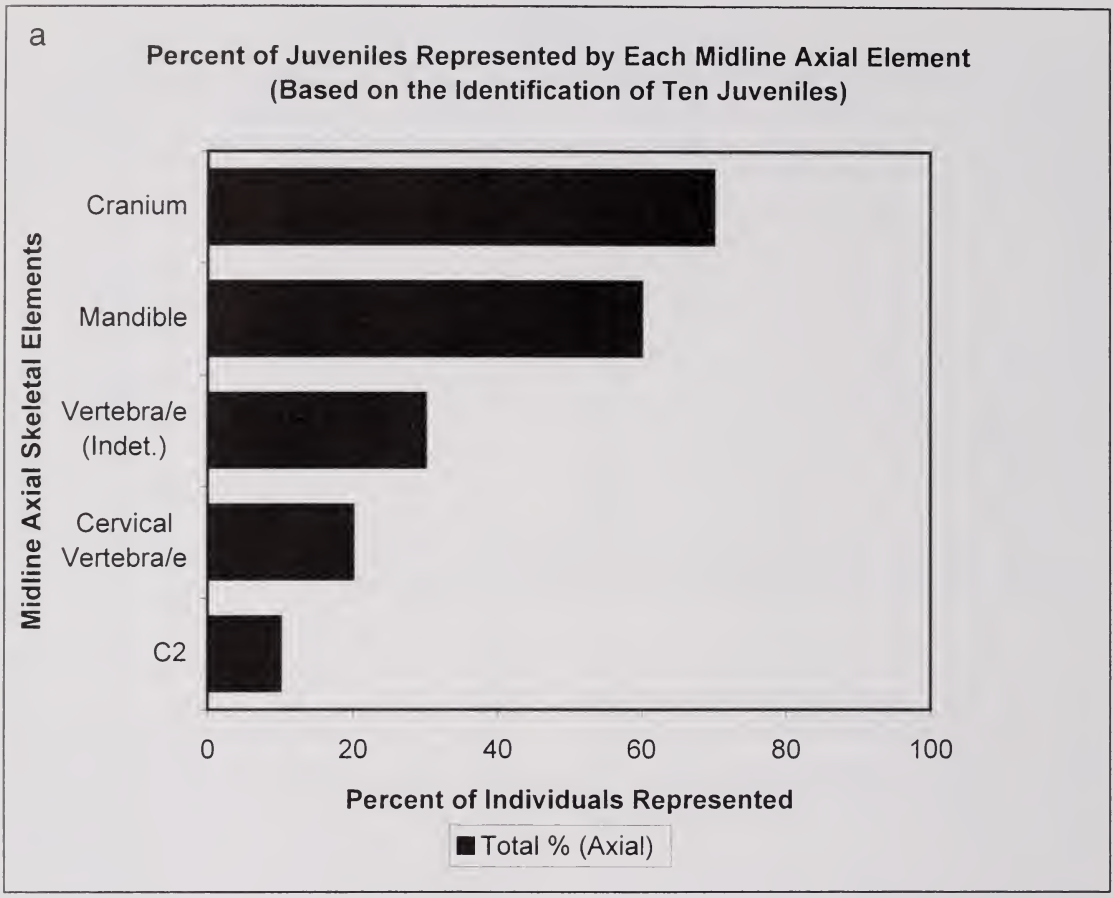


Fig. 8. Percent of juveniles represented by **(a)** midline axial skeletal elements, **(b)** upper body elements, and **(c)** lower body elements. The frequencies are in relation to 10 juveniles.

signed to one or the other individual). The canine and third molar crowns had been completely destroyed due to caries.

INDIVIDUAL 17: The skeletal remains of this person are represented by few cranial and postcranial fragments and a partial dentition. The overall degree of robusticity suggests that the individual is a male; a complete closure of epiphyses indicates that he was a mature adult. The occlusal surface wear on the teeth is minimal to moderate and is about the same degree of wear as in individual 16. The incisors and canines show slight wear, and the first molars have some dentine exposure. These features suggest that the individual was a young adult at the time of death (less than 23 years). Because of the similarity of occlusal surface wear between individuals 16 and 17, the dentitions are mixed.

Pathology is represented by periosteal reactions on the right tibia.

Individual 17 is likely Moore's burial 47 because it was found in the same cluster of bones as burial 45, an adult male, and burial 46, an adult female, in a concentration of skeletal elements in unit C10.

INDIVIDUAL 18: This person is represented by cranial and postcranial fragments and a partial dentition. The skeleton is very gracile, and the greater sciatic notch is wide. These characteristics suggest that the individual was a female. Her tooth wear is excessive, with a large amount of dentine exposure and severe crown height reduction. She was likely more than 40 years of age at the time of death.

The assignment of skeletal elements to this individual was difficult because of the pres-

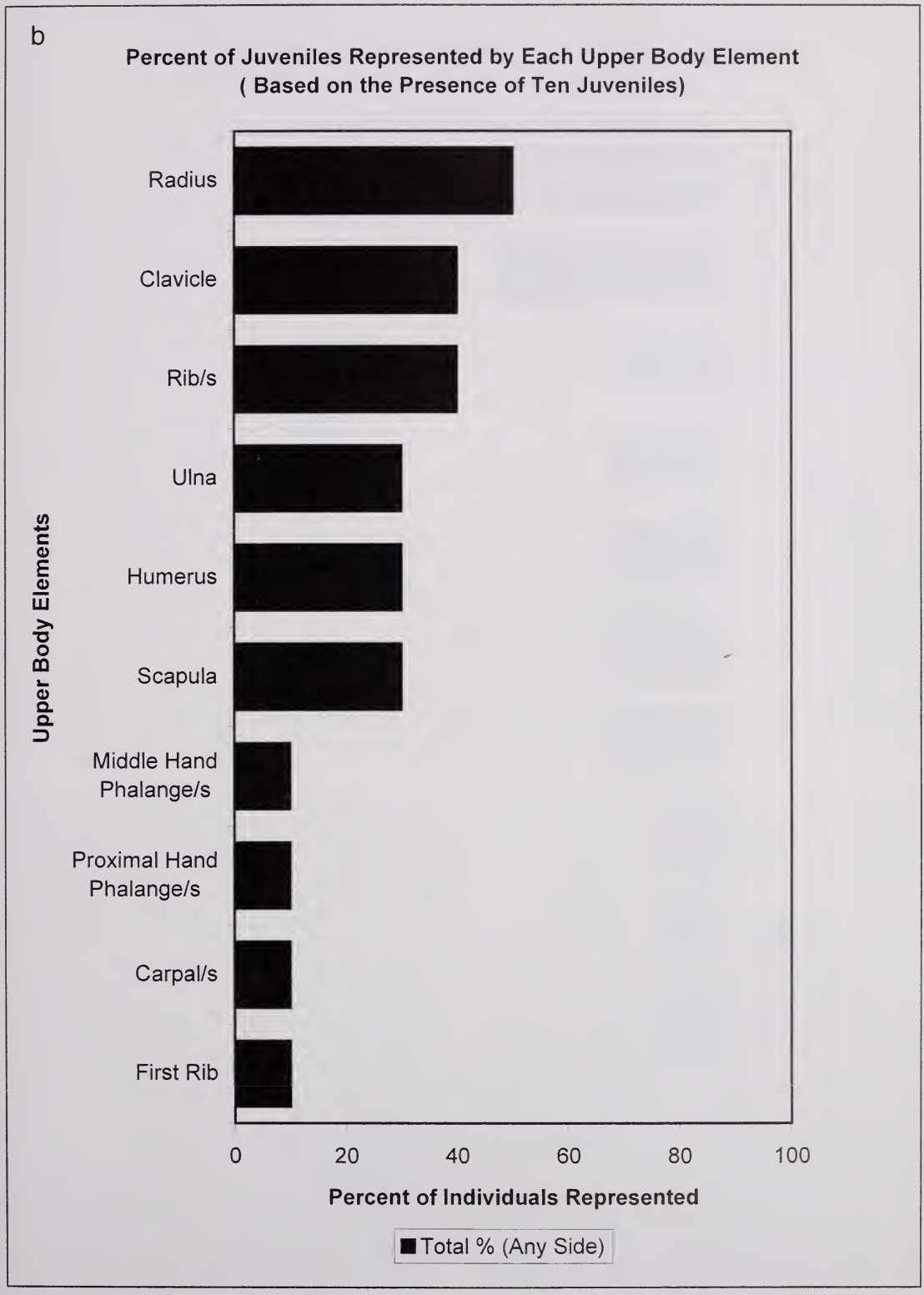


Fig. 8. Continued.

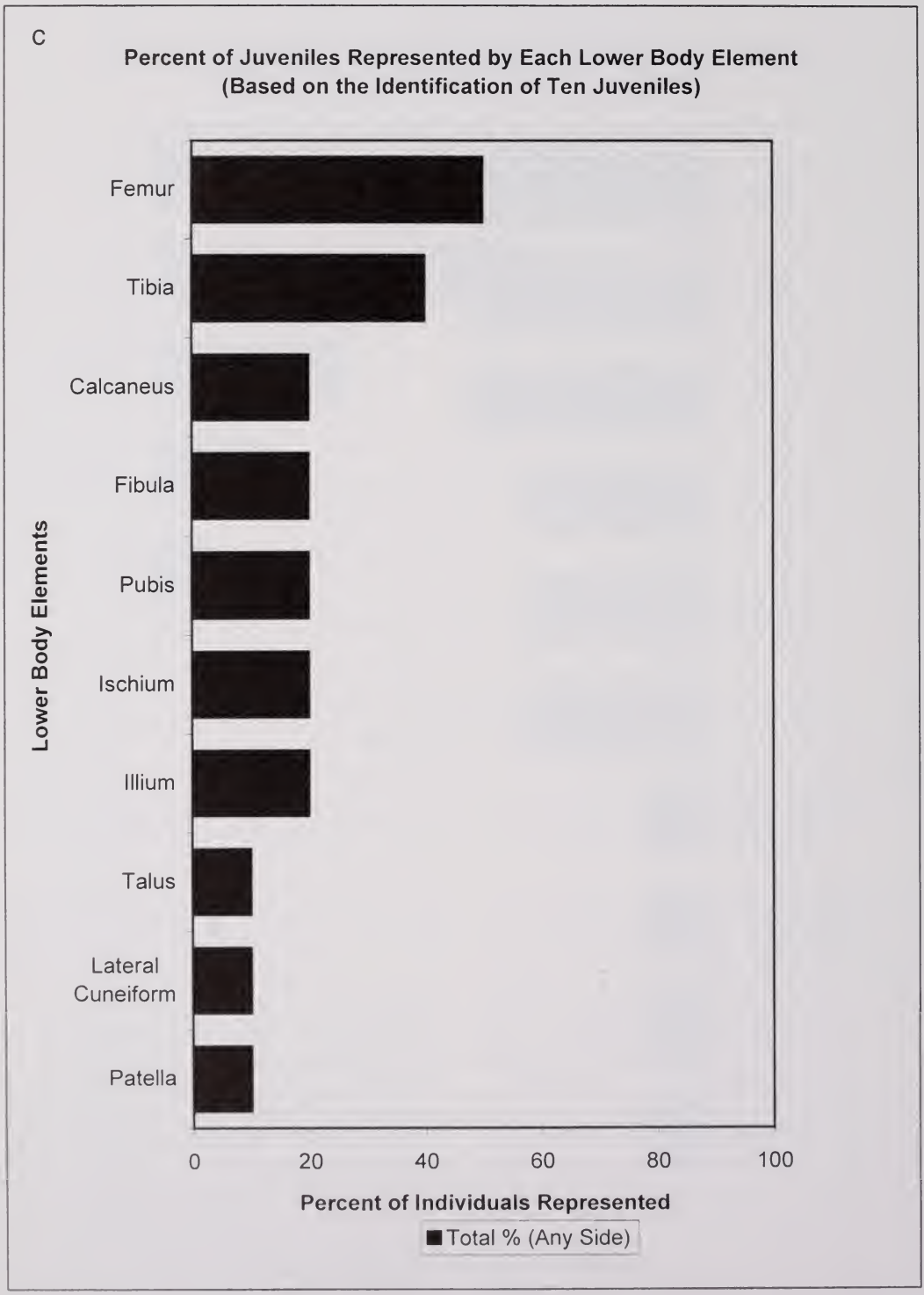


Fig. 8. Continued.

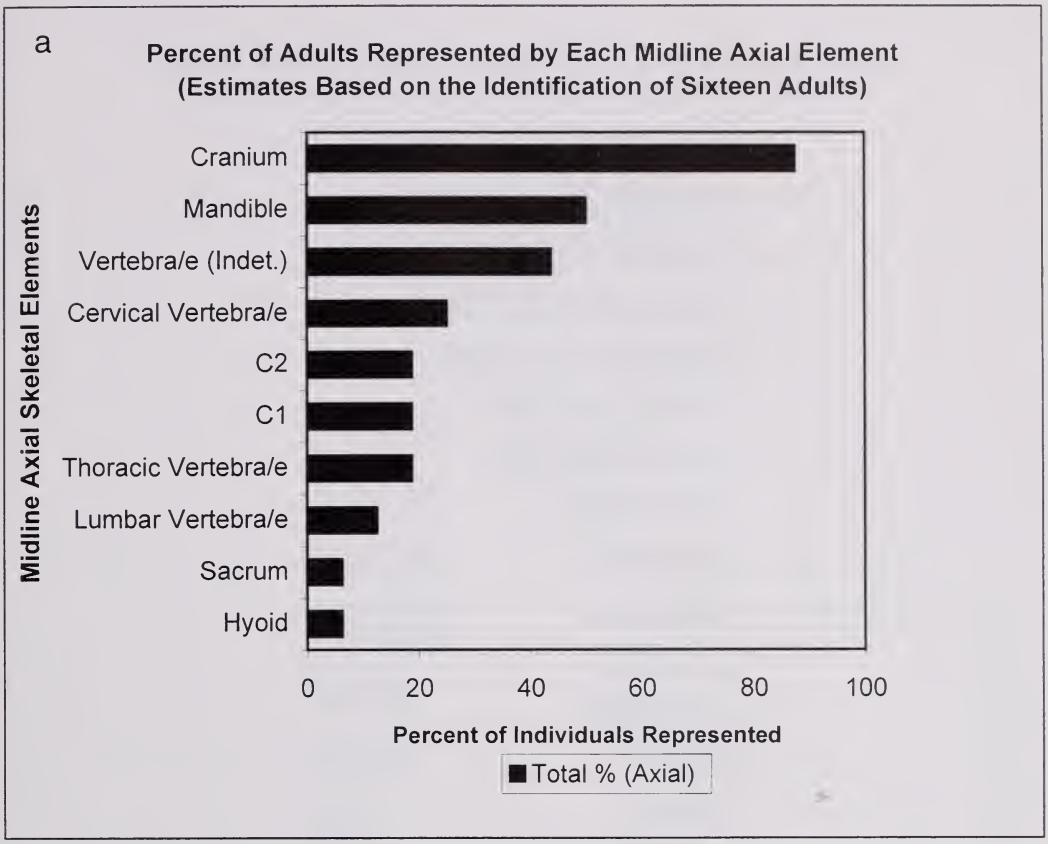


Fig. 9. Percent of adults represented by **(a)** midline axial skeletal elements, **(b)** upper body elements, and **(c)** lower body elements. The frequencies are in relation to 16 adults.

ence of a minimum of four individuals in the general location of this person. However, this female has distinctively greater cortical bone thickness than do two other females in the immediate vicinity. Her mandibular third molars are missing (agenesis).

Several pathological conditions are present for this person, including well-healed periosteal reaction on the midshafts of the right femur and right tibia and pronounced hypoplasias on a maxillary right central incisor.

The location of individual 18 in the mound and the description by Moore indicate that this person is probably Moore's burial 49.

Individual 19: Individual 19 is represented by a few cranial and postcranial bones and a partial dentition. The bones were found in a discernable pit extending into the sterile submound horizon. The skeletal remains are generally gracile, suggesting that this person is a female. The teeth are highly worn, indicating an age at death of 35 to 45 years. The right mandibular third molar is carious.

The location and description provided by Moore indicate that individual 19 is probably his burial 50.

Individual 20: This individual is comprised of the poorly preserved cranial and postcranial remains and a dentition of an infant. The size of the bones and dental development suggests that the person was between one and three years of age. In particular, the roots of the first deciduous molars are about three-quarters developed, the roots of the second deciduous molars have open apices, the crowns of the first permanent incisors are about half formed, and the crowns of the first permanent molars are nearly complete. There is no obvious pathology.

The remains were found in a submound pit extending into the sterile horizon. The location and description from Moore's report

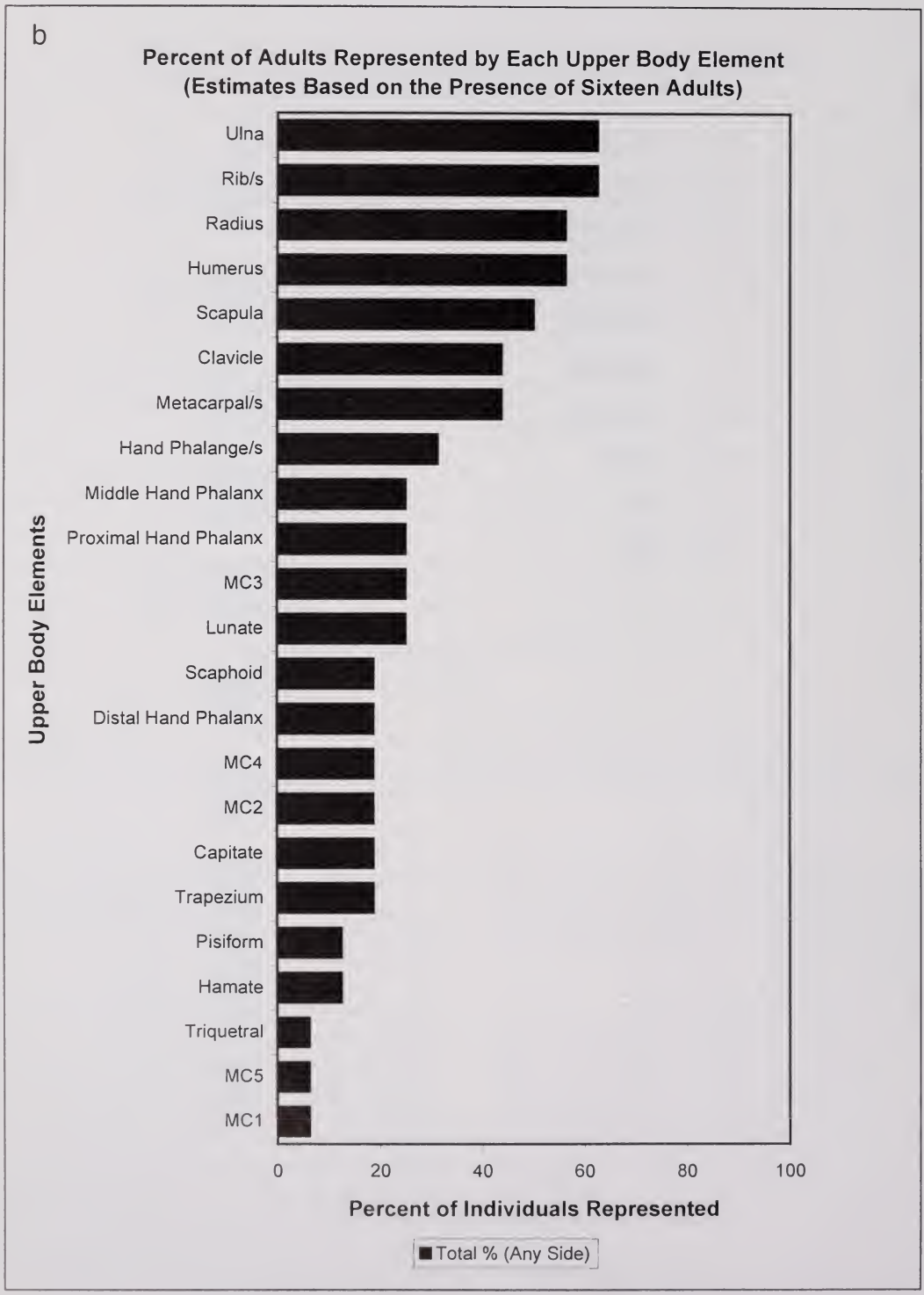


Fig. 9. Continued.

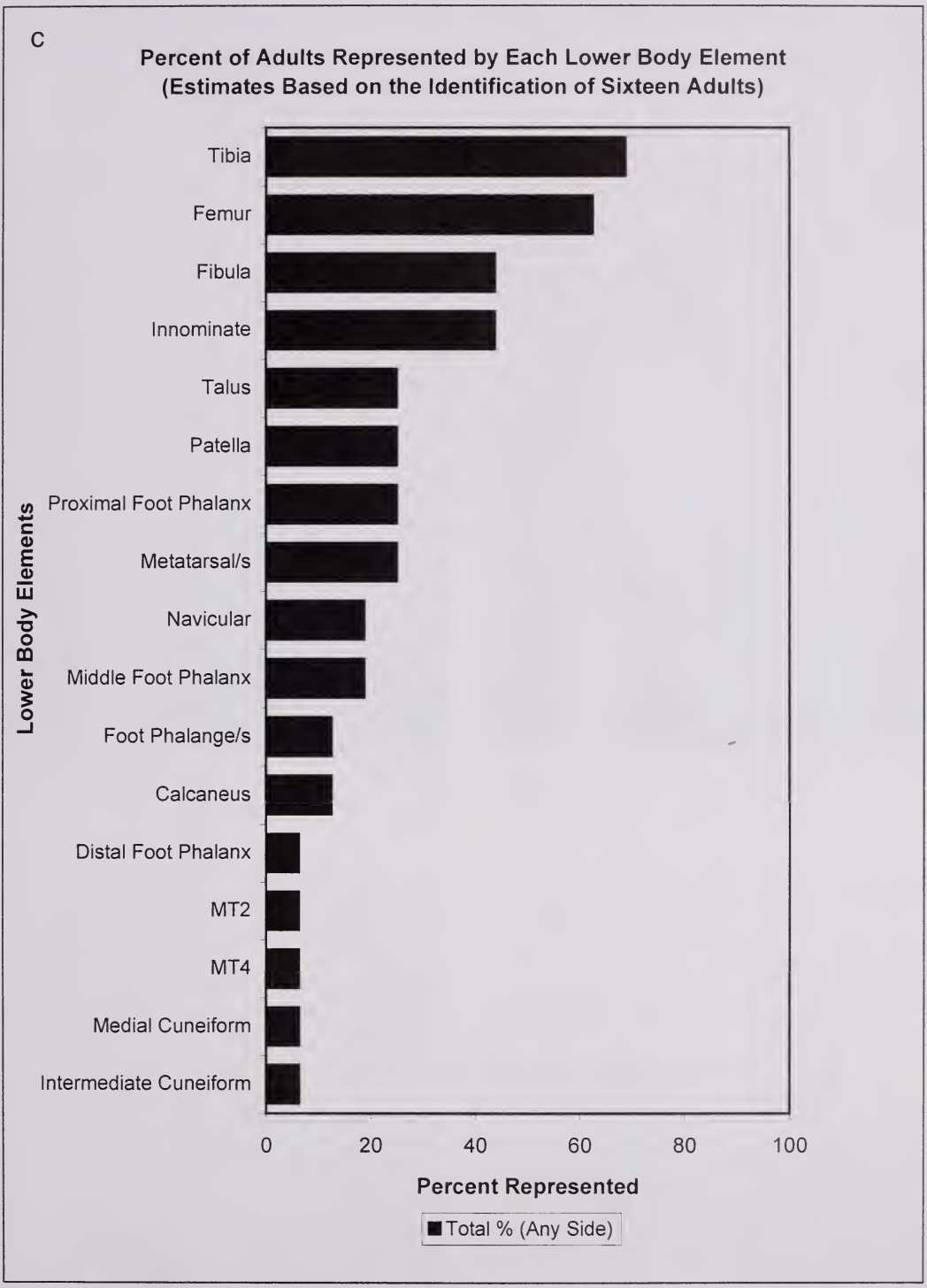


Fig. 9. Continued.

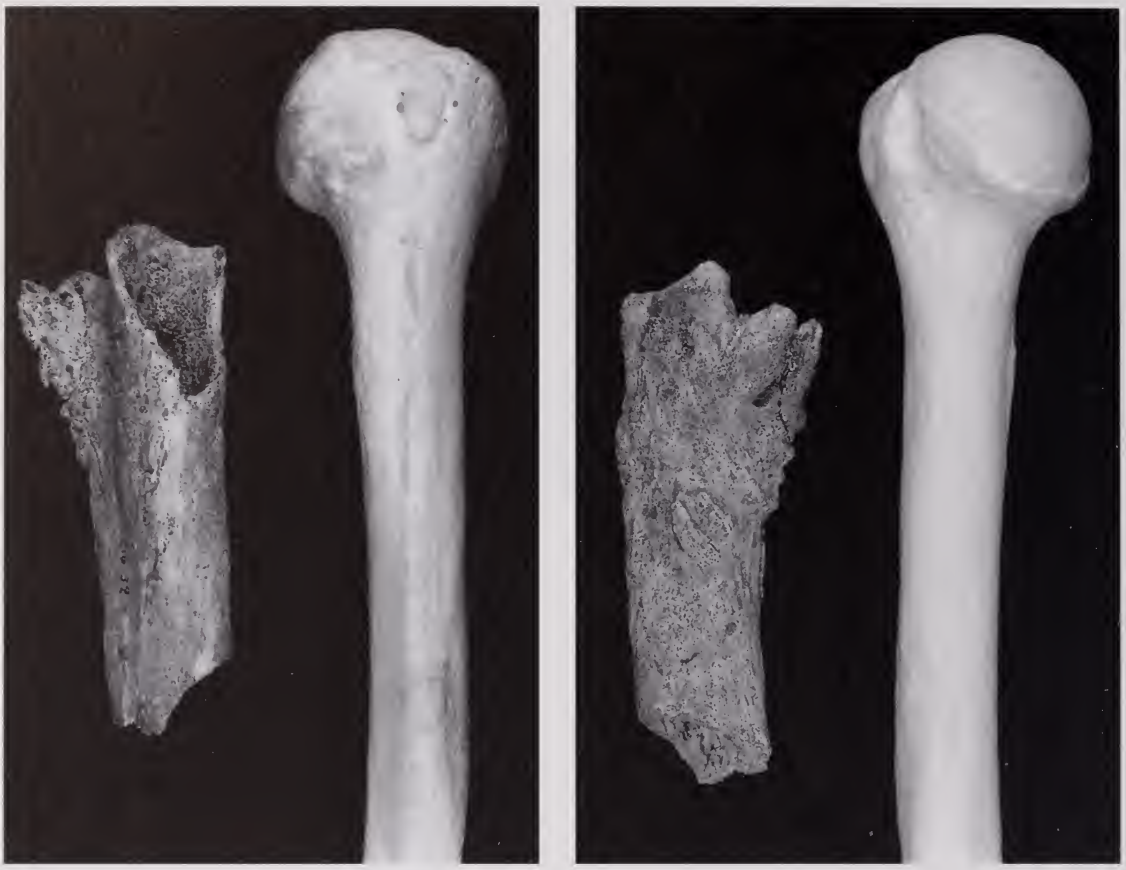


Fig. 10. Anterior (left) and posterior (right) views of proliferative periosteal reaction on proximal humerus diaphysis of individual 15 compared with nonpathological anatomical specimen.

suggest that this person is probably his burial 29. This individual is located near another submound pit juvenile, individual 13. Individual 13 is roughly the same age as individual 20, although the wear on the deciduous maxillary canine is slightly less than on individual 20's canine.

INDIVIDUAL 21: This person is represented by postcranial fragments only. The bones are relatively robust, and the epiphyses are closed. The person is probably an adult male. The left tibia diaphysis displays periosteal reactions. The location of the skeleton and general description provided by Moore indicate that the remains are probably part of his burial 16.

INDIVIDUAL 22: The few postcranial remains found representing this person are gracile, indicating that the person is probably a female. She was probably an adult (full epiphyseal closure). She has no pathology. The location of the remains of this individual suggests that she is from Moore's burial 13.

INDIVIDUAL 23: This person is represented by several bone fragments and two incompletely formed permanent teeth. The length of the ilium indicates an age at death of about five years (table 1); the dental development is consistent with that age (root half formed on right maxillary second incisor; crown three-quarters formed on mandibular premolar) (Ubelaker, 1989). No pathology was observed.

Some or all of the remains may be from individual 25, which is located nearby and has a similar size and texture of skeletal elements. However, the bones from this person appear to be younger in age at death, and therefore, is distinct from individual 25.

The location of the remains and age-at-

Fig. 11. Concentration of disturbed skeletal remains in excavation unit C10. Based on Moore's descriptions and location of remains, these elements are probably part of his burial 46 (individual 16).

death description from Moore's report suggest that this person may be his burial 44.

INDIVIDUAL 24: This person is represented by cranial and postcranial remains and a partial dentition. All mandibular teeth are articulated in a partial mandible, and some of the maxillary teeth are articulated in a partial maxilla. The teeth, mastoid processes, and cranial and postcranial elements are gracile and generally diminutive in size. These features suggest that the person is a female. The excessive tooth wear (extensive dentine exposure; no remaining enamel on the occlusal surfaces of the first molars) and presence of numerous carious lesions suggest that she was a fully mature, perhaps older adult (greater than 35 years).

The location of this person in the mound and the general description provided in Moore's report suggest that she is his burial 34.

The skeleton and dentition display a number of pathological conditions. There are a series of periosteal reactions on two long bone diaphyseal fragments (lower limb) and right ulna. The presence of periosteal reactions on multiple elements suggests a systemic infection. Carious lesions are present on the following teeth: maxillary right second incisor, left canine, and left and right third premolars. There is an alveolar abscess associated with the carious maxillary right third premolar and left canine.

INDIVIDUAL 25: This person is represented by a nearly complete cranium, complete mandible (with articulated left permanent first incisor, canine, first molar, second molar, right first molar, second molar, left deciduous first molar, second molar, right canine, first molar, and second molar), two left maxilla fragments (with articulated left first and second incisors, third premolar, and first molar), five complete or nearly complete long bones (left and right femora, left and right tibia, right clavicle), many postcranial fragments, and most of a mixed (deciduous and permanent) dentition. The dentition shows the left and right deciduous first and second molars and right deciduous canine and left and right mandibular permanent first incisors, left maxillary first and second incisors, and first molars in functional occlusion; the permanent canine, premolars, and permanent second molars are unerupted. The root shows initial formation for the permanent second molars. This developmental stage indicates

Fig. 12. Overall (left) and closeup (right) of proliferative periosteal reaction on distal right ulna diaphysis from individual 16 compared with nonpathological anatomical specimen. The lesion may represent an infection associated with a fracture.

an age at death of around seven or eight years (Ubelaker, 1989). The lengths of the long bones are consistent with this age estimation (table 1; see Ubelaker, 1989). No pathology was observed. The location and description from Moore's report suggest that this skeleton is Moore's burial 41.

INDIVIDUAL 26: This person is represented by miscellaneous cranial and postcranial fragments and a partial juvenile dentition (permanent and deciduous teeth). The teeth had been found previously in 1979 and were originally assigned to individual B (individual 2) by Larsen and Thomas (1986: 13). Conjoining of dental elements indicates that the teeth found in 1979 are part of individual 26. Based on dental development, this person is between one and three years of age (closer to two years): crowns of permanent maxillary left first incisor, right second incisor, left and right canines about half formed, roots of deciduous maxillary second molars are about three-quarters formed. We observed no pathology.

Given the similarity in age and close proximity in the mound of individuals 13, 20, and 26, some of these teeth may be part of these other individuals. However, comparable teeth are different in size, color, and texture between the three juveniles. The location of the remains of individual 26 indicates that he or she may be from Moore's burial 25.

INDIVIDUAL 27: This partial skeleton (cranial and postcranial fragments, teeth) was recovered in close proximity to individual 28. The location of both individuals suggests that they are from Moore's burials 24 and 22, respectively, which he referred to as an adult female and male. Many of the remains of the two individuals were different in size and texture. With regard to size, in particular, individual 27 includes remains of a gracile adult, whereas individual 28 includes remains of a robust male. Given their location and distinctive differences, the association with his burials 24 and 22 seem likely. The ilium possesses a distinctive preauricular sulcus with pronounced and multiple parturition scars, indicating it is a female. The auricular surface possesses a morphology that is consistent with a person who is in his or her late 30s or older (Lovejoy et al., 1985). The cranial sutures are mostly obliterated, which is consistent with an age at death in the mature range.

The skeletal remains are similar in age and other characteristics to individual A (individual 1) described by Larsen and Thomas (1986). Visual inspection of the right femur, left humerus, and left ulna from individual A recovered in 1981 and the left femur, right humerus, and right ulna from individual 27 recovered in 1992 presents a perfect match of all elements; that is, the limb bones recovered in 1981 and 1992 are from the same person as those recovered in 1992. Therefore, our earlier assessment presented an incorrect attribution of the disturbed remains from unit G10 to burial 22. Rather, individual 27 may be from Moore's burial 24.

The area of excavation containing individuals 27 and 28 yielded teeth from a minimum of two adults. One of the adult dentitions includes three mandibular molars with moderate occlusal surface wear (small patches of dentin exposure on first molar) recovered from the 60–80 cm level. The other adult dentition includes most of a set of highly worn (enamel on occlusal surface entirely missing for some teeth) mandibular and maxillary teeth. Most of the teeth from the latter person were loose and found in the 80-cm to sterile level. Four of the teeth, however, are in their original anatomical position in the right half of a mandible corpus (right canine, fourth premolar, first and second molars). In addition, a left half of a mandible containing six teeth and identified as individual A (individual 1) by Larsen and Thomas (1986: 13) conjoins perfectly with this right half mandible. Because of the uncertainty of association, the two adult dentitions are from either individual 27 or 28, but it is not possible to say which dentition is associated with which individual. For purposes of data collection, we refer to the two dentitions as 27/28A (highly worn teeth) and 27/28B (less worn teeth). The 27/28A tooth wear is quite similar to that of individual 12. The teeth from 27/28A and 12 are derived from bone concentrations some distance apart: individual dentition 27/28A is in the north half of unit G11, and individual 12 dentition is in the north half of unit H9. It is likely that there is significant mixture of the teeth and bones of individuals 12, 27, and 28.

The only pathological condition present in this individual is periosteal reaction of the right tibia diaphysis and multiple carious lesions (mandibular left third premolar, right canine, maxillary left and right first and second incisors and left first molar).

INDIVIDUAL 28: The remains of this person consist of cranial and postcranial fragments and teeth. The remains are in close association with individual 27. The remains are robust and are thus distinctive from the remains of individual 27. The overall degree of robusticity indicates that the remains of this person are probably from an adult male, which is likely Moore's burial 22.

Larsen and Thomas (1986) described two articulated adult feet (a right and a left) from a single individual they found in situ in South End Mound I and a series of postcranial remains in the near vicinity, which they called individual A (individual 1), attributing it to Moore's burial 22. Morphology of pelvic bones from individual 1 indicated that the skeletal remains were likely female. Moore

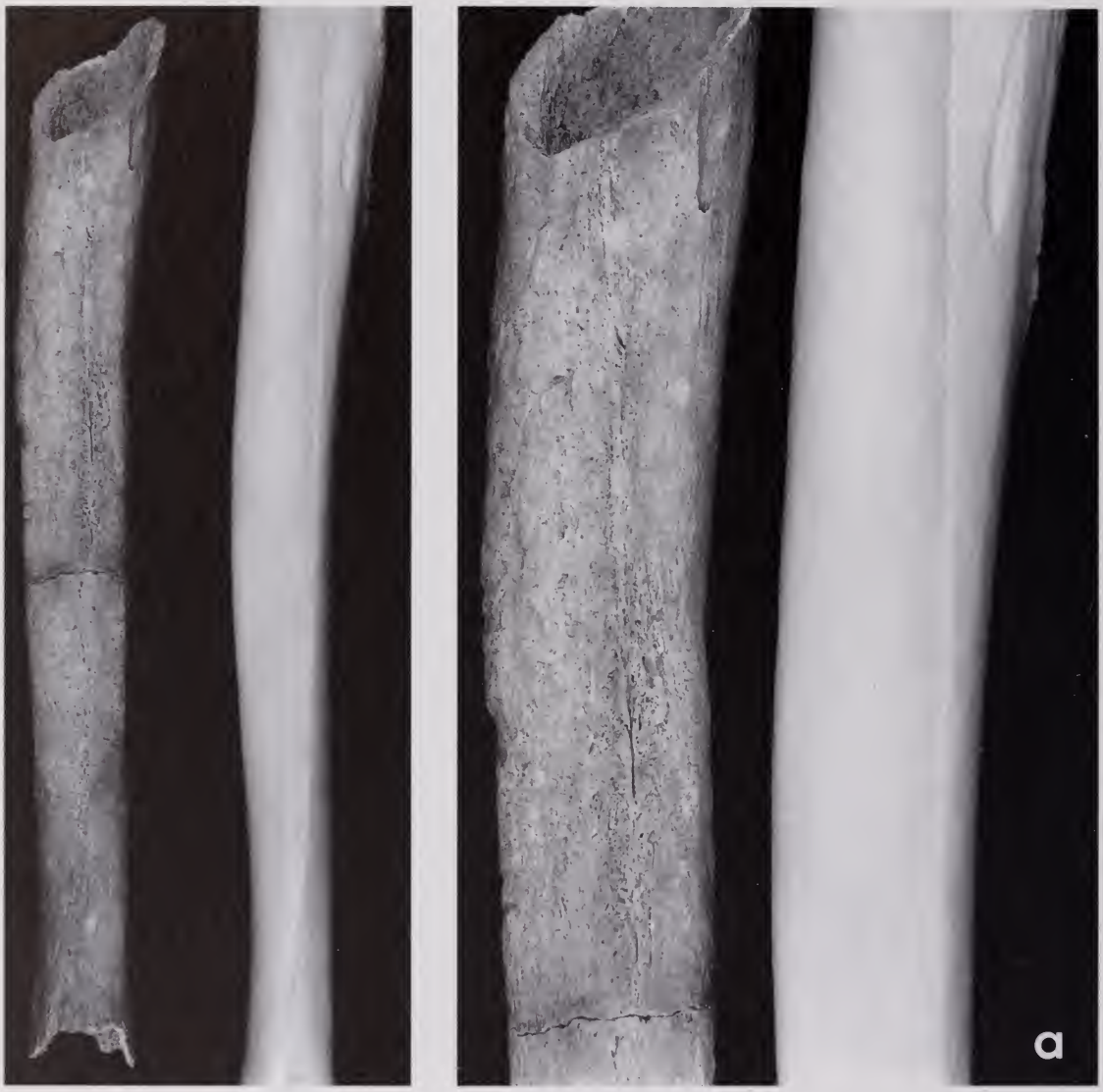


Fig. 13a. Lateral view of periosteal reaction and proliferative response on diaphysis of left tibia of individual 28 compared with nonpathological anatomical specimen. Left, overall bone; right, closeup. Note the presence of erosive lesions with uneven cortex and vascular tracks characteristic of chronic infection involving the entire element. This is a likely an example of endemic (nonvenereal) syphilis.

attributed his burial 22 to the remains of an adult male, which we viewed with some skepticism. However, reassessment of the remains from individual 28 suggests that his remains may more likely be from Moore's burial 22. If this is the case, then the feet of individual 1 may be from individual 27, or Moore's burial 24, an adult female. Alternatively, the feet may belong to Moore's burial 22, and the other postcranial remains we identified in the excavation fill are from his burial 24. The position of the articulated feet in relation to other burials in South End Mound I and the edge of Moore's excavation in the south profile of unit B8 argue that the feet are likely part of Moore's burial 22. It is not possible to determine sex from the foot bones. Therefore, the correct attribution of

Fig. 13b. Medial view of periosteal reaction and proliferative response on diaphysis of left tibia of individual 28 compared with nonpathological anatomical specimen. The left shows the bone overall and the right shows a closeup.

the feet to one or the other of Moore's burials (22 or 24) is ambiguous. We conclude that the articulated feet documented by Larsen and Thomas (1986) are more likely part of Moore's burial 22 than his burial 24. This suggests, then, that the postcranial remains found in the fill of the Larsen and Thomas 1981 excavation are part of Moore's burial 24, the remains of an adult female we have called individual 27.

A number of pathological conditions are present for individual 28, including a single carious tooth (mandibular right third molar), and healed porotic hyperostosis is present on a parietal and occipital squamous. Periosteal reactions are present on the diaphyses of the left distal femur diaphysis and diaphyses of the left tibia and left and right fibulae. The entire diaphysis of the left tibia has periosteal proliferation accompanied by erosive lesions with an uneven cortex from a severe chronic infection (fig. 13a–13b). A distal half of a

right adult radius we associated with individual A and found in 1981 has periosteal reaction and may be from this individual. The pattern of widespread periosteal reactions affecting multiple bones suggests systemic infection, probably treponematosis (endemic, nonvenereal syphilis).

INDIVIDUAL 29: This individual is represented by very fragmentary postcranial skeletal elements. The remains are from a relatively gracile person, suggesting that they are from a female. No pathology was observed. The location of the remains and description in Moore's report suggest that the skeleton is the same as his burial 43.

SUMMARY: The skeletal series at South End Mound I is represented by the fragmentary remains of 10 juveniles and 16 adults. The ages range from neonate (newborn) to mature adulthood. Both males and females are represented. Our excavation and analysis indicates that about half of the number of individuals identified by C.B. Moore in his excavations in the 1890s are present in the series (and see Moore, 1897).

ARTIFACTS

David Hurst Thomas and Jessica McNeil

Various ceramic and nonceramic artifacts were recovered during the 1991–1993 excavations in South End Mound I; all are from disturbed mound fill. These materials, described below, confirm our earlier assessments that the mound was constructed during the Irene period. Most of the artifacts represent the general period associated with mound construction and its use as a mortuary locality. However, a small number of artifacts pre-date mound use (relatively early ceramic fragments) and postmound use (historic-era artifacts).

CERAMIC ARTIFACTS

C.B. Moore collected complete ceramic vessels from the South End Mound I excavations, donating two each to the Peabody Museum (Harvard University), Heye Foundation (New York), and the AMNH. All six vessels have been described by Peter (1986: 14–15, figs. 8–10):

Vessel A (Heye Foundation 17/4479): Irene Complicated Stamped

Vessel Ca (Peabody Museum 48334): Irene Complicated Stamped

Vessel Cb (Peabody Museum 48335): Irene Plain

Vessel E (Heye Foundation 18/413): Irene Plain

Vessel Fa (AMNH 20/1565): Irene Complicated Stamped

Vessel Fb (AMNH 20/1566): Irene Burnished Plain

During the 1979 AMNH excavations, numerous isolated sherds were recovered from the mound fill (Peter 1986: 15, table 1). Roughly three-quarters of these sherds (86 of 113) belonged to the Irene series; St. Catherines, Wilmington, and Refuse series were also represented in small numbers.

No whole or reconstructable vessels were encountered during the 1991–1993 excavations, and table 7 presents counts and weights for the sherds recovered. Ceramic terminology follows conventions set out in DePratter (1979; see also Saunders, 2000).

A single fragment (28.3/2740) of blue transfer-printed pearlware was found in unit F11, at a depth of 60–80 cm.

SHELL ARTIFACTS: WHELK BEADS

Moore's (1897) excavation report mentions that "numerous" shell beads accompanied burials 3, 5, 18, 19, 21, 30, 40, 41, 42, and 44; six of these were infant interments. In several cases, the beads were found in the neck and wrist area. Beads were also found in the burial urns. The 1979 AMNH excavations at South End Mound I recovered six additional whelk beads, as described by Pendleton (1986b: 20–21, fig. 11).

The 1991–1993 excavations turned up eight additional whelk beads from South End Mound I (table 8). Three of these beads are made from cut columella, generally taken from the axis end of the whelk. This axis has been left intact and the whorls and spirals are visible on the side of the beads. These long bead blanks were then conically drilled and cut into various lengths. The ends have been smoothed and abraded around the perforation, but are not further modified. The other beads are shell discs.

TABLE 7
Ceramics

Type/series	N	Weight (g)
Altahama series		
Check Stamped	2	28.5
Circle in Square	1	6.4
Line Block Stamped with rosette	3	16.1
Line Block Stamped with square	4	24.3
Punctated rim	3	20.9
Circle in square	9	223.9
Burnished interior	2	44.0
Folded incurvate flat rim	1	15.9
Reed punctated node rosette rim	6	71.6
Irene series		
Plain	7	77.0
Burnished	10	62.1
Burnished (?)	2	16.9
Burnished interior and exterior	2	23.6
Rim	2	102.5
Shell scraped interior	1	6.2
Complicated Stamped	151	1159.7
Rim	2	19.9
St. Catherines series		
Plain	3	25.7
Plain (?)	1	11.3
Stamped (?)	1	0.8
Rim	1	6.7
Savannah series		
Plain		
Burnished interior and exterior	1	3.7
Plain rim	1	21.8
Folded rim	1	4.5
Plain (?)	2	14.3
Misc.	2	7.7
Wilmington series		
Heavy Cord Marked	1	11.7
Stamped rim	1	2.4
Wilmington (?), very thick	1	172.1
Misc.	11	105.8
Deptford series		
Check Stamped	4	24.0
Folded Rim	1	9.3
Pin	4	26.6
Stamped	5	2.2
Misc.	1	5.6
Deptford (?)	1	2.9
Refuge series		
Plain	8	51.5
Simple Stamped	1	4.6
Refuge (?)	1	6.9
Refuge, late(?)	2	16.8
Walthour	2	20.1
Grit tempered		
Burnished interior	3	13.3
Burnished interior, shell scraped exterior	1	3.2
Grit tempered (*continued*)		
Burnished exterior	1	4.3
Check stamped	2	15.7
Complicated incised	2	8.2
Complicated stamped	14	147.2
With circle	6	45.5
With rosette	3	49.7
Folded, punctated flat rim	1	29.2
Reed punctated, node rim	1	16.4
Rim	2	26.5
Impressed (?)	3	45.6
Incised	1	4.1
Linear incised	1	3.3
Linear stamped	1	11.7
Plain	1	3.9
Shell scraped exterior	1	4.4
Folded rim	1	1.4
Punctated	1	0.2
Shell scraped interior	1	10.6
Reed punctated	1	1.4
Stamped	79	806.1
Folded punctated rim	3	13.4
Folded rim	7	17.3
Incised	2	28.6
Reed rosette, possible Altahama Line Block Stamped	1	6.1
Reed punctated	1	0.2
Rosette rim	1	2.4
Folded rim	1	0.6
Node rim	1	13.9
Rim	8	67.0
Rim, Flared	1	3.5
Misc. small sherds	5	7.2
Grit and clay tempered	1	1.8
Decorated, punctated	1	3.4
Shell scraped interior	1	3.9
Grit and sand tempered	2	11.4
Grit, clay, and sand tempered		
Burnished, interior and exterior	2	16.2
Stamped	1	67.2
Clay and sand tempered		
Rosette decoration	1	0.1
Sand and grit tempered		
Plain	1	4.9
Rim (early)	1	7.9
Misc.	1	4.9
Sand and grog tempered		
Stamped, with punctated nodes, folded rim	1	6.5
Misc. unidentified small sherds	425	634.7
Misc. unidentified ceramics	8	46.1

TABLE 8
Whelk Beads

Specimen no.	Length (mm)	Width (mm)	Perforation diameter (mm)	Weight (g)
28.3/2732a	7.72	4.07	2.04	0.4
28.3/2732b	4.32	2.34	1.11	0.1
28.3/2747	32.58	19.11	5.57	12.7
28.3/2769	32.94	19.50	4.71	12.9
28.3/2676a	6.32	2.35	1.60	0.2
28.3/2676b	4.58	3.15	—	0.1
28.3/2676c	4.62	1.71	1.78	—
28.3/2787	10.54	4.78	1.40	0.6

TABLE 9
Modified Whelk Artifacts

Specimen no.	Height (mm)	Width (mm)	Lip (mm)	Weight (g)
28.3/2665	82.88	99.02	—	98.9
28.3/2664	128.33	80.88	3.02	182.1
28.3/2617	180.03	106.31	1.44	448.0
28.3/2690	118.51	94.09	1.09	161.2
28.3/2623	126.19	97.24	0.75	8.9
28.3/2675	103.09	75.74	0.99	119.9
28.3/2715	119.19	96.94	0.63	165.9
28.3/2716	133.32	109.33	1.02	345.8
28.3/2718	121.15	93.31	1.11	193.5
28.3/2721	95.97	69.51	0.83	97.1

Shell Artifacts: Modified Whelks

Ten modified whelk shell artifacts were found in the South End Mound I artifacts and the attributes are presented on table 9. In each case, the pointed end of the anterior canal was damaged from use, and the outer lip was often broken as well. One of these has a hole in the outer whorl.

Lithic Artifacts

Only a handful of lithic artifacts were recovered from the South End Mound I excavations, 28 of which are discussed here. This number consists of two bifaces, one unifacially flaked artifact, and 25 pieces of debitage (see table 10 for summary statistics of flaked lithic artifacts). All of the artifacts discussed below were analyzed in accordance with the procedures set forth by McNeil (1999). These artifacts are analyzed as a separate grouping from those which were previously described from the South End Mound I excavations (see Pendleton, 1986b: 15–20).

Both of the bifacially flaked artifacts are Pinellas projectile points, as defined by Bullen (1975: 8). Pinellas points are a local variation of the Middle Mississippian Cluster which are common throughout eastern North America, and date to between ca. A.D. 1250 and 1600 (Bullen, 1975: 4, 8; Justice, 1995: 227).

Artifact 28.3/2760 (fig. 14) is a small, asymmetrical projectile point, the blade margins of which are slightly incurvate–excurvate. One of the basal corners extends below the basal plane of the point whereas the other does not, giving the impression that it had been fractured. The basal margin on this point is incurvate–excurvate and is sharply beveled. It exhibits a rhomboid cross-section and is produced from a tan-colored chert.

Projectile point 28.3/2776 (fig. 14) is roughly equilateral in plane view; it exhibits primarily straight-sided blade margins and a concave basal margin. In cross-section it is concave–median ridged, and random pressure flake scars are visible on both faces. This artifact was also produced from a tan-colored chert, although the two points do not appear to have been produced from the same raw material. Three groupings of parallel striations are evident. Two of the groups are located on one face and the third is on the opposite face. These striations, however, may have occurred during the manufacture of the point rather than during use.

Artifact 28.3/2642a is a fragment of a chert uniface and was also produced from a tan-colored chert (fig. 14). The only unbroken margin of this artifact exhibits steep retouch. With the exception of this small amount of retouch, this artifact remains relatively unmodified.

In addition to the retouched artifacts, 25 pieces of debitage were analyzed with this grouping of artifacts from South End Mound I. Two of these artifacts were produced from basalt, while the remainder were produced from chert. Cortex remains on the dorsal faces of three of the chert flakes and on one piece of shatter. Of the chert flakes, six appear to have been produced from the same raw material. Two of these flakes were found in excavation unit G11, while the other four

TABLE 10
Lithic Artifacts

Specimen no.	Type	Length, maximum (mm)	Length, axial (mm)	Width, maximum (mm)	Width, basal (mm)	Thickness (mm)	Weight (g)
28.3/2760	Projectile point	18.6	16.4	15.7	15.7	3.5	0.2
28.3/2776	Projectile point	23.7	21.9	20.9	20.9	4.9	1.5
28.3/2642	Uniface	—	—	—	—	—	1.0

were found in unit I9. None of the debitage flakes appears to have been produced from the same raw material source as the uniface or projectile points.

Miscellaneous Artifacts

Several other artifacts were recovered in the 1991–1993 excavations. Artifact 28.3/2653 is a .30-caliber lead shot (7.67 mm in diameter, 2.6 g); found in the upper 20-cm level (unit B8). A porcelain button (10.74 mm in diameter, 0.4 g) was recovered in the 20–40-cm level of unit A8. A heavily corroded nail fragment (28.3/2616; 24.39 mm long, 4.61 mm wide, 1.6 gm) came from the 40–60-cm level of unit C10.

Two kaolin pipe stem fragments were found. Artifact 28.3/2631 (35.45 mm long, 7.31 mm in diameter, 1.89 mm stem hole diameter) came from the 20–40-cm level of unit C8. Artifact 28.3/2648 (21.12 mm long, 7.47 mm in diameter, 1.89 mm stem hole diameter) was found in the 20–40-cm level of unit A8. Both fragments may derive from the same tobacco pipe.

A number of glass fragments were found. Four sherds of a clear glass rounded bottle (28.3/2646) came from the 20–40-cm level of unit A8; a very similar glass sherd (28.3/2651a) was found in the 0–20-cm level of B8 and three more pieces (28.3/2654), from the 20–40-cm level of the same unit, may all derive from the same bottle. The 20–40-cm level of unit A8 also contained a small, heavily eroded green glass bottle fragment.

A roundish white calcium carbonate pebble (no catalog number) was found in the 20–40-cm level of unit E9 (11.14 × 9.01 × 7.55 mm, 0.8 g). This unmodified pebble is similar to several others found clustered together near burials 2, 14, and 15 (Moore, 1897: 76–77), probably interred inside a rattle.

RESOURCE UTILIZATION AND DIETARY RECONSTRUCTION

Elizabeth J. Reitz, Clark Spencer Larsen, and Margaret J. Schoeninger

Zooarchaeology

A large number of animal remains were recovered during the 1991–1993 excavation of South End Mound I (NISP = 1722 fragments; in addition, 442 fragments were recovered in 1979–1981, see O'Brien, 1986, for description). The unusually large size of the sample reflects the fact that there is a significant midden deposit in the mound, which Moore (1897) described and we encountered.

Standard zooarchaeological methods were used to identify animal remains recovered in the excavations at South End Mound I (see Reitz and Wing, 1999). Analysis of animal remains revealed the presence of a diverse fauna, including large and small-bodied mammals, birds, reptiles, fishes, and shellfish (table 11). The list of taxa from the 1979–1981 and 1991–1993 excavations are identical.

Some of the faunal remains are commensal taxa, representing casual (nondietary) inclusions in the mound fill. For example, toad and mouse were likely not part of native diet. Most of the remains we recovered from the mound fill have a dietary origin, however. The dietary origin of these remains is indicated both by the type of animal (e.g., deer) and the presence of butchering marks and burning.

By far, the greatest contributor to edible

CM

Fig. 14. Stone artifacts from South End Mound I: top, partial projectile point (28.3.2760); middle, projectile point (28.3.2776); bottom, uniface (28.3.2642).

biomass (calculated following Reitz and Scarry, 1985) was unidentifiable mammal (13.49 kg, 43.4%) and deer (*Odocoileus virginianus*; 14.66 kg, 47.2%). All other taxa contributed 2% or less to the biomass.

TABLE 11
Species List of Fauna

Bone	Individual 8	11	25
Femur, left	—	—	296.7
Femur, right	—	80.3	292.5
Tibia, left	—	69.7	244.3
Tibia, right	106.3	69.2	245.1
Clavicle, left	—	47.2	—
Clavicle, right	—	46.9	103.0
Ulna, left	—	63.9	—
Ulna, right	100.2	64.0	—
Radius, left	—	55.7	—
Radius, right	79.4	55.9	—
Humerus, left	107.0	66.8	—
Humerus, right	—	67.7	—
Ilium, left	—	—	—
Ilium, right	—	37.3	—

In total, the species list indicates that a range of terrestrial and marine animals were used by late prehistoric native populations living on St. Catherines Island, but with a clear preference for terrestrial animals. Comparison of the species list with a contemporary Irene period site, the North of the Shell Ring Drain, on Sapelo Island (Reitz, 1982) reveals a striking contrast between the two series. Namely, the South End Mound I faunal assemblage has far less fish and far more deer, other mammals, and reptiles than does the North of the Shell Ring Drain site. However, the faunal list from Fallen Tree, a late prehistoric/mission village midden near Santa Catalina de Guale, is more similar to the South End Mound I (Dukes, 1993). The

TABLE 12
Stable Isotope Ratios by Individual

Lab no.	Individual	Sex	Age	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)
MS4843	5	M	25	−13.3	13.1
MS4844	6	F	18+	—	12.5
MS4847	16	F	21	—	10.4
MS4850	24	F	35+	−13.2	12.8
MS4851	27	F	38+	−12.4	11.7
Mean				−12.9	12.1
SD				0.49	1.08

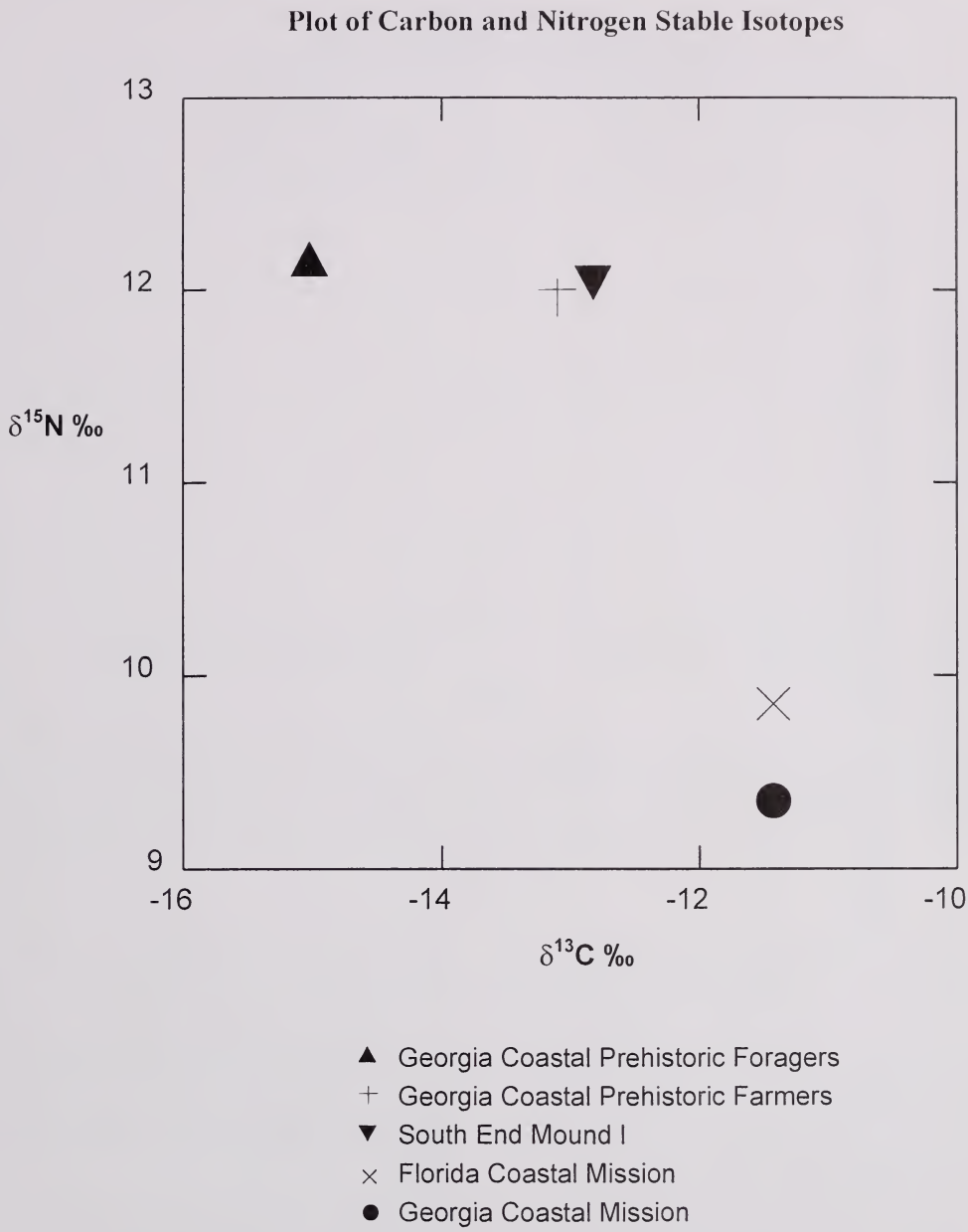


Fig. 15. Bivariate plot of mean stable carbon and nitrogen isotope ratios comparing Georgia coastal prehistoric foragers, Georgia coastal prehistoric farmers, South End Mound I, Georgia coastal mission, and Florida coastal mission. The temporal shift in values to the right indicates increased C_4 (maize) consumption (comparative data from Hutchinson et al., 1998; Larsen et al., 2001).

overall pattern for late prehistoric sites in general for the Georgia coast is strongly marine in orientation (Reitz, 1982). The unusually high presence of deer and other mammal remains at South End Mound I (and St. Catherines Island generally) may reflect the ritual/mortuary function of the site. The disturbance caused by Moore's excavation prevents us from drawing a precise conclusion regarding the meaning of the composition of

TABLE 13

Skeletal Elements with Periosteal Reactions[a]

More than 50% of upper and lower limb diaphyses were present for observation.

Individual	Sex	Age[b]	Femur		Tibia		Fibula		Humerus		Radius		Ulna		Total with periosteal reactions (%)
			L	R	L	R	L	R	L	R	L	R	L	R	
4	indet	birth	—	x	x	x	—	—	—	—	x	—	—	—	0.0
5	♂	25	x	x	x	x	—	—	x	—	—	—	—	—	0.0
6	♀	18+	—	—	—	x	—	—	x	x	—	—	—	—	0.0
7	indet	6–12 mo	—	—	—	—	—	—	—	—	—	—	—	—	—
8	indet	2–3	pr	—	—	pr	—	—	pr	—	—	x	—	x	60.0
9	indet	adult?	—	—	—	—	—	—	—	—	—	—	—	—	—
10	indet	6–9 mo	—	—	—	—	—	—	—	—	—	—	—	—	—
11	indet	0–3 mo	x	x	x	x	—	—	x	x	x	x	x	x	0.0
12	♀	40+	x	x	—	x	—	—	—	—	—	—	—	—	0.0
13	indet	1–3	—	—	—	—	—	—	—	—	—	—	—	—	—
14	♂	17–23	—	—	—	—	—	—	—	x	—	—	—	—	0.0
15	♂	30+	x	x	—	pr	—	—	—	pr	x	—	x	x	28.6
16	♀	17–23	x	x	—	pr	—	pr	—	x	x	—	—	pr	42.9
17	♂	17–23	—	x	—	pr	—	—	—	—	—	—	—	—	50.0
18	♀	40+	x	pr	—	pr	—	—	—	—	x	—	—	—	50.0
19	♀	35–45	x	—	x	—	—	—	—	—	—	—	—	—	0.0
20	indet	1–3	—	—	—	—	—	—	—	—	—	—	—	—	—
21	♂	adult?	x	—	pr	—	—	—	—	—	—	—	—	—	50.0
22	♀	adult	—	—	—	—	—	—	—	—	—	—	—	—	—
23	indet	5	—	—	—	—	—	—	—	—	—	—	—	—	—
24	♀	35+	—	—	—	pr	—	—	—	—	—	—	—	pr	100.0
25	indet	7–8	x	x	x	x	—	—	—	—	—	—	—	—	0.0
26	indet	1–3	—	—	—	—	—	—	—	—	—	—	—	—	—
27	♀	38+	x	x	x	pr	—	—	x	x	x	—	x	x	11.1
28	♂	adult	pr	—	pr	—	pr	pr	x	—	pr	—	—	—	88.3
29	♀	adult	—	—	—	—	—	—	—	—	—	—	—	—	—
UA	indet	adult	—	—	—	x	—	—	—	—	—	—	—	—	0.0
Total periosteal reactions (%)			16.7	10.0	25.0	50.0	100.0	100.0	20.0	16.7	0.0	33.3	0.0	33.3	26.0
Total per element			13.6		40.9		100.0		16.7		11.1		22.2		26.0

Key: L, left; R, right; indet, sex indeterminate; mo, months; x,bone present for study; pr, bone present for study and has periosteal reactions; UA, unassociated.

[a] Summary: 26.0% (20/77) of long bones have periosteal reactions; 50.0% (9/18) of individuals with at least one long bone have periosteal reactions.

[b] Ages are given in years except as specified.

the faunal assemblage at the South End Mound I.

Stable Isotopes

Because no archaeological plant remains were recovered from the excavation and the archaeological fauna present only a part of the picture of diet in the Irene period, stable isotope analysis contributes an important perspective on diet in this setting, especially with regard to the relative amount of maize consumed (based on carbon-stable isotope ratios) and marine foods consumed (based on nitrogen-stable isotope ratios). Carbon- and nitrogen-stable isotope analysis of five individuals (one male and four females) produced biogenic information for individuals 5, 6, 16, 24, and 27 (table 12). The mean ratio values for the group are −12.9‰ and 12.1‰ for carbon and nitrogen, respectively.

In comparison with stable isotope ratios

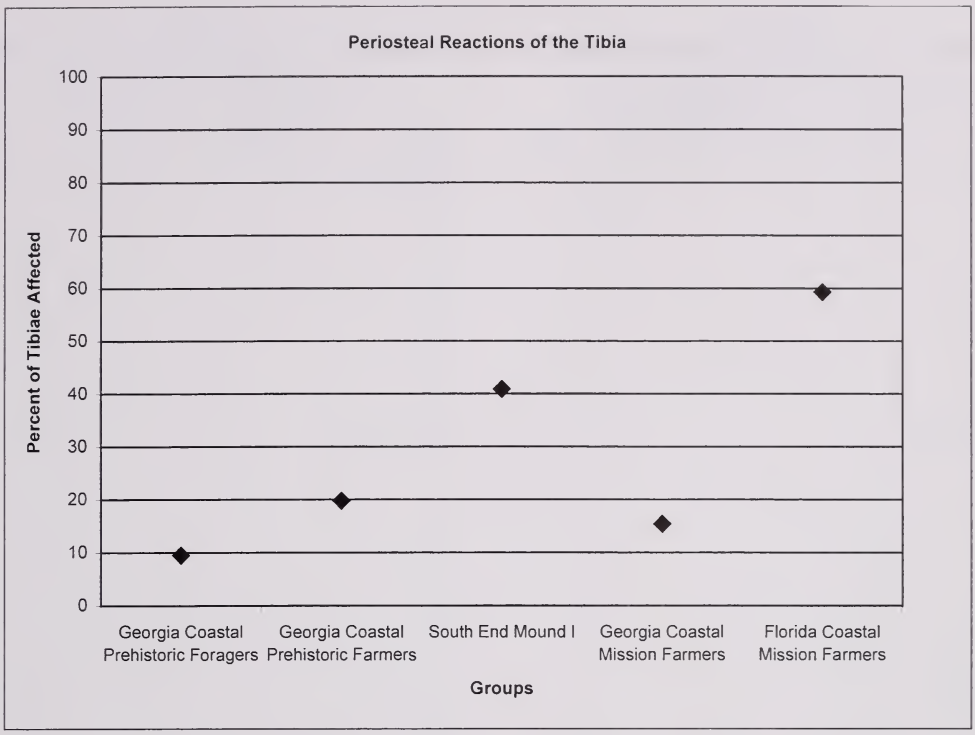


Fig. 16. Periosteal reactions of the tibia showing comparisons of frequencies from Georgia coastal prehistoric foragers, Georgia coastal prehistoric farmers, South End Mound I, Georgia coastal mission farmers, and Florida coastal mission farmers. The frequency is elevated for South End Mound I in comparison with these other groups (comparative data from Larsen et al., 2002).

determined for the prehistoric Guale, South End Mound I mean values are relatively high (less negative) for carbon and relatively low for nitrogen (less positive) (fig. 15). The values are statistically indistinguishable (*t*-test; $p \leq 0.05$) from average values for late prehistoric Georgia coastal samples for both carbon and nitrogen. Importantly, the carbon isotope ratios are higher than those for the prehistoric Georgia coastal hunter-gatherers (pre-A.D. 1000), indicating an increased C_4 (maize) consumption for the population represented by the South End Mound I remains. The South End Mound I nitrogen isotope ratios are slightly lower than for earlier populations from the region, reflecting a somewhat reduced marine signature. However, the nitrogen-stable isotope signature shows a strong marine orientation. This suggests that despite the presence of predominantly deer and mammal bone in the faunal remains, marine foods figured prominently in the diets of the late prehistoric inhabitants of St. Catherines Island as represented in the South End Mound I burial population. This also points to the importance of considering both isotopic and zooarchaeological evidence for diet.

On the other hand, the carbon isotope ratios for the South End Mound I individuals are lower than for the historic-era Guale from the Santa Catalina de Guale missions on St. Catherines and Amelia Islands. These findings are consistent with the trend for the region as a whole—late prehistoric populations ate more maize than did early prehistoric populations, but less maize than did the mission-era groups, and late prehistoric populations ate somewhat less marine foods than did early prehistoric populations, but more marine foods than during the mission era (and see Schoeninger et al., 1990; Larsen et al., 1992b, 2001; Hutchinson et al., 1998, 2000).

TABLE 14
Dental Caries: Individual Adult Females

Tooth	Individual 12	18	19	24	27/28A
Mandible, left					
I1	—	x	—	—	x
I2	x	—	—	x	x
C	x	x	—	x	x
P3	x	x	—	x	4
P4	—	x	—	x	x
M1	—	x	—	—	x
M2	—	x	—	—	x
M3	—	—	—	—	x
Mandible, right					
I1	x	x	—	—	—
I2	x	—	—	—	—
C	—	x	—	—	4
P3	x	x	—	x	—
P4	x	x	—	x	x
M1	x	—	—	—	x
M2	x	—	—	—	x
M3	—	x	3	—	—
Maxilla, left					
I1	x	x	—	x	3
I2	—	—	—	x	3
C	x	—	—	3	x
P3	—	—	—	3	—
P4	x	—	x	x	x
M1	—	—	x	x	4
M2	x	x	—	—	x
M3	x	—	—	—	—
Maxilla, right					
I1	x	x	—	x	3
I2	x	—	—	3	3
C	x	—	—	x	—
P3	x	—	—	3	—
P4	x	—	—	—	—
M1	x	x	—	—	—
M2	x	x	—	—	—
M3	—	—	—	—	—

Key: —, tooth missing (unerupted, premortem or postmortem loss); x, tooth present, but no caries; 3, large carious lesion (extends into pulp chamber of tooth); 4, crown destroyed by caries.

TABLE 15
Dental Caries: Individual Adult Males

Tooth	Individual 5	14	15	27/28B
Mandible, left				
I1	—	—	—	—
I2	x	—	—	—
C	—	—	—	—
P3	x	—	3	—
P4	x	—	x	—
M1	x	—	—	—
M2	x	—	—	—
M3	x	—	—	—
Mandible, right				
I1	x	—	4	—
I2	x	—	—	—
C	—	—	x	—
P3	x	—	x	—
P4	—	—	x	—
M1	—	—	—	x
M2	x	x	—	x
M3	x	—	—	3
Maxilla, left				
I1	x	x	—	—
I2	x	—	x	—
C	x	—	x	—
P3	x	x	x	—
P4	x	—	—	—
M1	x	—	—	—
M2	x	—	x	—
M3	x	—	x	—
Maxilla, right				
I1	x	—	—	—
I2	x	—	—	—
C	x	—	x	—
P3	x	—	x	—
P4	x	—	—	—
M1	x	—	4	—
M2	x	—	x	—
M3	x	—	—	—

Key: —, tooth missing (unerupted, premortem or postmortem loss); x, tooth present, but no caries; 3, large carious lesion (extends into pulp chamber of tooth); 4, crown destroyed by caries.

PATTERNS OF COMMUNITY HEALTH: PATHOLOGY

Periosteal Reactions

Periosteal reactions are not an uncommon occurrence in the skeletal remains from South End Mound I. Eighteen of the 26 individuals represented in the series had at least one long bone present for identification of periosteal reactions (table 13). Of these 18 individuals, 50% (n = 9) displayed periosteal reaction on at least one long bone. Two-thirds of the affected individuals (n = 6) had multiple (two or more) bones affected by periosteal reactions. Excluding the fibula, where only

TABLE 16
Dental Caries: Individual Juveniles and Unsexed Adults

Tooth	Individual 16/17A	16/17B	25	UA
Mandible, left				
I1	x	—	x	x
I2	x	—	—	—
C	x	—	—	—
P3	x	—	—	—
P4	x	—	—	—
M1	x	—	x	3
M2	3	x	—	x
M3	4	—	—	x
Mandible, right				
I1	x	—	—	x
I2	x	—	x	x
C	4	—	—	x
P3	—	—	—	x
P4	—	—	—	—
M1	—	—	x	—
M2	—	—	—	—
M3	—	x	—	—
Maxilla, left				
I1	x	—	x	—
I2	x	—	x	—
C	x	—	—	—
P3	x	—	—	—
P4	—	—	—	—
M1	x	—	x	—
M2	—	—	—	—
M3	—	—	—	—
Maxilla, right				
I1	x	—	—	x
I2	x	—	—	—
C	—	—	—	—
P3	—	x	—	—
P4	x	x	—	—
M1	x	—	x	—
M2	—	—	—	—
M3	x	—	—	x

Key: UA, unassociated teeth; —, tooth missing (unerupted, premortem or postmortem loss); x, tooth present, but no caries; 3, large carious lesion (extends into pulp chamber of tooth); 4, crown destroyed by caries.

TABLE 17
Dental Caries: Summary Frequency by Tooth Type
Includes only teeth in or near functional occlusion; left and right sides combined.

Tooth	N[a]	%
Mandible		
I1	11	9.1
I2	10	0.0
C	11	18.2
P3	14	14.3
P4	11	0.0
M1	11	9.1
M2	11	9.1
M3	9	33.3
dI1	1	0.0
dI2	1	0.0
dC	1	0.0
dM1	6	0.0
dM2	4	0.0
Maxilla		
I1	14	14.3
I2	11	27.3
C	9	11.1
P3	9	22.2
P4	9	0.0
M1	12	16.7
M2	9	0.0
M3	7	0.0
dI1	2	0.0
dI2	1	0.0
dC	5	0.0
dM1	8	0.0
dM2	7	0.0
Permanent teeth	168	11.9
Deciduous teeth	36	0.0
TOTAL	204	9.8

[a] Number of teeth observed for presence/absence of dental caries.

three bones are represented, the highest percentage of affected elements is the tibia. Nearly 41% (9 of 22) tibiae have some kind of periosteal reaction. The relatively higher frequency in the tibia is a pattern observed in most archaeological skeletal samples (see Larsen, 1997).

Most of the lesions were localized on a skeletal element. In at least one person, the periosteal reaction involved a fracture site (distal diaphysis of right ulna for individual 16), and it probably reflects an infectious process related to the trauma. However, two characteristics of the series point to the presence of some kind of systemic infection in the population. First, multiple bones are affected. Second, a number of tibiae display extensive involvement of the periosteum. For example, the left tibia (the right is missing) of individual 28 shows extensive periosteal reactions and presence of loosely organized

TABLE 18
Periosteal Reactions and Dental Caries: Individual Summary

Individual	Sex	Age	Periosteal reactions	Dental caries
4	indet	birth	none	teeth unerupted
5	♂	25	none	0/26 (0.0%)
6	♀	18+	none	—
7	indet	6–12 mo	none	teeth unerupted
8	indet	2–3	humerus, L femur, L tibia, R	0/2 (0.0%)
9	indet	adult?	none	—
10	indet	6–9 mo	—	teeth unerupted
11	indet	0–3 mo	none	teeth unerupted
12	♀	40+	none	0/21 (0.0%)
13	indet	1–3	none	0/3 (0.0%)
14	♂	17–25	none	0/3 (0.0%)
15	♂	30+	humerus tibia, R	3/15 (20.0%)
16[a]	♀	17–23	ulna, R fibula tibia, R	3/21 (14.3%)
17[b]	♂	17–23	tibia, R	0/4 (0.0%)
18	♀	40+	femur, R tibia, R	0/15 (0.0%)
19	♀	35–45	none	1/3 (33.3%)
20	indet	1–3	none	0/11 (0.0%)
21	♂	adult	tibia, L	—
22	♀	adult	none	—
23	indet	5	none	teeth unerupted
24	♀	35+	ulna, R tibia/femur	4/16 (25.0%)
25	indet	7–8	none	0/18 (0.0%)
26	indet	1–3	none	0/7 (0.0%)
27[c]	♀	38+	tibia, R	7/21 (33.3%)
28[d]	♂	adult	femur, L tibia, L fibula, L fibula, R radius, R	1/3 (33.3%)
29	♀	adult	none	—
UA	indet	juv, adult	none	2/14 (14.3%)

Key: indet, sex indeterminate; mo, months; juv, juvenile; L, left; R, right; UA, unassociated tooth.

[a] 16/17A dentition (see text).

[b] 16/17B dentition (see text).

[c] 27/28A dentition (see text).

[d] 27/28B dentition (see text).

woven bone and erosive lesions characteristic of systemic chronic infection. The reactions on the element are healed. This pattern of extensive involvement suggests that the systemic infection present in the South End Mound I population is endemic treponematosis, a disease that appears to have spread into the American Southeast mostly in late prehistory (post-A.D. 1000; Larsen, 1997; Powell, 1990). The reasons for the presence of the disease and generally high levels of infection are multiple and complex. However, the record that bioarchaeologists observe for the late prehistoric Southeast is likely related to population increase, sedentism and occupation of more permanent villages, changes that occurred concomitant with the adoption of maize agriculture (Larsen, 1997; and references cited).

Compared with the region as a whole, the prevalence of periosteal reactions is relatively high (fig. 16). In particular, in consideration of the tibia, the South End Mound I sample has a higher prevalence than do both the Georgia prehistoric foragers (9.5%), the Georgia prehistoric farmers (19.8%), and mission-era populations from Santa Catalina de Guale on St. Catherines Island (15.4%) (data from Larsen et al., 2002). The prevalence value for South End Mound I is less than the value for the Santa Catalina population of Guale from Amelia Island, Florida (59.3%), but it is approaching that value.

In summary, periosteal reactions are highly prevalent in the South End Mound I skeletal series, a finding that is consistent with the population having lived in a relatively sedentary village community with poor sanitation and an environment conducive to the maintenance and spread of infectious disease. Some of the infections were probably due to local circumstances (e.g., infected wounds). However, the evidence of systemic infection is strong, which indicates the likelihood that treponematosis was present during the late prehistoric occupation of St. Catherines Island.

Cribra Orbitalia and Porotic Hyperostosis

Only two individuals display evidence of cribra orbitalia or porotic hyperostosis. These included cribra orbitalia for an adult female (individual 16) and porotic hyperostosis for an adult male (individual 28). The lesions were well healed and likely reflect an episode

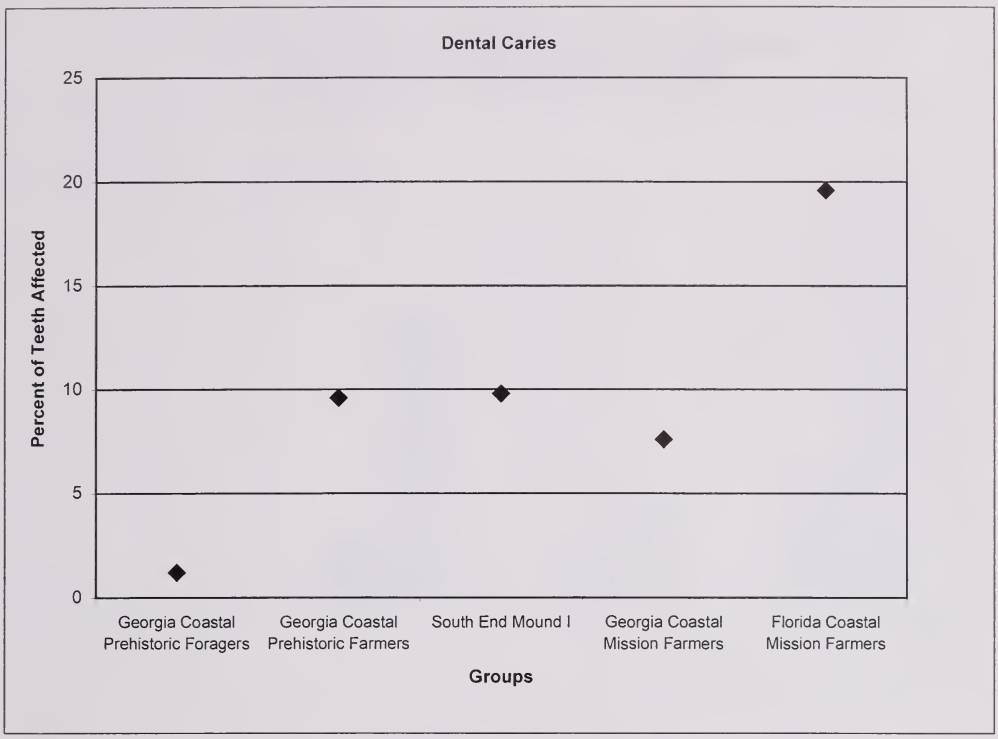


Fig. 17. Dental caries comparison of frequencies from Georgia coastal prehistoric foragers, Georgia coastal prehistoric farmers, South End Mound I, Georgia coastal mission farmers, and Florida coastal mission farmers. The frequency is elevated for South End Mound I in comparison with these other groups (comparative data from Larsen et al., 1991; Larsen et al., 2002).

of anemia much earlier in their lifetimes, probably the juvenile years, since cribra orbitalia and porotic hyperostosis reflect primarily childhood episodes of disease (Stuart-Macadam, 1992). Unfortunately, the frequency in the South End Mound I series is not possible to determine because only these and a few other individuals had cranial remains that were preserved well enough to be able to identify the pathology. My sense of the collection is that the frequency is low, a finding that has been reported for the Georgia coastal prehistoric populations (see Larsen and Sering, 2000).

Cribra orbitalia and porotic hyperostosis are complex and caused by various conditions (see Larsen, 1997). Most bioarchaeologists have argued that the lesions are associated with iron-deficiency anemia. If a person experiences this type of anemia, the body attempts to increase the production of red blood cells. The area of the skeleton producing red blood cells—especially the diploe of the skull—expands and does so at the expense of the adjacent compact bone. As a result, areas of porosity develop. Iron deficiency can be caused by dietary shortfalls in iron. Maize has a chemical substance, phytate, which binds with iron, thus reducing bioavailability of this essential element. Thus, this late prehistoric population would likely display the osteological indications of iron-deficiency anemia, owing to the importance of maize in the diet (see above). However, clinical evidences indicates that simultaneous consumption of maize and seafood increases the iron status by as much as 300% (Layrisse et al., 1968). Isotopic evidence indicates a slight reduction in marine food consumption, but certainly marine foods are a major part of diet in this setting and elsewhere during the late prehistoric period on the Georgia coast (Larsen and Sering, 2000; Larsen et al., 2002). Thus, the suggested low

TABLE 19
St. Catherines Island Guale: Prehistoric and Historic Dental Caries and Periosteal Reactions

Site	Period	Dental caries		Periosteal reactions	
		N[a]	%[b]	N[c]	%[d]
Cunningham Mound C	Refuge-Deptford	28	7.1	—	—
Cunningham Mound D	Refuge-Deptford	56	0.0	—	—
Cunningham Mound E	Refuge-Deptford	5	0.0	—	—
McLeod Mound	Refuge-Deptford	133	2.3	5	0.0
South New Ground Mound	Refuge-Deptford	4	0.0	—	—
Seaside Mound I	Refuge-Deptford	128	0.8	3	0.0
Seaside Mound II	Refuge-Deptford	52	9.6	1	0.0
Johns Mound	St. Catherines	465	1.7	40	2.5
Marys Mound	St. Catherines	68	0.0	—	—
South End Mound II	St. Catherines	154	0.7	12	0.0
South End Mound I	Irene	204	9.8	22	40.9
Santa Catalina (SCI)	Mission	3274	8.0	26	15.4
Santa Catalina (Amelia)	Mission	1548	19.6	96	59.3

[a] Total number of teeth examined (left and right, deciduous and permanent incisors, canines, premolars, molars).

[b] Percent affected by dental caries.

[c] Total number of tibiae examined (left and right, juvenile and adult).

[d] Percent affected by periosteal reactions.

frequency of cribra orbitalia and porotic hyperostosis is consistent with what has been found elsewhere in this region, both on St. Catherines Island and elsewhere in the prehistoric period. In the contact period (post–A.D. 1150), the picture changes dramatically with a major increase in pathology, which is probably related to deteriorating living conditions, population crowding, decreased consumption of marine foods, and parasitism caused by drinking contaminated water (e.g., from European-style wells; see Sering and Larsen, 2000).

Dental Caries

Dental caries is also well represented in the South End Mound I skeletal series. Of the nearly 200 available teeth in or near full eruption in the series, 9.8% are carious (20 of 204; tables 14–18). Seven of 17 individuals (41.2%) with at least one tooth present for observation have a carious tooth. No small carious lesions were identified in the sample; all lesions were either large (large pit extending into the pulp chamber) or had destroyed the tooth crown. For this series, caries affects mostly the teeth with complex occlusal surfaces where cariogenic bacteria thrive (e.g., molars). However, caries has a significant presence in other teeth. None of the deciduous teeth had caries, and none of the individual juveniles with permanent teeth had caries. This characteristic reveals the age-specific nature of the disease; namely, the older a person, the greater the exposure to risks that cause the disease (Larsen, 1997).

The 10% caries frequency value is well above the frequency reported for prehistoric Georgia coastal foragers (1.2%) and is statistically indistinguishable from Georgia coastal farmers (9.6%) (chi-square, $p \leq 0.05$; Larsen et al., 1991, 2002; fig. 17). In a large overview of archaeological dental series from eastern North America, we reported that prehistoric foragers generally have caries frequencies of less than 7% and prehistoric farmers have frequencies greater than 7% (Larsen et al., 1991). Thus, the frequency for South End Mound I is well within the value range for agriculturalists. In the following

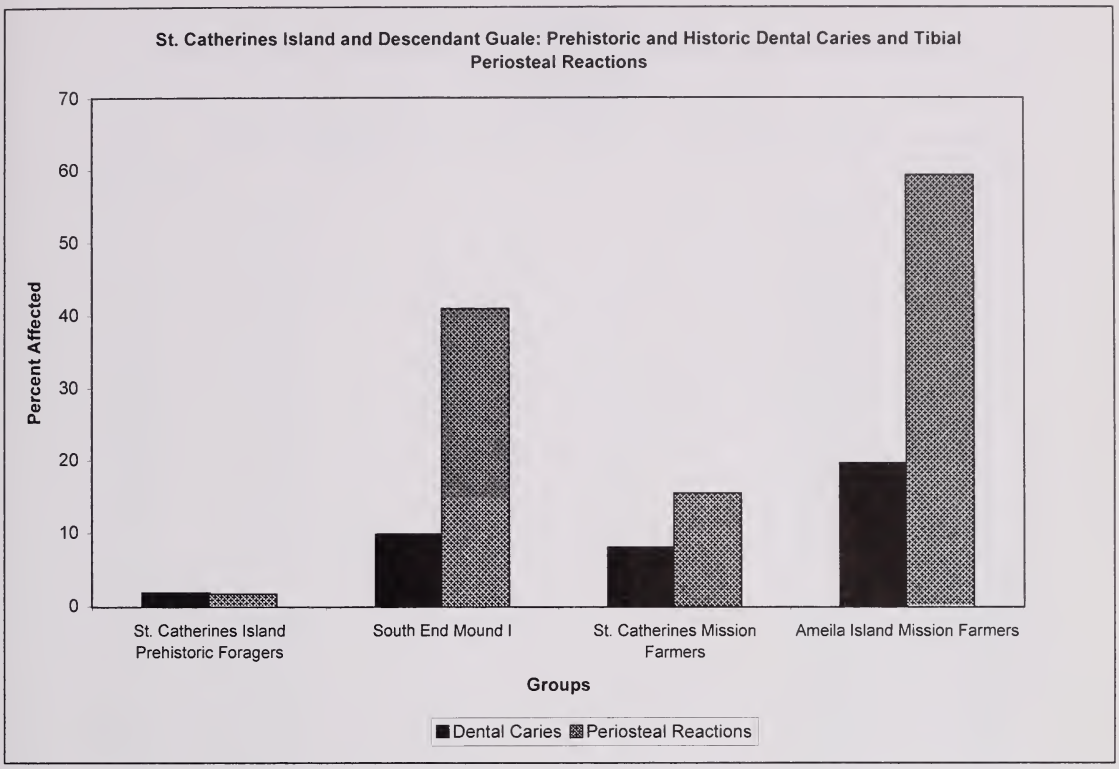


Fig. 18. Bar graph showing dental caries and tibial periosteal reaction frequencies from prehistoric and historic St. Catherines Island and descendant (Amelia Island) Guale.

mission period, the frequency declined somewhat for Santa Catalina de Guale on St. Catherines Island (8.0%), but increased dramatically in the late mission era Guale who lived at Santa Catalina on Amelia Island (19.6%). Thus, like the findings for periosteal reactions, the caries values for the South End Mound I series are approximately intermediate between the prehistoric foragers and the mission-era farmers in the region.

Given the strong signature of maize in the diets of this series, the relatively high frequency of dental caries in the South End Mound I series is not surprising. In particular, maize is a carbohydrate with a significant amount of sugar. A large body of evidence indicates that sugar is highly cariogenic. The normal flora that inhabit the human mouth (e.g., *Streptococcus mutans*) metabolize the sugar, producing lactic acid. The acid erodes the enamel and underlying hard tissue of the tooth, producing cavitation.

Community Health in Transition: Prehistoric and Historic Guale from St. Catherines Island

The South End Mound I series displays relatively high prevalence of dental caries and periosteal reactions, reflecting consumption of maize agriculture and elevation of infectious disease, respectively. This pattern is consistent with other populations that have an agricultural dietary focus (see Larsen, 1995; and above). In addition to the other temporal comparisons involving the Georgia Bight in general, it is useful to look at how dental caries and periosteal reactions for the South End Mound I series compare with other Guale populations from St. Catherines Island in order to more precisely assess temporal trends in community health for this island. Comparisons of dental caries and periosteal reactions for specific series from St. Catherines Island and the descendant historic

TABLE 20

Tooth Size (in mm): Individual and Summary Statistics, Adult Females

		Individual						
Tooth	Dimension	12	18	19	24	27/28A	Mean	SD
Mandible, left								
I1	breadth	—	—	—	—	—	—	—
I2	breadth	—	—	—	6.7	—	6.7	—
C	length	—	—	—	—	7.6	7.6	—
C	breadth	—	7.4	—	7.5	8.2	7.7	0.43
P3	length	—	7.5	—	—	—	7.5	—
P3	breadth	—	7.8	—	8.8	—	8.3	0.70
P4	length	—	7.1	—	—	7.5	7.3	0.28
P4	breadth	—	8.3	—	8.3	9.1	8.6	0.46
M1	length	—	11.4	—	—	11.6	11.5	0.14
M1	breadth	—	10.2	—	—	11.5	10.9	0.91
M2	length	—	12.0	—	—	12.7	12.4	0.50
M2	breadth	—	10.2	—	—	11.5	10.9	0.92
M3	length	—	—	—	—	11.5	11.5	—
M3	breadth	—	—	—	—	10.2	10.2	—
Mandible, right								
I1	breadth	—	—	—	—	—	—	—
I2	breadth	—	—	—	—	—	—	—
C	length	—	—	—	—	—	—	—
C	breadth	—	7.5	—	—	—	7.5	—
P3	length	—	7.4	—	7.6	—	7.5	0.14
P3	breadth	—	8.8	—	8.6	—	8.7	0.14
P4	length	—	7.6	—	—	—	7.6	—
P4	breadth	8.0	8.9	—	8.6	—	8.5	0.46
M1	length	—	—	—	—	—	—	—
M1	breadth	—	—	—	—	—	—	—
M2	length	11.1	—	—	—	—	11.1	—
M2	breadth	9.6	—	—	—	—	9.6	—
M3	length	—	11.3	11.3	—	—	11.3	0.00
M3	breadth	—	10.1	10.1	—	—	10.1	0.00

Guale from Amelia Island reveal a marked change in health in the late prehistoric Irene period population represented by the South End Mound I series (table 19, fig. 18).

The comparison samples include seven Refuge-Deptford period sites dating between about 500 B.C. and A.D. 600 (Cunningham Mounds C, D, E, McLeod Mound, South New Ground Mound, Seaside Mounds I and II; Thomas and Larsen, 1979), three St. Catherines period sites dating between about A.D. 1000 and 1200 (Johns Mound, Marys Mound, South End Mound II; Larsen and Thomas, 1982, 1986), Santa Catalina de Guale from St. Catherines Island (Larsen, 1990), and Santa Catalina from Amelia Island (Larsen, in prep.). The Refuge-Deptford and St. Catherines period samples represent prehistoric foragers, and the two Santa Catalina populations represent agriculturalists with some foraging.

The prehistoric foragers from St. Catherines Island display very low levels of dental caries and periosteal reactions. The Refuge–Deptford and St. Catherines period series have only 2.3% and 1.3% dental caries (1.8% combined periods), respectively, and 0% and 1.9% periosteal reactions (1.6% combined periods), respectively, contrasting sharply with the 9.8% (dental caries) and 40.9% (periosteal reactions) for the South End Mound I series. In the later Santa Catalina series from St. Catherines Island, there is a slight reduction in dental caries (to 8.0%) and a marked reduction in periosteal reactions (to 15.4%). However, the values are

TABLE 20
(Continued)

Tooth	Dimension	Individual 12	18	19	24	27/28A	Mean	SD
Maxilla, left								
I1	breadth	—	—	—	7.2	—	7.2	—
I2	breadth	—	—	—	6.7	—	6.7	—
C	length	—	—	—	—	—	—	—
C	breadth	—	—	—	8.5	—	8.5	—
P3	length	—	—	—	—	—	—	—
P3	breadth	—	—	—	—	—	—	—
P4	length	—	—	7.6	7.4	—	7.5	0.14
P4	breadth	—	—	10.1	9.8	—	10.0	0.21
M1	length	—	—	—	10.2	—	10.2	—
M1	breadth	—	—	11.3	—	—	11.3	—
M2	length	—	—	—	—	—	—	—
M2	breadth	—	—	—	—	—	—	—
M3	length	—	—	—	—	—	—	—
M3	breadth	—	—	—	—	—	—	—
Maxilla, right								
I1	breadth	—	7.0	—	7.1	—	7.1	0.07
I2	breadth	—	—	—	7.9	—	7.9	—
C	length	—	—	—	8.5	—	8.5	—
C	breadth	—	—	—	8.1	—	8.1	—
P3	length	—	—	—	8.3	—	8.3	—
P3	breadth	—	—	—	10.6	—	10.6	—
P4	length	—	—	—	—	—	—	—
P4	breadth	—	—	—	—	—	—	—
M1	length	—	10.6	—	—	—	10.6	—
M1	breadth	11.5	11.5	—	—	—	11.5	—
M2	length	—	10.8	—	—	—	10.8	—
M2	breadth	—	11.7	—	—	—	11.7	—
M3	length	—	—	—	—	—	—	—
M3	breadth	—	—	—	—	—	—	—

still quite elevated in comparison with the foragers (and see above). The descendants of the St. Catherines Guale who fled to Amelia Island in the late seventeenth century display very high levels of dental caries (19.6%) and periosteal reactions (59.3%).

With the availability of these new data from the South End Mound I series, we can now look at key aspects of community health that was not possible without this representation of the Irene period on St. Catherines Island. With this new material, a comparative basis for examining biocultural change in response to two key developments—the adoption of agriculture and the establishment of a Spanish mission—is provided. Overall, these findings fit expectations based on study of other Irene period samples from the Georgia Bight (e.g., Irene Mound site). What is especially important, however, is the insight into health changes in a small group from a single island. The St. Catherines Island temporal trends provide a microcosm of larger developments in the Georgia Bight and the Eastern Woodlands of North America.

Importantly, the increase in infection reflects increased sedentism and concentration of population on St. Catherines, well preceding the arrival of Europeans and subsequent concentration of population. Moreover, the increase in infection likely reflects the presence of a specific disease, such as treponematosis, that produces abundant skeletal lesions in its victims.

The skeletal pattern of infection also changed in the Irene period on St. Catherines

TABLE 21
Permanent Tooth Size (in mm): Individual and Summary Statistics, Adult Males

		Individual					
Tooth	Dimension	5	14	15	27/28B	Mean	SD
Mandible, left							
I1	breadth	—	—	—	—	—	—
I2	breadth	6.5	—	—	—	6.5	—
C	length	—	—	—	—	—	—
C	breadth	—	—	—	—	—	—
P3	length	8.2	—	7.3	—	7.8	0.63
P3	breadth	7.2	—	8.3	—	7.8	0.78
P4	length	7.9	—	7.2	—	7.6	0.50
P4	breadth	8.5	—	8.4	—	8.5	0.07
M1	length	11.9	—	—	—	11.9	—
M1	breadth	10.9	—	—	—	10.9	—
M2	length	11.2	—	—	—	11.2	—
M2	breadth	10.6	—	—	—	10.6	—
M3	length	11.8	—	10.1	—	11.0	1.20
M3	breadth	10.6	—	10.8	—	10.7	0.14
Mandible, right							
I1	breadth	5.7	—	—	—	5.7	—
I2	breadth	6.7	—	—	—	6.7	—
C	length	—	—	—	—	—	—
C	breadth	—	—	7.0	—	7.0	—
P3	length	—	—	7.2	—	7.2	—
P3	breadth	—	—	8.3	—	8.3	—
P4	length	—	—	7.2	—	7.2	—
P4	breadth	—	—	8.4	—	8.4	—
M1	length	—	—	—	11.1	11.1	—
M1	breadth	—	—	—	11.4	11.4	—
M2	length	12.1	11.6	—	11.1	11.6	0.05
M2	breadth	10.4	10.8	—	11.5	10.9	0.56
M3	length	10.7	—	—	—	10.7	—
M3	breadth	10.0	—	—	10.9	10.5	0.64

Island. In particular, there are clear instances of infections that look treponemal in origin. The South End Mound I infections are systemic and involve much of the bone (especially the tibia). This pattern is consistent with endemic (nonvenereal) treponematosis, which appears to be absent from the prehistoric record prior to the Savannah and Irene periods (and see Powell, 1990). Thus, infection increased in the late prehistoric period, a trend that continues in general in the descendant populations. Finally, it is only in later prehistory that we see the first appearance of treponematosis.

DENTAL AND SKELETAL SIZE AND MORPHOLOGY

Despite the very fragmentary nature of the human remains from South End Mound I, a large number of dental and postcranial measurements were taken. Crania were too fragmentary to make meaningful observations.

DENTAL

Individual and summary measurements for permanent teeth are presented in tables 20 (adult females), 21 (adult males), and 22 (juveniles and unsexed adults), and for deciduous teeth in table 23. Consistent with every study of human populations, males have larger teeth than do females (Kieser, 1990). Owing to the relatively small sample size of sexed adults (five females, four males) and to the presence of mostly incomplete dentitions, the sex differences in the South End Mound I series are not as straightforward as are those with larger populations. Overall,

TABLE 21
(Continued)

Tooth	Dimension	Individual 5	14	15	27/28B	Mean	SD
Maxilla, left							
I1	breadth	—	7.3	—	—	7.3	—
I2	breadth	7.1	—	—	—	7.1	—
C	length	8.2	—	8.4	—	8.3	0.14
C	breadth	9.0	—	7.7	—	8.4	0.91
P3	length	7.9	8.0	7.2	—	7.7	0.44
P3	breadth	9.9	9.8	9.6	—	9.8	0.15
P4	length	7.0	—	—	—	7.0	—
P4	breadth	9.6	—	—	—	9.6	—
M1	length	10.3	—	—	—	10.3	—
M1	breadth	11.9	—	—	—	11.9	—
M2	length	—	—	11.5	—	11.5	—
M2	breadth	—	—	12.7	—	12.7	—
M3	length	9.4	—	10.1	—	9.8	0.50
M3	breadth	11.3	—	10.8	—	11.1	0.35
Maxilla, right							
I1	breadth	7.3	—	—	—	7.3	—
I2	breadth	7.4	—	—	—	7.4	—
C	length	8.7	—	8.7	—	8.7	0.00
C	breadth	9.2	—	7.8	—	8.5	0.99
P3	length	8.3	—	7.0	—	7.7	0.92
P3	breadth	10.0	—	9.9	—	10.0	0.07
P4	length	7.2	—	—	—	7.2	—
P4	breadth	9.8	—	—	—	9.8	—
M1	length	10.7	—	—	—	10.7	—
M1	breadth	11.4	—	—	—	11.4	—
M2	length	9.6	—	—	—	9.6	—
M2	breadth	12.0	—	—	—	12.0	—
M3	length	10.2	—	—	—	10.2	—
M3	breadth	11.7	—	—	—	11.7	—

however, the teeth are similar in size as presented in study of other Georgia coastal prehistoric populations (see comparative data in Larsen, 1982).

Skeletal

Postcranial individual and summary statistics are presented in tables 1 (juvenile long bone lengths), 24 (adult females), and 25 (adult males). Some of the adult lower limb bones (femur and tibia) were complete enough for estimation of stature (table 26), femur midshaft index, and total subperiosteal area (table 27).

The sample size for adult females and males is small. Nevertheless, calculation of summary statistics provides a means of comparison with the large sample of prehistoric and historic-era Guale from the Georgia Bight (Larsen, 1982; Larsen et al., 2002). Femur midshaft dimensions for adult males and females from South End Mound I are generally similar to the prehistoric and historic-era populations from the Georgia Bight (fig. 19). However, male and female stature comparisons reveal that adults from South End Mound I are below the mean heights calculated for prehistoric foragers, prehistoric farmers, and the earlier and later Guale mission populations from St. Catherines Island and Amelia Island (fig. 20). The difference between the South End Mound I sample and other remains studied from the region may very well reflect small size of the former.

TABLE 22

Permanent Tooth Size (in mm): Individual and Summary Statistics, Total Sample

The individuals are juveniles and unsexed adults. Summary statistics (mean, SD) refer to permanent teeth of juveniles and both the sexed and unsexed adults.

		Individual										
Tooth	Dimension	16/17A	16/17B	13	20	23	25	26	UA	UA	Mean	SD
Mandible, left												
I1	breadth	5.8	—	—	—	—	—	—	—	—	5.8	—
I2	breadth	6.0	—	—	—	—	—	—	5.6	—	6.2	0.50
C	length	7.0	—	—	—	—	—	—	—	—	7.3	0.42
C	breadth	7.0	—	—	—	—	—	—	—	—	7.5	0.50
P3	length	8.2	—	—	—	—	—	—	—	—	7.8	0.47
P3	breadth	8.7	—	—	—	—	—	—	—	—	8.2	0.67
P4	length	8.3	—	—	—	—	—	—	—	—	7.6	0.50
P4	breadth	8.8	—	—	—	—	—	—	—	—	8.7	0.32
M1	length	12.3	—	11.3	—	—	11.8	—	11.5	—	11.7	0.34
M1	breadth	11.0	—	10.5	—	—	11.1	—	—	—	10.9	0.46
M2	length	11.9	—	—	—	—	—	—	12.1	11.8	12.0	0.49
M2	breadth	10.8	—	—	—	—	—	—	11.1	10.6	10.8	0.45
M3	length	—	—	—	—	—	—	—	—	—	11.1	0.91
M3	breadth	—	—	—	—	—	—	—	—	—	10.5	0.31
Mandible, right												
I1	breadth	5.7	—	—	—	—	—	—	—	—	5.7	0.00
I2	breadth	5.9	—	—	—	—	—	—	6.2	—	6.3	0.40
C	length	—	—	—	—	—	—	—	7.1	—	7.1	—
C	breadth	—	—	—	—	—	—	—	7.7	—	7.4	0.36
P3	length	—	—	—	—	—	—	—	8.0	—	7.6	0.34
P3	breadth	—	—	—	—	—	—	—	8.5	—	8.6	0.21
P4	length	—	—	—	—	—	—	—	—	—	7.4	0.28
P4	breadth	—	—	—	—	—	—	—	—	—	8.5	0.38
M1	length	—	—	—	11.4	—	11.2	—	—	—	11.2	0.15
M1	breadth	—	—	—	10.5	—	11.2	—	—	—	11.0	0.47
M2	length	—	—	—	—	—	—	—	—	—	11.5	0.48
M2	breadth	—	—	—	—	—	—	—	—	—	10.6	0.79
M3	length	—	—	—	—	—	—	—	—	—	11.1	0.35
M3	breadth	—	—	—	—	—	—	—	—	—	10.3	0.42

However, a diet dominated by maize agriculture, which is certainly implicated by the carbon isotope ratios and levels of dental caries, could contribute to poor nutrition and poorer growth in this setting. Maize is lacking in several essential amino acids that are required for normal growth and development (see discussion in Larsen, 1997), and these dietary deficits inferred from the present investigation may have contributed to poor growth in this setting. However, the small sample size of sexed adults from South End Mound I prevents us from going beyond speculation.

Another important approach for looking at bone morphology and assessing size and activity is to compare the femur midshaft index with other archaeological series from the region. This index is calculated as a ratio of mediolateral midshaft diameter to anteroposterior diameter. Because vigorous activity involving the lower limb, such as running for long distances, increases anterior-posterior bending stresses in the femur (see Carter, 1978; Lanyon et al., 1975; Larsen, 1997), the anterior-posterior dimension relative to the medial-lateral dimension should provide an indication of activity and lifestyle. That is, a femur midshaft that is long in the anterior-posterior axis relative to the medial-lateral axis is associated with a relatively high degree of activity. As a result, the midshaft region of

TABLE 22
(Continued)

Tooth	Dimension	Individual									Mean	SD
		16/17A	16/17B	13	20	23	25	26	UA	UA		
Maxilla, left												
I1	breadth	6.9	—	—	—	—	7.5	—	—	—	7.2	0.25
I2	breadth	6.9	—	—	—	—	6.8	—	—	—	6.9	0.17
C	length	8.3	—	—	—	—	8.7	—	—	—	8.4	0.22
C	breadth	8.3	—	—	—	—	8.3	—	—	—	8.4	0.47
P3	length	7.6	—	—	—	—	—	—	—	—	7.7	0.36
P3	breadth	9.7	—	—	—	—	—	—	—	—	9.8	0.13
P4	length	—	—	—	—	—	—	—	—	—	7.3	0.31
P4	breadth	—	—	—	—	—	—	—	—	—	9.8	0.25
M1	length	11.3	—	10.4	10.2	—	10.0	12.5	—	—	10.7	0.90
M1	breadth	11.7	—	10.7	10.9	—	12.4	12.3	—	—	11.6	0.66
M2	length	—	12.2	—	—	—	10.0	—	—	—	11.2	1.12
M2	breadth	—	10.8	—	—	—	12.1	—	—	—	11.9	0.97
M3	length	—	—	—	—	—	—	—	—	—	9.8	0.50
M3	breadth	—	—	—	—	—	—	—	—	—	11.1	0.35
Maxilla, right												
I1	breadth	7.0	—	—	—	—	—	—	—	—	7.1	0.14
I2	breadth	8.2	—	—	—	—	7.4	—	—	—	7.7	0.40
C	length	—	—	—	—	—	—	—	—	—	8.6	0.12
C	breadth	—	—	—	—	—	—	—	—	—	8.4	0.74
P3	length	—	7.1	—	—	—	—	8.0	—	—	7.7	0.64
P3	breadth	—	9.0	—	—	—	—	10.2	—	—	9.9	0.59
P4	length	8.4	7.8	—	—	—	—	7.7	—	—	7.8	0.49
P4	breadth	9.6	9.9	—	—	—	—	10.5	—	—	10.0	0.39
M1	length	10.8	—	—	—	—	—	10.7	12.3	—	11.0	0.72
M1	breadth	11.7	—	—	—	—	—	12.5	12.1	—	11.8	0.43
M2	length	—	—	—	—	—	—	9.9	—	—	10.1	0.62
M2	breadth	—	—	—	—	—	—	11.9	—	—	11.9	0.15
M3	length	9.8	11.2	—	—	—	—	—	—	10.7	10.5	0.61
M3	breadth	10.7	10.5	—	—	—	—	—	—	11.7	11.2	0.64

Key: UA, unassociated tooth.

the femur of someone who is engaged in high levels of activity in walking and running will involve greater bone mass in the anterior-posterior dimension in order to resist the kinds of mechanical loading that will affect this region of the bone. When viewed in cross-section, the femur midshaft of this type of individual will have an elongated appearance in the anterior-posterior dimension. On the other hand, the femur midshaft for someone who is relatively inactive or sedentary will be more circular in cross-section.

The shape of the femur midshaft is influenced during the years of growth and development in a number of ways. In recent years, biomechanical analysis has involved cross-sectional geometric analysis, which analyzes the "strength" of the bone cross-section in its ability to resist mechanical loading (Ruff, 2000). This approach is a highly effective way of looking at bone strength and inferring level and type of activity based on the study of archaeological skeletal remains. For the Georgia Bight and La Florida, Ruff and coworkers have completed extensive studies involving biomechanical analyses of long bones (Ruff et al., 1984; Larsen and Ruff, 1994; Ruff and Larsen, 2001). However, this kind of analysis requires intact or nearly intact femora, which are lacking in the South End Mound I skeletal series.

The traditional approach to looking at femoral midshaft shape does not require the availability of intact femora. The technique

TABLE 23

Deciduous Tooth Size (in mm): Individual and Summary Statistics

		Individual								
Tooth	Dimension	7	8	13	20	25	26	UA	Mean	SD
Mandible, left										
dI1	breadth	4.3	3.1	—	—	—	—	—	3.7	0.85
dI2	breadth	—	—	—	—	—	—	—	—	—
dC	length	—	—	—	—	—	—	—	—	—
dC	breadth	—	—	—	—	—	—	—	—	—
dM1	length	8.5	—	—	8.0	8.6	8.6	—	8.4	0.29
dM1	breadth	6.9	—	—	7.0	6.9	6.9	—	6.9	0.05
dM2	length	—	—	—	10.2	11.1	—	11.6	11.0	0.71
dM2	breadth	—	—	—	8.7	9.1	—	9.3	9.0	0.31
Mandible, right										
dI1	breadth	—	—	—	—	—	—	—	—	—
dI2	breadth	—	—	3.5	—	—	—	—	3.5	—
dC	length	—	—	—	—	7.0	—	—	7.0	—
dC	breadth	—	—	—	—	5.0	—	—	5.0	—
dM1	length	—	—	—	6.7	9.6	—	7.9	8.1	1.46
dM1	breadth	—	—	—	7.6	7.6	—	7.9	7.7	0.17
dM2	length	—	—	—	10.0	11.0	—	—	10.5	0.71
dM2	breadth	—	—	—	8.8	9.1	—	—	9.0	0.21
Maxilla, left										
dI1	breadth	5.0	—	—	4.4	—	4.9	—	4.8	0.32
dI2	breadth	—	—	—	—	—	4.7	—	4.7	—
dC	length	—	—	—	6.9	7.3	—	—	7.1	0.28
dC	breadth	—	—	—	5.5	6.1	—	—	5.8	0.42
dM1	length	—	6.8	—	6.8	7.2	7.7	7.6	7.2	0.43
dM1	breadth	—	7.9	—	8.9	9.8	9.0	9.1	8.9	0.68
dM2	length	10.4	—	8.6	8.8	—	9.9	9.8	9.5	0.77
dM2	breadth	9.9	—	9.5	9.8	—	10.1	11.2	10.1	0.65
Maxilla, right										
dI1	breadth	5.3	—	—	—	—	—	—	5.3	—
dI2	breadth	—	—	—	—	—	—	—	—	—
dC	length	—	—	6.9	6.9	6.9	—	—	6.9	0.00
dC	breadth	—	—	5.9	5.5	5.7	—	—	5.7	0.20
dM1	length	—	—	—	6.9	7.3	7.5	—	7.2	0.31
dM1	breadth	—	—	—	8.7	9.9	8.8	—	9.1	0.67
dM2	length	—	—	—	8.9	10.7	10.0	—	9.9	0.91
dM2	breadth	—	—	—	9.8	11.0	10.3	—	10.4	0.60

Key: UA, unassociated tooth.

is not as conclusive as cross-sectional geometric analysis. However, it provides important inferential information about bone shape and behavior. In this regard, the calculation of the femur midshaft index ([femur midshaft medial-lateral × 100]/femur anterior-posterior) provides an important indication of bone shape. Basically, an index closer to 100 indicates a cross-section that is rounder than an index further from 100. The femur midshaft was complete enough for measurement for four adult males and five adult females providing mean index values of 87.1 and 95.9, respectively (left femur; table 27). The difference between adult males and females is consistent with what has been observed in other populations around the world, whereby males have flatter femoral midshafts in the medial-lateral direction than do females. This pattern suggests that males are generally more physically active (more mobile) than females.

TABLE 24

Postcranial Measurements (in mm): Individual and Summary Statistics, Adult Females

Measurement	Individual 12	16	18	19	27	Mean	SD
Femur, left							
Head diameter	—	39.2	—	—	39.4	39.3	0.14
Maximum length	—	417	—	431	400	416	15.52
Midshaft, anterior-posterior	25.1	26.5	—	25.8	27.0	26.1	0.83
Midshaft, medial-lateral	25.8	21.5	—	26.2	26.5	25.4	2.22
Midshaft, circumference	81	78	75	80	84	80	3.36
Subtrochanter, anterior-posterior	21.5	22.4	21.5	22.5	23.6	22.3	0.87
Subtrochanter, medial-lateral	32.3	31.4	28.7	34.2	34.9	32.3	2.46
Femur, right							
Head diameter	—	39.2	—	—	40.4	39.8	0.85
Maximum length	—	414	455	—	400	423	28.58
Midshaft, anterior-posterior	25.4	27.4	26.0	—	26.0	26.2	0.85
Midshaft, medial-lateral	24.3	23.7	23.4	—	25.5	24.2	0.93
Midshaft, circumference	81	83	78	—	82	81	2.16
Subtrochanter, anterior-posterior	—	23.9	20.5	—	24.6	23.0	2.19
Subtrochanter, medial-lateral	—	31.0	27.7	—	32.9	30.5	2.63
Tibia, left							
Maximum length	—	—	—	—	—	—	—
Midshaft, anterior-posterior	—	—	—	29.3	28.2	28.8	0.77
Midshaft, medial-lateral	—	—	—	21.7	18.4	20.1	2.33
Midshaft, circumference	—	—	—	—	74	74	—
Tibia, right							
Maximum length	—	—	—	—	—	—	—
Midshaft, anterior-posterior	27.2	—	—	—	28.2	27.7	0.71
Midshaft, medial-lateral	19.7	—	—	—	18.5	19.1	0.85
Midshaft, circumference	74	—	—	—	73	74	0.70
Clavicle, left							
Maximum length	—	—	—	—	—	—	—
Clavicle, right							
Maximum length	—	—	—	—	—	—	—
Ulna, left							
Maximum length	—	—	—	—	244	244	—
Ulna, right							
Maximum length	—	—	—	—	244	244	—
Radius, left							
Maximum length	—	—	—	—	220	220	—
Radius, right							
Maximum length	—	—	—	—	—	—	—
Humerus, left							
Maximum length	—	—	—	—	280	280	—
Midshaft, maximum diameter	—	19.6	—	—	22.1	20.9	1.77
Midshaft, minimum diameter	—	14.9	—	—	15.7	15.3	0.57
Midshaft, circumference	—	—	—	—	63	63	—
Head diameter	—	—	—	—	37.0	37.0	—
Biepicondylar breadth	—	—	—	—	—	—	—
Humerus, right							
Maximum length	—	274	301	—	—	288	19.09
Midshaft, maximum diameter	—	—	18.9	—	21.6	20.3	1.91
Midshaft, minimum diameter	—	—	14.2	—	15.5	14.9	0.92
Midshaft, circumference	—	—	59	—	—	59	—
Head diameter	—	—	—	—	—	—	—
Biepicondylar breadth	—	—	—	—	—	—	—

TABLE 25

Postcranial Measurements (in mm): Individual and Summary Statistics, Adult Males

Measurement	Individual 5	14	15	17	21	28	Mean	SD
Femur, left								
Head diameter	—	—	39.3	—	—	—	39.3	—
Maximum length	495	—	—	—	—	424	460	50.21
Midshaft, anterior-posterior	36.5	—	25.9	—	33.7	29.1	31.3	4.72
Midshaft, medial-lateral	29.4	—	26.7	—	26.8	24.8	26.9	1.89
Midshaft, circumference	102	—	83	—	94	87	92	8.35
Subtrochanter, anterior-posterior	—	—	23.2	—	—	22.6	22.9	0.42
Subtrochanter, medial-lateral	—	—	32.2	—	—	33.9	33.1	1.20
Femur, right								
Head diameter	47.0	—	—	—	—	—	47.0	—
Maximum length	497	—	—	455	—	—	476	29.70
Midshaft, anterior-posterior	35.0	—	27.7	—	—	—	31.4	5.16
Midshaft, medial-lateral	28.7	—	24.6	—	—	—	26.7	2.90
Midshaft, circumference	100	—	88	—	—	—	94	8.49
Subtrochanter, anterior-posterior	26.8	—	—	—	—	—	26.8	—
Subtrochanter, medial-lateral	42.9	—	—	—	—	—	42.9	—
Tibia, left								
Maximum length	429	—	—	—	—	—	429	—
Midshaft, anterior-posterior	34.1	—	—	—	32.8	—	33.5	0.92
Midshaft, medial-lateral	21.1	—	—	—	20.7	—	20.9	0.28
Midshaft, circumference	93	—	—	—	88	—	91	3.54
Tibia, right								
Maximum length	429	—	—	—	—	—	429	—
Midshaft, anterior-posterior	33.9	—	32.1	—	—	—	33.0	1.27
Midshaft, medial-lateral	23.4	—	23.3	—	—	—	23.4	0.07
Midshaft, circumference	93	—	89	—	—	—	91	2.83
Clavicle, left								
Maximum length	—	—	—	—	—	—	—	—
Clavicle, right								
Maximum length	—	—	—	—	—	—	—	—
Ulna, left								
Maximum length	—	—	250	—	—	—	250	—
Ulna, right								
Maximum length	—	—	250	—	—	—	250	—
Radius, left								
Maximum length	—	—	239	—	—	—	239	—
Radius, right								
Maximum length	—	—	—	—	—	—	—	—
Humerus, left								
Maximum length	350	—	—	—	—	—	350	—
Midshaft, maximum diameter	22.9	—	—	—	—	21.0	22.0	1.34
Midshaft, minimum diameter	17.7	—	—	—	—	16.2	17.0	1.06
Midshaft, circumference	69	—	—	—	—	62	66	4.95
Head diameter	46.6	—	—	—	—	—	46.6	—
Biepicondylar breadth	64.6	—	52.0	—	—	—	58.3	8.91
Humerus, right								
Maximum length	—	330	295	—	—	—	313	24.75
Midshaft, maximum diameter	—	21.8	21.0	—	—	—	21.4	0.57
Midshaft, minimum diameter	—	16.7	15.2	—	—	—	16.0	1.06
Midshaft, circumference	—	63	62	—	—	—	63	0.71
Head diameter	—	—	—	—	—	—	—	—
Biepicondylar breadth	—	—	—	—	—	—	—	—

TABLE 26
Adult Stature Estimates (in cm)

	Bone	Estimate[a]
Males		
5	femur, left	165.0
	femur, right	165.4
17	femur, right	153.3
28	femur, left	144.2
Mean[b]		157.0
Range		144.2–165.4
SD		10.2
Females		
16	femur, left	142.2
	femur, right	141.3
18	femur, right	153.3
19	femur, left	146.3
27	femur, left	137.2
Mean[b]		144.1
Range		137.2–153.3
SD		6.1

[a] Estimates determined from regression formula provided by Sciulli et al. (1990) based on maximum lengths of femora: stature = 2.92 × (femur length) + 20.42.

[b] Means were determined from all available femora for each sex.

The value for adult males from South End Mound I is very similar to the prehistoric foragers and farmers from the Georgia Bight and somewhat flatter than the mission Guale from St. Catherines and Amelia islands (fig. 21). This pattern is similar to what Ruff and co-workers have identified via cross-sectional geometric analysis. The femoral midshaft index for adult females from South End Mound I is somewhat larger than for the prehistoric foragers and farmers from the Georgia Bight as well as for the mission population from St. Catherines Island. The index is less than the value for Guale from Amelia Island. This suggests that females are perhaps less mobile than the prehistoric and early historic Guale, but more mobile than the terminal Guale living on Amelia Island in the seventeeth century.

Although the sample size is small from South End Mound I, the findings are generally similar to what Ruff and co-workers have identified for the Georgia Bight region based on formal cross-sectional geometric analysis. That is, biomechanical analysis using cross-sectional geometry has revealed that prehistoric populations are more mobile than the mission populations.

Calculation of cross-sectional geometric properties that are used to analyze bone strength requires access to and measurement of the subperiosteal (outer) and endosteal (inner) bone surfaces of the femur midshaft. This can only be provided either by invasive sectioning (with a saw) or by noninvasive imagery (e.g., computed axial tomography). One property that provides an overall and general measurement of bone mass and strength is total subperiosteal area, or TA (see table 27 for formula for determining TA). Bone mass can vary significantly in relation to overall body size (as determined by stature). Therefore, in comparing human populations, TA is usually standardized by bone length to some power (for the femur, TA is standardized in relation to bone length[3]; see Larsen and Ruff, 1994). For the South End Mound I adults, it was possible to determine TA_{STD} for three males and three females, yielding mean values of 719.3 and 719.4, respectively, based on the left femur midshaft dimensions. These values from South End Mound I are high in comparison with previously reported values for earlier, contemporary, and later populations from the Georgia Bight (Larsen and Ruff, 1994; fig. 22). However, the high values are driven by the small sample size and the presence of a large value of TA_{STD} for one adult male (individual 28) and a large TA_{STD} value for one adult female (individual 27; it is possible that this individual is a male, not a female).

In summary, the individuals from South End Mound I are roughly comparable in size with other Guale, with some suggestion of being somewhat shorter in stature. The femoral midshaft index is suggestive of relatively lower mobility than for the prehistoric foragers in the region, a finding that is consistent with our earlier studies of mobility and bone structure based on cross-sectional geometric analysis of long bones.

CONCLUSIONS

When C.B. Moore arrived on St. Catherines Island in 1896, he envisioned that his expedition would undertake the recovery of complete ceramic vessels and other items

TABLE 27
Adult Femur Midshaft Index and Total Subperiosteal Area

	Femur midshaft index[a]		Total subperiosteal area[b]	
	Left femur	Right femur	Left femur	Right femur
Males				
5	80.5	82.0	694.9	642.6
15	103.1	88.0	—	—
21	79.5	—	—	—
28	85.2	—	743.6	—
Mean	87.1	85.47	719.3	642.6
Range	80.5–103.1	82.0–88.8	694.9–743.6	—
SD	10.9	4.8	34.4	—
Females				
12	102.8	95.7	—	—
16	81.1	86.5	617.1	718.8
18	—	90.0	—	507.3
19	101.6	—	663.1	—
27	98.2	98.1	878.1	—
Mean	95.9	92.6	719.4	613.1
Range	81.1–102.8	86.5–98.1	617.1–878.1	507.3–718.8
SD	10.1	5.3	139.3	149.6

[a] Midshaft index computed by the formula (Fresia et al., 1990):

$$(T_{ml} \times 100) \div T_{ap}.$$

[b] Total subperiosteal area computed by the formula (Ruff et al., 1993):

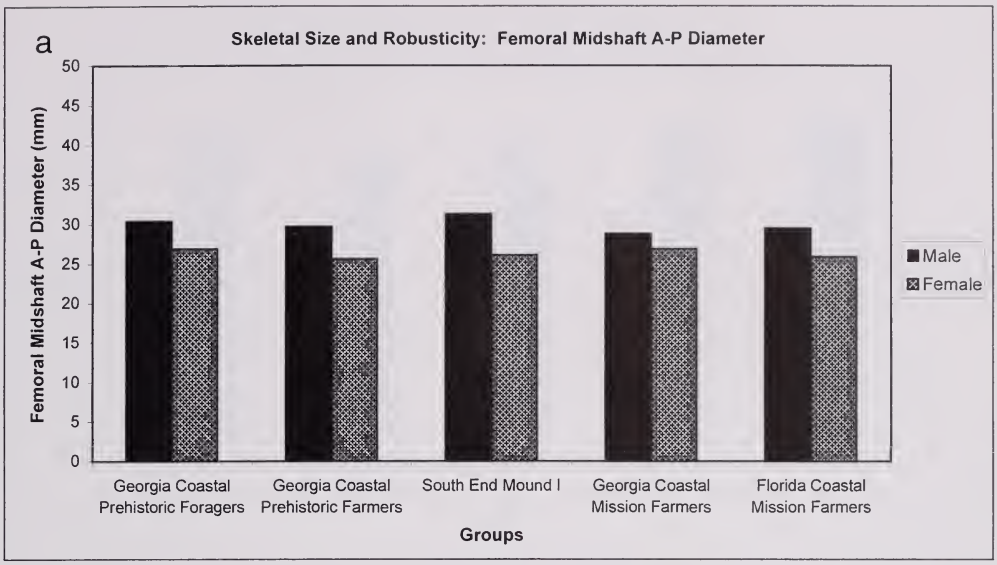
$$TA_{STD} = \{[\pi(T_{ap}/2)(T_{ml}/2)] \div \text{length}^3\} \times 10^8,$$

where TA_{STD} = total subperiosteal diameter, standardized for body size;
T_{ap} = anteroposterior diameter;
T_{ml} = mediolateral diameter.

from ancient burial mounds that would be of interest to the archaeological community. He employed rapid and complete destruction of archaeological sites in order to achieve this goal. Items that were not of interest—animal bones, human skeletal remains, broken vessels—were discarded in his backdirt as soon as they received preliminary identification. The approach taken by him would horrify the present generation of archaeologists and bioarchaeologists if it were applied to the excavation of archaeological sites today. However, this horror derives from the fact that the present generation of archaeologists and bioarchaeologists has a very different research agenda than did our forebears a century ago. Furthermore, this different research agenda drives the manner in which archaeological sites are excavated.

Ironically, had Moore excavated the South End Mound I following current procedures, there would have been no need to reexcavate the site. That is, present recovery techniques involve the complete documentation of items found during careful excavation and recovery. However, Moore used a technique involving rapid shovelling of mound fill, complete disturbance of human remains, and tossing these remains into his backdirt. Our excavation of the site nearly a century later revealed that indeed Moore kept none of the human remains from South End Mound I, and the way we found their location in the early 1990s was close to their original proveniences.

Despite the remarkable degree of disturbance and breakage of human remains, the field and laboratory research presented here was enormously productive in several key areas. First, bioarchaeological crews recovered a large sample of human remains representing 26 individuals, more than half of the 50



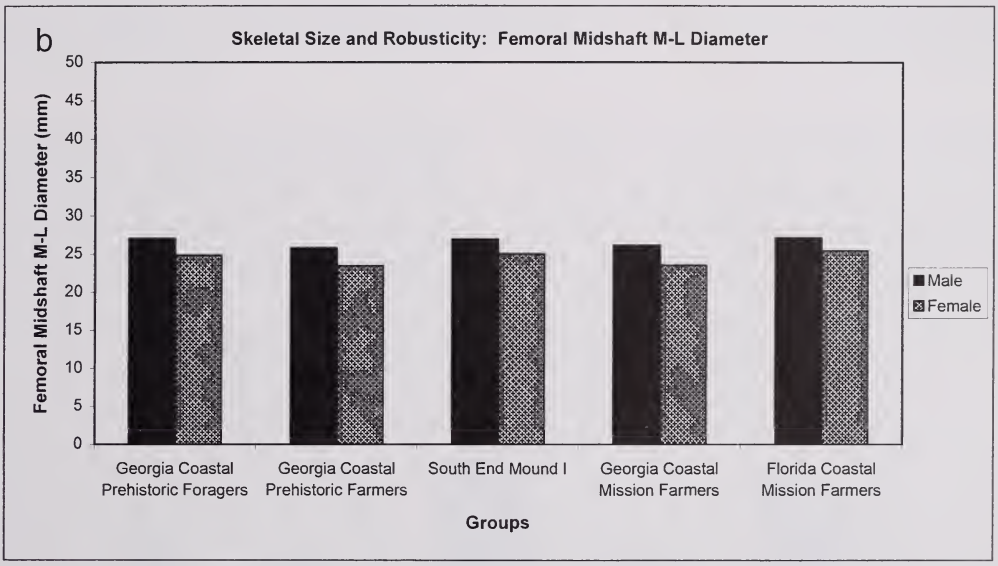


Fig. 19. Bar graph showing femoral midshaft anterior-posterior diameter (top) and femoral midshaft medial-lateral diameter (bottom) for Georgia coastal prehistoric foragers, Georgia coastal prehistoric farmers, South End Mound I, Georgia coastal mission farmers, and Florida coastal mission farmers (comparative data from Larsen, 1982, unpubl.).

skeletons that Moore identified in his excavations. These individuals are in various stages of completion, ranging from a few fragments to nearly complete skeletons. Moreover, owing in large part to the detailed record kept by Moore and later published by him in his 1897 monograph, we were able to match his descriptions with our findings and identify nearly all of the skeletons in relation to his individual determinations.

Second, all ages and both sexes are represented in the series. Although the population is not demographically representative of any real population, it does provide a measure of comparability with other skeletal series in a number of areas (e.g., stable isotope

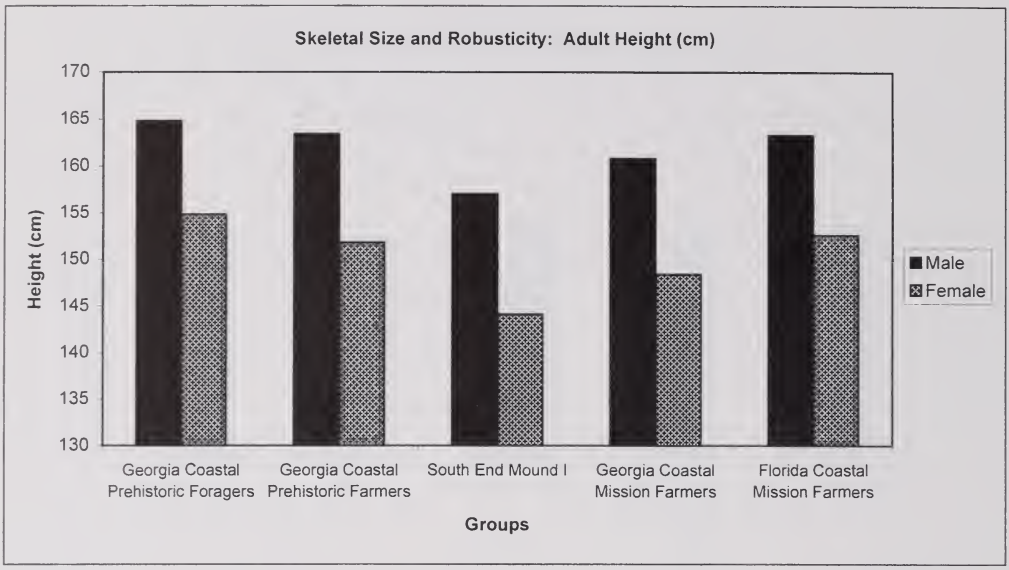


Fig. 20. Bar graph showing adult heights (cm) for Georgia coastal prehistoric farmers, South End Mound I, Georgia coastal mission farmers, and Florida coastal mission farmers (comparative data from Larsen et al., 2002).

analysis, paleopathology, skeletal morphology).

Third, the stable isotope analysis provided evidence that the population ate maize in appreciable amounts. This finding runs counter to earlier arguments that maize was a minor part of diet in Georgia coastal late prehistoric populations (see discussion in Jones, 1978). Presence of a significant amount of mammalian fauna in the fill of the mound points to consumption of terrestrial food sources. However, the relatively high values of carbon isotope ratios indicate significant maize consumption, comparable to other late prehistoric samples analyzed from the Georgia Bight. Maize consumption was intermediate between prehistoric foragers and mission-era Indians living in the region.

Fourth, health status was identified in relation to earlier (foragers), contemporary (farmers), and later mission-era (farmers) populations living on St. Catherines Island in particular and the Georgia Bight in general. That is to say, oral health (dental caries) is worse than for earlier foragers, similar to contemporary prehistoric farmers, and better than for at least some of the mission-era Guale (Amelia Island). Skeletal health (periosteal reactions) is worse than for earlier foragers, and for contemporary and mission era farmers from St. Catherines Island, but is probably somewhat better than for late mission farmers from Amelia Island. The frequency of tibial infections (40%), however, is high (cf. various studies in Cohen and Armelagos, 1984; Steckel and Rose, 2002). At least some of the periosteal reactions and infection are systemic, and the patterns of presentation on the tibia are strongly suggestive of endemic treponematosis (nonvenereal syphilis). These patterns first appear in late prehistoric populations from the Georgia Bight. The patterns of high caries and tibial infection are strikingly similar to other late prehistoric skeletal series in the American Southeast and Midwest, and they are associated with the adoption of maize as a significant contributor to diet and to population increase and aggregation.

Fifth, body size based on stature estimates for the South End Mound I population is perhaps somewhat lower than for prehistoric and historic populations from the region. The bone mass appears comparable (or even higher than) to other skeletal series in the region. The sample size is small, and stature

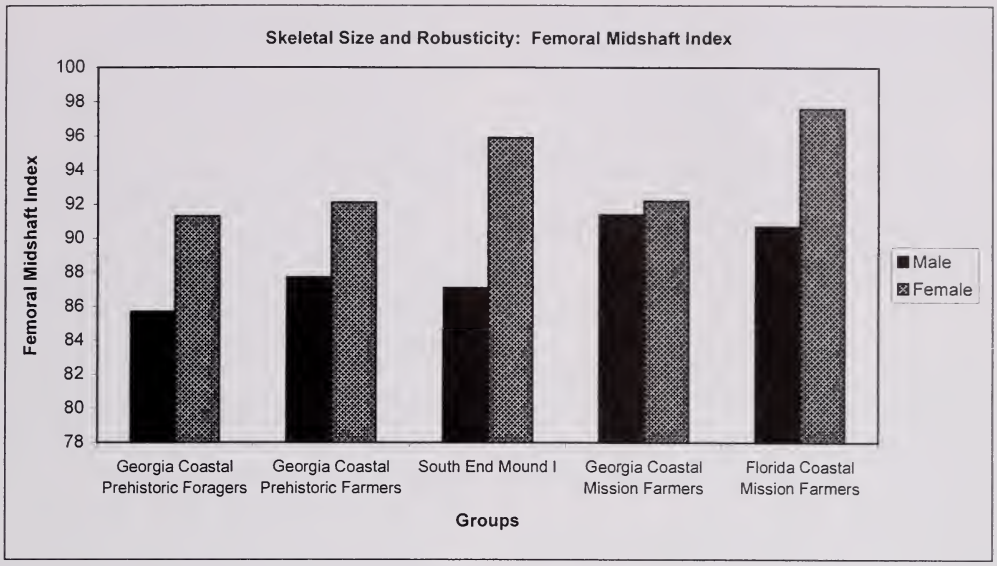


Fig. 21. Bar graph showing femoral midshaft index for Georgia coastal prehistoric farmers, South End Mound I, Georgia coastal mission farmers, and Florida coastal mission farmers (comparative data from Larsen, 1982, unpubl.).

and bone mass are not comparable to the larger samples presented in earlier studies (e.g., Larsen, 1982).

Finally, this study reveals evidence of a population showing a similar lifestyle and dietary pattern as contemporary populations from the Georgia Bight in particular and the American Southeast in general. Because it is the only appreciable sample of late prehistoric (Irene) period skeletal remains from St.

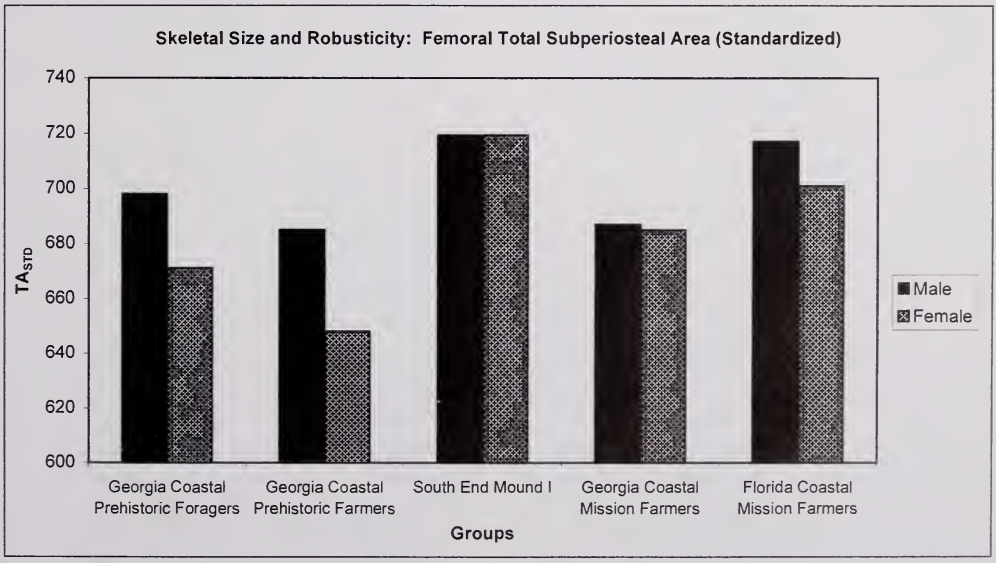


Fig. 22. Bar graph showing femoral total subperiosteal area (standardized) for Georgia coastal prehistoric farmers, South End Mound I, Georgia coastal mission farmers, and Florida coastal mission farmers (comparative data from Larsen et al., 2002).

Catherines Island, it forms a key link between our reconstructions of adaptation and lifestyle between earlier (prehistoric foragers) and later (mission Guale) living in the region. In particular, the relatively poor health of the late prehistoric population may have promoted rapid missionization and control of native populations here and elsewhere in the Georgia Bight.

NOTES

1. The Larsen and Thomas (1986) monograph was incorrectly printed with the following title: *The Archaeology of St. Catherines Island: 5. The South End Mound Complex.* The correct title is: *The Anthropology of St. Catherines Island: 5. The South End Mound Complex.*

2. The values for carbon- and nitrogen-stable isotope ratios were calculated using the following equations:

$$\delta^{13}C = \frac{(^{13}C/^{12}C)_{sample} - (^{13}C/^{12}C)_{PDB}}{(^{13}C/^{12}C)_{PDB}} \times 1000‰$$

$$\delta^{15}N = \frac{(^{15}N/^{14}N)_{sample} - (^{15}N/^{14}N)_{AIR}}{(^{15}N/^{14}N)_{AIR}} \times 1000‰$$

3. The Georgia coastal prehistoric foragers are from the following sites: South New Ground Mound, Cunningham Mound C, Cunningham Mound D, Cunningham Mound E, McLeod Mound, Seaside Mound I, Seaside Mound II, Evelyn Plantation, Airport site, Depford site, Walthour site, Cannons Point site, Cedar Grove Mound A, Cedar Grove Mound B, Cedar Grove Mound C, Sea Island Mound, Johns Mound, Marys Mound, Charlie King Mound, South End Mound II, Indian King's Tomb.

The Georgia coastal prehistoric farmers are from the following sites: North End Mound, Low Mound at Shell Bluff, Townsend Mound, Deptford Mound, Norman Mound, Kent Mound, Lewis Creek Mound II, Lewis Creek Mound III, Lewis Creek Mound E, Lewis Creek various, Red Knoll site, Seven Mile Bend Mound, Oatland Mound, Seaside Mound II (one burial), Irene Mound, Grove's Creek site, Skidaway Mitigation 3 site, Little Pine Island site, Red Bird Creek Mound, Couper Field site, Taylor Mound, Indian Field site, Martinez Test B site.

The Georgia coastal early mission farmers are from Santa Catalina de Guale (St. Catherines Island) and the Pine Harbor Mound site.

The Florida coastal late mission farmers are from Santa Catalina de Guale (Amelia Island).

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APPENDIX 1

South End Mound I Human Remains

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
4	—	G9	50–60	—	—	indet	juv	mandible	—	—	—	originally identified as indiv D by L&T from 1981 excavation of mound
4	—	G9	50–60	—	—	indet	juv	cranial	—	unk	fragments	—
4	—	G9	50–60	—	—	indet	juv	ilium	—	L	—	—
4	—	G9	50–60	—	—	indet	juv	radius	—	L	—	—
4	—	G9	50–60	—	—	indet	juv	femur	—	R	—	—
4	—	G9	50–60	—	—	indet	juv	tibia	—	R	—	—
4	—	G9	50–60	—	—	indet	juv	tibia	—	L	—	—
4	—	G9	50–60	—	—	indet	juv	unidentified bone	—	unk	unidentified fragments	—
5	32	D8	80–100	screen	D8-52	♂	ad	distal hand phalanx	—	unk	—	—
5	32	E8	20–40	screen	E8-35	♂	ad	mandible or maxilla	unk	unk	alveolar bone	—
5	32	E8	20–40	screen	E8-34	♂	ad	cervical vertebra	—	axial	—	—
5	32	E8	80–100	3	E8-73	♂	ad	cervical vertebra	—	axial	fragment	—
5	32	E8	80–100	2d	E8-71	♂	ad	cranial	—	unk	fragments	—
5	32	E8	100–s	screen	E8-83a	♂	ad	cranial	—	unk	fragments	—
5	32	E8	0–20	screen	E8-4	♂	ad	cranial	—	unk	fragments	matched with E8-1
5	32	E8	40–60	screen	E8-45	♂	ad	cranial	—	unk	fragments	—
5	32	E8	80–100	2b	E8-69	♂	ad	femur	—	unk	distal	—
5	32	E8	40–60	1	E8-38b	♂	ad	C1	—	axial	—	matched with fragment from E8-41a
5	32	E8	40–60	4	E8-41a	♂	ad	C1	—	axial	—	matched with fragment from E8-38b
5	32	D8	80–100	4D	D8-29	♂	ad	first prox hand phalanx	—	unk	—	—
5	32	E8	40–60	1	E8-38c	♂	ad	hand phalanges	—	unk	—	—
5	32	E8	40–60	5	E8-42j	♂	ad	hand phalanges	—	unk	—	—
5	32	E8	60–80	3	E8-65	♂	ad	hand phalanges	—	unk	—	—
5	32	D8	80–100	10E	D8-45a	♂	ad	humerus	—	unk	—	—
5	32	D8	80–100	screen	D8-55	♂	ad	intermed foot phalanx	—	unk	—	—
5	32	E8	0–20	screen	E8-12	♂	ad	intermed hand phalanges	—	unk	—	—
5	32	E8	0–20	screen	E8-12	♂	ad	intermed foot phalanges	—	unk	—	—
5	32	E8	0–20	screen	E8-12	♂	ad	metacarpal	—	unk	fragment	—
5	32	E8	40–60	screen	E8-44b	♂	ad	intermed hand phalanx	—	unk	—	—

Key: ad, adult; ews, east wall slump from 1979/1981 excavation; indet, indeterminate; indiv, individual; intermed, intermediate; juv, juvenile; L, left; L&T, Larsen and Thomas (1986); prox, proximal; R, right; s, sterile; TP, test pit; unk, unknown; ws, wall slump from 1979/1981 excavation; [ ], probable, but uncertain, match of bone with specific Moore burial.

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
5	32	E8	0–20	screen	E8-8	♂	ad	innominate	—	L	auricular surface	matched with fragment from E8-42e
5	32	E8	20–40	screen	E8-29	♂	ad	capitate	—	L	—	—
5	32	D8	80–100	10B	D8-42	♂	ad	clavicle	—	L	fragment	—
5	32	E8	40–60	6	E8-43	♂	ad	ulna	—	L	distal	—
5	32	E8	0–20	3E	E8-3	♂	ad	femur	—	L	diaphysis fragment	—
5	32	E8	0–20	3E	E8-3	♂	ad	rib	—	unk	fragment	—
5	32	E8	60–80	screen	E8-58a	♂	ad	hamate	—	L	—	—
5	32	E8	40–60	5A	E8-42a	♂	ad	humerus	—	L	—	—
5	32	E8	40–60	5E	E8-42e	♂	ad	ilium	—	L	—	matched with fragment from E8-8
5	32	E8	0–20	screen	E8-5	♂	ad	temporal	—	L	mastoid process	—
5	32	E8	0–20	screen	E8-5	♂	ad	temporal	—	L	—	—
5	32	E8	20–40	screen	E8-31	♂	ad	navicular	—	L	—	—
5	32	D8	80–100	screen	D8-50	♂	ad	occipital	—	L	condyle	—
5	32	D8	80–100	screen	D8-50	♂	ad	occipital	—	axial	fragment	—
5	32	E8	40–60	5H/I	E8-42h	♂	ad	scapula	—	L	—	—
5	32	E8	60–80	1	E8-53b	♂	ad	metacarpal 2	—	L	—	—
5	32	E8	100–s	2	E8-77	♂	ad	talus	—	L	—	—
5	32	E8	0–20	screen	E8-7	♂	ad	temporal	—	L	petrous portion	—
5	32	D8	60–80	screen	D8-22	♂	ad	third cuneiform	—	L	—	—
5	32	E8	40–60	5B	E8-42b	♂	ad	tibia	—	L	—	—
5	32	E8	0–20	screen	E8-6	♂	ad	zygomatic	—	L	—	—
5	32	E8	20–40	screen	E8-36	♂	ad	zygomatic	—	L	arch	—
5	32	E8	60–80	screen	E8-55	♂	ad	mandible	—	axial	—	matched with fragment from E8-32
5	32	E8	20–40	screen	E8-32	♂	ad	mandible	—	axial	—	matched with fragment from E8-55
5	32	E8	40–60	3	E8-40	♂	ad	mandible	—	axial	fragments	—
5	32	E8	40–60	4	E8-41d	♂	ad	mandible	—	axial	fragments	—
5	32	E8	80–100	screen	E8-75c	♂	ad	mandible	—	axial	fragments	—
5	32	E8	0–20	screen	E8-14	♂	ad	I2	mandibular	L	—	—
5	32	E8	80–100	screen	E8-75b	♂	ad	I2	mandibular	R	—	—
5	32	E8	80–100	screen	E8-75a	♂	ad	M3	mandibular	L	—	—
5	32	E8	0–20	screen	E8-13	♂	ad	I1	mandibular	R	—	—
5	32	E8	40–60	screen	E8-51	♂	ad	P3 or P4	mandibular	R	crown fragment	—
5	32	E8	80–100	2a	E8-68	♂	ad	maxilla	—	R	—	relatively complete
5	32	E8	80–100	2a	E8-68	♂	ad	maxilla	—	L	—	relatively complete
5	32	E8	80–100	2a	E8-68	♂	ad	I1	maxillary	R	—	embedded in maxilla

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
5	32	E8	80–100	2a	E8-68	♂	ad	I1	maxillary	L	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	I2	maxillary	R	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	I2	maxillary	L	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	C	maxillary	R	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	C	maxillary	L	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	P3	maxillary	R	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	P3	maxillary	L	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	P4	maxillary	R	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	P4	maxillary	L	—	embedded in maxilla
5	32	E8	80–100	2a	E8-68	♂	ad	M1	maxillary	L	—	embedded in maxilla
5	32	E8	40–60	3	E8-40a	♂	ad	M2	maxillary	L	—	matched with E8-26 (maxillary right M3)
5	32	E8	40–60	4	E8-41e	♂	ad	M3	maxillary	L	—	—
5	32	E8	60–80	screen	E8-60	♂	ad	M1	maxillary	R	—	inventoried with cat. no. E8-68?
5	32	D8	80–100	9E	D8-37	♂	ad	M2	maxillary	R	—	—
5	32	E8	40–60	screen	E8-47	♂	ad	metacarpal	—	none	—	—
5	32	E8	20–40	screen	E8-20	♂	ad	parietal	—	unk	—	—
5	32	E8	0–20	1E	E8-1	♂	ad	parietal	—	unk	—	matched with E8-4
5	32	E8	20–40	screen	E8-33	♂	ad	phalanges	—	unk	—	—
5	32	E8	40–60	4	E8-41g	♂	ad	phalanges	—	unk	—	—
5	32	E8	100–s	screen	E8-83c	♂	ad	phalanx	—	unk	fragment	—
5	32	E8	40–60	screen	E8-44a	♂	ad	prox foot phalanx	—	unk	—	—
5	32	E8	60–80	1	E8-53c	♂	ad	prox hand phalanx	—	unk	—	—
5	32	E8	60–80	screen	E8-54	♂	ad	prox hand phalanx	—	unk	—	—
5	32	E8	40–60	4	E8-41f	♂	ad	tibia	—	unk	prox articular surface	—
5	32	D8	80–100	10C	D8-43	♂	ad	tibia	—	L	fragments	probably from the L side
5	32	E8	20–40	2	E8-18b	♂	ad	rib	—	unk	fragment	—
5	32	E8	40–60	5G	E8-42g	♂	ad	rib	—	unk	fragment	matched with E8-11
5	32	D8	80–100	screen	D8-48	♂	ad	rib	—	unk	—	—
5	32	E8	40–60	5	E8-42k	♂	ad	rib	—	unk	—	—
5	32	E8	60–80	screen	E8-61	♂	ad	rib	—	unk	—	matched with E8-27
5	32	E8	0–20	screen	E8-11	♂	ad	rib	—	unk	—	matched with E8-42g
5	32	E8	60–80	1	E8-53a	♂	ad	rib	—	unk	—	matched with E8-49
5	32	E8	40–60	screen	E8-49	♂	ad	rib	—	unk	—	matched with E8-53a
5	32	E8	20–40	screen	E8-27	♂	ad	rib	—	unk	—	matched with E8-61
5	32	E8	0–20	screen	E8-9	♂	ad	trapezoid	—	R	—	—
5	32	E8	0–20	screen	E8-9	♂	ad	trapezoid	—	L	—	—
5	32	E8	60–80	screen	E8-56	♂	ad	capitate	—	R	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
5	32	D8	80–100	10A	D8-41	♂	ad	clavicle	—	R	fragment	—
5	32	E8	40–60	5F	E8-42f	♂	ad	femur	—	R	—	—
5	32	E8	80–100	screen	E8-75e	♂	ad	trapezium	—	R	—	—
5	32	E8	80–100	screen	E8-75e	♂	ad	prox hand phalanx	—	unk	—	—
5	32	E8	80–100	screen	E8-75e	♂	ad	metacarpal 2	—	R	distal	—
5	32	E8	80–100	screen	E8-75e	♂	ad	metacarpal 5	—	R	distal	—
5	32	E8	60–80	screen	E8-58b	♂	ad	hamate	—	R	—	—
5	32	E8	40–60	5D	E8-42d	♂	ad	innominate	—	R	ischium with acetabulum	—
5	32	E8	60–80	screen	E8-57	♂	ad	lunate	—	R	—	—
5	32	E8	20–40	screen	E8-26	♂	ad	mandible	—	R	—	contains M2–M3
5	32	E8	20–40	screen	E8-26	♂	ad	M2	mandibular	R	—	—
5	32	E8	20–40	screen	E8-26	♂	ad	M3	mandibular	R	—	—
5	32	E8	20–40	screen	E8-26	♂	ad	mandible	—	L	—	contains P3, P4, M1, and M2
5	32	E8	20–40	screen	E8-26	♂	ad	P3	mandibular	L	—	—
5	32	E8	20–40	screen	E8-26	♂	ad	P4	mandibular	L	—	—
5	32	E8	20–40	screen	E8-26	♂	ad	M1	mandibular	L	—	—
5	32	E8	20–40	screen	E8-26	♂	ad	M2	mandibular	L	—	—
5	32	E8	20–40	screen	E8-26	♂	ad	M3	maxillary	R	—	matched with E8-40a?
5	32	E8	20–40	1	E8-17	♂	ad	parietal	—	R	fragment	—
5	32	E8	40–60	1	E8-38a	♂	ad	temporal	—	R	fragment	—
5	32	E8	40–60	4	E8-41c	♂	ad	patella	—	R	—	—
5	32	E8	0–20	2E	E8-2	♂	ad	ulna	—	R	prox	—
5	32	E8	20–40	screen	E8-30	♂	ad	scaphoid	—	R	—	—
5	32	E8	40–60	5C	E8-42c	♂	ad	scapula	—	R	—	includes acromial process
5	32	E8	40–60	screen	E8-46	♂	ad	scapula	—	R	fragments	—
5	32	E8	100–s	3	E8-78	♂	ad	second cuneiform	—	R	—	—
5	32	E8	40–60	5	E8-42i	♂	ad	metacarpal 2	—	R	—	—
5	32	E8	20–40	screen	E8-28	♂	ad	sphenoid	—	R	fragment	—
5	32	E8	20–40	screen	E8-23	♂	ad	metacarpal 3	—	R	—	—
5	32	D8	80–100	9C	D8-35	♂	ad	tibia	—	R	diaphysis	—
5	32	E8	20–40	screen	E8-19	♂	ad	zygomatic	—	R	—	—
5	32	E8	40–60	4	E8-41h	♂	ad	zygomatic	—	R	arch	—
5	32	E8	20–40	screen	E8-24	♂	ad	scapula	—	unk	—	—
5	32	E8	20–40	screen	E8-22	♂	ad	metatarsal 2	—	unk	—	—
5	32	E8	20–40	screen	E8-22	♂	ad	metatarsal 4	—	unk	—	—
5	32	E8	80–100	4	E8-74	♂	ad	sphenoid	—	unk	—	—
5	32	E8	80–100	1	E8-66	♂	ad	distal hand phalanx	—	unk	—	—
5	32	E8	80–100	1	E8-66	♂	ad	unidentified bone	—	unk	—	—

APPENDIX I
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
5	32	E8	80–100	2e	E8-72	♂	ad	thoracic vertebra	—	axial	—	—
5	32	E8	80–100	2c	E8-70	♂	ad	thoracic vertebra	—	axial	body	—
5	32	E8	60–80	1	E8-53d	♂	ad	vertebra	—	axial	body	—
5	32	E8	80–100	2	E8-67	♂	ad	vertebra	—	axial	fragments	—
5	32	D8	80–100	screen	D8-49	♂	ad	vertebra	—	axial	fragments	—
5	32	E8	0–20	screen	E8-15	♂	ad	vertebra	—	axial	fragments	—
5	32	E8	40–60	1	E8-38d	♂	ad	vertebra	—	axial	fragments	—
5	32	E8	40–60	4	E8-41b	♂	ad	vertebra	—	axial	fragments	—
5	32	E8	40–60	screen	E8-50	♂	ad	vertebra	—	axial	fragments	—
5	32	E8	0–20	screen	E8-10	♂	ad	unidentified bone	—	unk	calcined fragments	—
5	32	E8	60–80	screen	E8-63c	♂	ad	cranial	—	unk	unidentified fragment	—
5	32	D8	80–100	9D	D8-36	♂	ad	scapula	—	unk	—	probably scapula
5	32	E8	40–60	5	E8-42	♂	ad	unidentified bone	—	unk	fragments	—
5	32	E8	100–s	screen	E8-83	♂	ad	unidentified bone	—	unk	fragments	—
5	32	E8	60–80	screen	E8-63	♂	ad	vertebra	—	axial	unk	—
6	39	D8	60–80	screen	D8-25a	♀	ad	unidentified bone	—	unk	fragments	—
6	39	D8	60–80	screen	D8-25a	♀	ad	metacarpals	—	unk	fragments	—
6	39	D8	60–80	screen	D8-25a	♀	ad	mandible or maxilla	unk	unk	alveolar bone	—
6	39	D9	20–40	screen	D9-6d	♀	ad	C1	—	axial	—	—
6	39	D9	20–40	screen	D9-6c	♀	ad	clavicle	—	unk	—	—
6	39	D8	80–100	screen	D8-57	♀	ad	cranial	—	unk	—	—
6	39	D9	20–40	3	D9-5a	♀	ad	cranial	—	unk	—	—
6	39	D9	20–40	screen	D9-6a	♀	ad	cranial	—	unk	—	—
6	39	C8	80–100	4	C8-18	♀	ad	tibia	—	R	distal	—
6	39	D8	80–100	8D	D8-32	♀	ad	fibula	—	unk	—	probably fibula
6	39	D8	80–100	6D	D8-30	♀	ad	fibula	—	unk	—	—
6	39	D8	0–20	screen	D8-3	♀	ad	fibula	—	unk	—	—
6	39	C8	80–100	2	C8-16	♀	ad	humerus	—	unk	head	—
6	39	D8	80–100	10D	D8-44a	♀	ad	innominate	—	unk	acetabular fragments	—
6	39	D9	20–40	3	D9-5b	♀	ad	clavicle	—	L	—	—
6	39	E8	20–40	screen	E8-25	♀	ad	metacarpal 4	—	L	—	—
6	39	D8	80–100	10E	D8-45b	♀	ad	humerus	—	L	—	matched with D8-34
6	39	D8	80–100	9A	D8-33	♀	ad	innominate	—	L	—	—
6	39	E8	20–40	2	E8-18a	♀	ad	ulna	—	L	diaphysis fragment	—
6	39	C8	80–100	3	C8-17	♀	ad	unidentified bone	—	unk	fragments	—
6	39	D8	80–100	screen	D8-53	♀	ad	maxilla	—	R	lower right orbital margin	—
6	39	D9	0–20	screen	D9-2e	♀	ad	M1	maxillary	L	fragments	—
6	39	D9	0–20	screen	D9-2d	♀	ad	radius	—	unk	fragment	—
6	39	D9	20–40	1	D9-3d	♀	ad	radius	—	unk	fragment	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
6	39	E8	60–80	screen	E8-59	♀	ad	radius	—	unk	radial head	—
6	39	D8	80–100	9F	D8-38	♀	ad	rib	—	unk	fragment	—
6	39	D8	80–100	7D	D8-31	♀	ad	rib	—	unk	fragments	—
6	39	D8	80–100	screen	D8-54	♀	ad	rib	—	unk	fragments	—
6	39	D8	80–100	screen	D8-56	♀	ad	fibula	—	R	distal	—
6	39	C8	80–100	1	C8-15	♀	ad	humerus	—	R	diaphysial fragment	matched with D8-58
6	39	D8	80–100	screen	D8-58	♀	ad	humerus	—	R	—	matched with C8-15
6	39	D8	60–80	screen	D8-18	♀	ad	patella	—	R	—	—
6	39	D9	0–20	screen	D9-2c	♀	ad	scapula	—	R	—	—
6	39	D9	60–80	screen	D9-9a	♀	ad	scapula	—	R	fragment	—
6	39	D8	60–80	1	D8-17	♀	ad	ulna	—	R	—	—
6	39	D9	40–60	1	D9-7f	♀	ad	scapula	—	unk	fragments	—
6	39	C8	80–100	5	C8-19	♀	ad	tibia	—	unk	diaphysis and misc fragments	—
6	39	D9	20–40	screen	D9-6b	♀	ad	vertebra	—	axial	unk	—
6	39	D9	40–60	1	D9-7e	♀	ad	vertebra	—	axial	unk	—
6	39	D8	80–100	9B	D8-34	♀	ad	humerus	—	L	—	matched with D8-45b
7	31	C8	60–80	screen	C8-2b	indet	juv	scapula	—	unk	fragments	—
7	31	D8	20–40	screen	D8-9	indet	juv	mandible	—	axial	fragment	—
8	42	C8	60–80	screen	C8-10	indet	juv	femur	—	L	—	—
8	42	C8	60–80	screen	C8-11	indet	juv	humerus	—	L	—	—
8	42	C8	60–80	screen	C8-8	indet	juv	radius	—	L	diaphysial fragment	—
8	42	C8	60–80	screen	C8-4	indet	juv	mandible	—	L	left ascending ramus	—
8	42	C8	60–80	screen	C8-6	indet	juv	clavicle	—	R	—	—
8	42	C8	60–80	screen	C8-7	indet	juv	radius	—	R	distal	—
8	42	C8	60–80	screen	C8-9	indet	juv	femur	—	R	head and neck	—
8	42	C8	60–80	screen	C8-5	indet	juv	tibia	—	R	—	—
8	42	C8	60–80	screen	C8-3	indet	juv	ulna	—	R	—	—
8	42	D8	20–40	screen	D8-10	indet	juv	tibia or femur	—	unk	distal	—
8	42	D8	60–80	screen	D8-20	indet	juv	temporal	—	R	petrous portion	matched with D8-47
8	42	D8	80–100	screen	D8-47	indet	juv	temporal	—	R	fragment	matched with D8-20
9	30	A8	20–40	screen	A8-1	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	B8	20–40	screen	B8-1	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	B8	0–20	screen	B8-2	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	C8	0–20	screen	C8-1	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	D8	60–80	screen	D8-61	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	20–40	screen	E8-84	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	40–60	screen	E8-85	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	60–80	2	E8-86	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	20–40	screen	E8-21	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
9	30	F8	60–80	screen	F8-6	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	D8	0–20	screen	D8-1	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	40–60	screen	E8-48	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	60–80	screen	E8-62	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	F8	40–60	screen	F8-5	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	40–60	2	E8-39a	indet	ad	cranial	—	unk	unidentified	probably adult
9	30	E8	60–80	screen	E8-63a	indet	ad	cranial	—	unk	unidentified	probably adult
9	30	E8	40–60	2	E8-39	indet	ad	unidentified bone	—	unk	calcined fragments	probably adult
9	30	E8	60–80	screen	E8-62b	indet	ad	parietal	—	unk	calcined fragment	probably adult
9	30	E8	60–80	screen	E8-62a	indet	ad	temporal	—	R	petrous portion	probably adult
9	30	E8	40–60	2	E8-39b	indet	ad	talus	—	unk	—	calcined, probably adult
10	28	F8	80–s	screen	F8-9	indet	juv	dI1	mandibular	L	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dM2	mandibular	L	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dM1	mandibular	R	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dM2	mandibular	R	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dI1	maxillary	L	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dI2	maxillary	L	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dM1	maxillary	L	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dM2	maxillary	L	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dC	maxillary	R	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dM1	maxillary	R	—	—
10	28	F8	80–s	screen	F8-9	indet	juv	dM2	maxillary	R	—	—
11	18	E8	100–s	screen	E8-83b	indet	juv	sphenoid	—	axial	—	—
11	18	E8	100–s	6	E8-81	indet	juv	femur	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	tibia	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	fibula	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	clavicle	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	humerus	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	radius	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	ulna	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	scapula	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	ilium	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	ischium	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	pubis	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	maxilla	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	temporal	—	R	squamosal and petrous	—
11	18	E8	100–s	6	E8-81	indet	juv	incus	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	malleus	—	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	mandible	—	axial	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
11	18	E8	100–s	6	E8-81	indet	juv	femur	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	fibula	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	tibia	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	clavicle	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	humerus	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	radius	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	ulna	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	scapula	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	ilium	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	ischium	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	pubis	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	maxilla	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	temporal	—	L	squamosal and petrous	—
11	18	E8	100–s	6	E8-81	indet	juv	incus	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	stapes	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	zygomatic	—	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	vertebrae	—	unk	13 centra/processes (?)	—
11	18	E8	100–s	6	E8-81	indet	juv	ribs	—	unk	fragments	—
11	18	E8	100–s	6	E8-81	indet	juv	unidentified bone	—	unk	epiphyses (3)	—
11	18	E8	100–s	6	E8-81	indet	juv	hand bones	—	unk	fragments	—
11	18	E8	100–s	6	E8-81	indet	juv	foot bones	—	unk	fragments	—
11	18	E8	100–s	6	E8-81	indet	juv	cranial	—	axial	unidentified fragments	—
11	18	E8	100–s	6	E8-81	indet	juv	occipital	—	axial	—	—
11	18	E8	100–s	6	E8-81	indet	juv	parietal	—	axial	—	—
11	18	E8	100–s	6	E8-81	indet	juv	frontal	—	axial	—	—
11	18	E8	100–s	6	E8-81	indet	juv	sphenoid	—	axial	—	—
11	18	E8	100–s	6	E8-81	indet	juv	vomer	—	axial	—	—
11	18	E8	100–s	6	E8-81	indet	juv	dI1	maxillary	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	dI1	maxillary	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	dM1	maxillary	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	dI1	mandibular	L	—	—
11	18	E8	100–s	6	E8-81	indet	juv	dI1	mandibular	R	—	—
11	18	E8	100–s	6	E8-81	indet	juv	dC	mandibular	unk	—	—
11	18	E8	100–s	6	E8-81	indet	juv	deciduous tooth	unk	unk	fragment	—
11	18	E8	100–s	6	E8-81	indet	juv	deciduous tooth	unk	unk	fragment	—
11	18	E8	100–s	6	E8-81b	indet	juv	ribs	—	unk	fragments	—
11	18	E8	100–s	6	E8-81a	indet	juv	unidentified bone	—	unk	fragments	—
12	23	H9	60–80	1	H9-8g	♀	ad	cervical vertebra	—	axial	body	—
12	23	H9	60–80	15	H9-22	♀	ad	cranial	—	axial	fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
12	23	H9	60–80	screen	H9-38a	♀	ad	cranial	—	axial	fragments	—
12	23	H9	60–80	1	H9-8a	♀	ad	cranial	—	axial	fragments	—
12	23	H9	60–80	1	H9-8a	♀	ad	molar root	unk	unk	fragment	—
12	23	H9	20–40	1	H9-2	♀	ad	cranial	—	axial	fragments	—
12	23	H9	20–40	1	H9-2	♀	ad	occipital	—	axial	—	—
12	23	H9	20–40	1	H9-2	♀	ad	parietal	—	R	—	—
12	23	H9	60–80	1	H9-8h	♀	ad	femur	—	unk	—	—
12	23	H9	20–40	5	H9-5	♀	ad	fibula	—	unk	—	—
12	23	H9	60–80	14	H9-21	♀	ad	fibula	—	unk	—	—
12	23	H9	60–80	30	H9-37	♀	ad	humerus	—	unk	—	—
12	23	H9	60–80	1	H9-8d	♀	ad	humerus	—	unk	—	—
12	23	H9	60–80	1	H9-8f	♀	ad	intermed phalanx	—	unk	—	—
12	23	H9	40–60	1	H9-7a	♀	ad	femur	—	L	—	—
12	23	H9	60–80	19	H9-26	♀	ad	M3	maxillary	L	—	—
12	23	H9	60–80	18	H9-25	♀	ad	tibia	—	L	—	—
12	23	H9	60–80	24	H9-31b	♀	ad	mandible	—	axial	fragment	—
12	23	H9	0–20	screen	H9-1b	♀	ad	mandible	—	axial	condyle	—
12	23	H9	60–80	8	H9-15	♀	ad	I1	mandibular	R	—	—
12	23	H9	60–80	6	H9-13	♀	ad	I2	mandibular	L	—	—
12	23	H9	60–80	4	H9-11	♀	ad	I2	mandibular	R	—	—
12	23	H9	60–80	10	H9-17	♀	ad	M1	mandibular	R	—	—
12	23	H9	60–80	10	H9-17	♀	ad	mandible	—	axial	fragment	—
12	23	H9	60–80	3	H9-10	♀	ad	M2	mandibular	R	—	—
12	23	H9	60–80	27	H9-34	♀	ad	P4	mandibular	R	—	—
12	23	H9	60–80	24	H9-31a	♀	ad	maxilla	—	axial	fragment	—
12	23	H9	60–80	24	H9-31a	♀	ad	P3	maxillary	R	—	—
12	23	H9	60–80	24	H9-31a	♀	ad	P4	maxillary	R	—	—
12	23	H9	60–80	24	H9-31a	♀	ad	M2	maxillary	R	—	—
12	23	H9	60–80	12	H9-19	♀	ad	C	maxillary	L	—	—
12	23	H9	60–80	9	H9-16	♀	ad	I1	maxillary	L	—	—
12	23	H9	60–80	5	H9-12	♀	ad	M2	maxillary	L	—	—
12	23	H9	60–80	28	H9-35	♀	ad	C	maxillary	R	—	—
12	23	H9	60–80	7	H9-14	♀	ad	I1	maxillary	R	—	—
12	23	H9	60–80	screen	H9-38b	♀	ad	I2	maxillary	R	—	—
12	23	H9	60–80	2	H9-9	♀	ad	M1	maxillary	R	—	—
12	23	H9	60–80	screen	H9-38c	♀	ad	P4	maxillary	L	—	—
12	23	G11	80–s	screen	—	♀	ad	C	mandibular	L	—	probably associated with indiv 12, probably C

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
12	23	G11	80–s	10b	—	♀	ad	P3	mandibular	L	—	probably associated with indiv 12, probably P3
12	23	G11	80–s	9	—	♀	ad	P3	mandibular	R	—	probably associated with indiv 12, probably P3
12	23	H9	60–80	1	H9-8j	♀	ad	metacarpal	—	unk	fragment	number not specified
12	23	H9	60–80	1	H9-8e	♀	ad	metatarsal	—	unk	—	number not specified
12	23	H9	20–40	3	H9-4	♀	ad	parietal	—	unk	fragment	—
12	23	H9	0–20	screen	H9-1a	♀	ad	parietal	—	unk	fragment	—
12	23	H9	20–40	screen	H9-6c	♀	ad	phalanx	—	unk	fragment	type not specified
12	23	H9	60–80	26	H9-33	♀	ad	radius	—	unk	fragments	—
12	23	H9	60–80	1	H9-8i	♀	ad	rib	—	unk	fragment	—
12	23	H9	0–20	screen	H9-1e	♀	ad	rib	—	unk	fragments	—
12	23	H9	60–80	16	H9-23	♀	ad	femur	—	R	—	—
12	23	H9	60–80	29	H9-36	♀	ad	temporal	—	R	—	—
12	23	H9	60–80	29	H9-36	♀	ad	malleus	—	R	—	found in right temporal
12	23	H9	60–80	20	H9-27	♀	ad	tibia	—	R	—	—
12	23	H9	20–40	2	H9-3a	♀	ad	ulna	—	R	—	—
12	23	H9	60–80	13	H9-20	♀	ad	zygomatic	—	R	—	—
12	23	H9	0–20	screen	H9-1c	♀	ad	scapula	—	unk	fragment	—
12	23	H9	60–80	1	H9-8c	♀	ad	scapula	—	unk	fragment	—
12	23	H9	60–80	11	H9-18	♀	ad	C2	—	axial	—	—
13	[27]	G9	60–s	2	G9-5.1	indet	juv	femur	—	none	diaphysial fragment	—
13	27	G9	60–s	10	G9-11.1	indet	juv	unidentified bone	—	unk	fragments	—
13	27	G9	60–s	10	G9-11.1	indet	juv	I2	mandibular	R	—	—
13	27	G9	60–s	10	G9-11.1	indet	juv	dI2	mandibular	R	—	—
13	27	G9	60–s	10	G9-11	indet	juv	clavicle	—	unk	fragments	—
13	27	G9	60–s	8E	G9-9e	indet	juv	cranial	—	unk	fragments	—
13	27	G9	60–s	8C	G9-9c	indet	juv	mandible	—	axial	condyle	—
13	27	G9	60–s	4	G9-8	indet	juv	occipital	—	axial	—	—
13	27	G9	60–s	8F	G9-9f	indet	juv	occipital	—	axial	basilar	—
13	27	G9	60–s	8D	G9-9d	indet	juv	parietal	—	axial	fragments	—
13	27	G9	60–s	8B	G9-9b	indet	juv	mandible	—	axial	right posterior portion	—
13	27	G9	60–s	8B	G9-9b	indet	juv	M1	mandibular	R	unerupted?	—
13	27	G9	60–s	8B	G9-9b	indet	juv	M2	mandibular	R	unerupted?	—
13	27	G9	60–s	8A	G9-9a	indet	juv	temporal	—	R	—	—
13	25/27	G11	80–s	10	G11-5	indet	juv	parietal	—	axial	fragments	—
—	—	H9	0–20	screen	H9-1d	indet	juv	M1	mandibular	L	crown	—
13	27	H9	20–40	screen	H9-6a	indet	juv	temporal	—	R	fragment	—
13	27	G9	60–s	7	—	indet	juv	M1	mandibular	L	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
13	27	G9	40–60	screen	—	indet	juv	dM2	maxillary	L	—	—
13	27	G9	40–60	screen	—	indet	juv	M1	maxillary	L	—	—
13	27	G9	40–60	1	—	indet	juv	dC	maxillary	R	—	—
13	[27]	G9	20–40	screen	G9-3	indet	juv	radius	—	unk	—	—
14	38	D9	0–20	1	D9-1	♂	ad	cranial	—	axial	fragments	—
14	38	D9	20–40	1	D9-3a	♂	ad	cranial	—	axial	fragments	—
14	38	D9	20–40	screen	D9-6f	♂	ad	cranial	—	axial	fragments	—
14	38	D9	40–60	1	D9-7d	♂	ad	cranial	—	axial	fragments	—
14	38	D9	80–s	screen	D9-10c	♂	ad	prox foot phalanx	—	unk	—	—
14	38	D9	80–s	screen	D9-10d	♂	ad	intermed hand phalanx	—	unk	—	—
14	38	D9	80–s	screen	D9-10b	♂	ad	lunate	—	L	—	—
14	38	D9	40–60	screen	D9-8c	♂	ad	M2	mandibular	R	—	—
14	38	D9	40–60	1	D9-7a	♂	ad	I1	maxillary	L	—	—
14	38	D9	40–60	screen	D9-8b	♂	ad	P3	maxillary	L	—	—
14	38	D9	40–60	screen	D9-8a	♂	ad	rib	—	unk	fragments	—
14	38	D9	80–s	screen	D9-10a	♂	ad	rib	—	unk	fragments	—
14	38	D9	40–60	1	D9-7c	♂	ad	humerus	—	R	—	—
14	38	D9	80–s	screen	D9-10e	♂	ad	radius	—	R	—	—
14	38	D9	20–40	1	D9-3c	♂	ad	C2	—	axial	fragments	—
15	45	C9	20–40	1	C9-1	♂	ad	cranial	—	axial	fragments	—
15	45	C9	20–40	2	C9-2	♂	ad	cranial	—	axial	fragments	—
15	45	C9	40–60	4	C9-8	♂	ad	cranial	—	axial	fragments	—
15	45	C9	60–80	1	C9-13	♂	ad	cranial	—	axial	fragments	—
15	45	C9	40–60	7	C9-11b	♂	ad	femur	—	unk	condyle fragment	—
15	45	C9	20–40	3	C9-3	♂	ad	femur	—	unk	diaphysis	matched with C10-2a/56a
15	45	C11	60–s	7c	C11-50	♂	ad	femur	—	unk	—	matched with C10-5
15	45	C10	0–20	1	C10-1	♂	ad	femur	—	unk	diaphysis	—
15	45	C10	20–40	2	C10-5	♂	ad	femur	—	unk	diaphysis	matched with C11-50
15	45	C10	80–s	2	C10-53d	♂	ad	hand phalanx	—	unk	fragments	—
15	45	C10	80–s	1b	C10-15b	♂	ad	humerus	—	unk	prox diaphysis	—
15	45	C10	80–s	2	C10-53h	♂	ad	hyoid	—	axial	—	—
15	45	C9	40–60	3	C9-7b	♂	ad	intermed phalanx	—	unk	—	—
15	45	C10	80–s	2n	C10-40	♂	ad	innominate	—	unk	ischium	—
15	45	C10	80–s	2q	C10-43	♂	ad	clavicle	—	L	—	—
15	45	C10	80–s	2c	C10-29	♂	ad	humerus	—	L	—	—
15	45	C10	80–s	2r	C10-44	♂	ad	innominate	—	L	ilium	—
15	45	C10	80–s	2i	C10-35	♂	ad	innominate	—	L	includes greater sciatic notch	—
15	45	C10	80–s	2u	C10-47	♂	ad	patella	—	L	—	—
15	45	C10	80–s	2a	C10-27	♂	ad	radius	—	L	—	matched with C10-13h

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
15	45	C10	80–s	1	C10-13h	♂	ad	radius	—	L	—	matched with C10-27
15	45	C10	80–s	2	C10-53i	♂	ad	temporal	—	L	—	—
15	45	C9	40–60	6	C9-10a	♂	ad	tibia	—	L	—	matched with C9-9
15	45	C9	40–60	7	C9-12a	♂	ad	tibia	—	L	—	matched with C9-9
15	45	C9	40–60	5	C9-9	♂	ad	tibia	—	L	diaphysis and fragments	matched with C9-10a and C9-12a
15	45	C9	40–60	7	C9-11d	♂	ad	ulna	—	L	—	—
15	45	C10	80–s	2k	C10-37	♂	ad	ulna	—	L	—	—
15	45	C11	20–40	14	C11-21h	♂	ad	ulna	—	L	fragment	—
15	45	C9	40–60	6	C9-10b	♂	ad	ulna	—	L	fragments	matched with C9-5b
15	45	C11	20–40	14	C11-21e	♂	ad	unidentified bone	—	unk	long bone fragments	—
15	45	C10	60–80	2	C10-12b	♂	ad	lumbar vertebra	—	axial	—	—
15	45	C10	80–s	1f	C10-19	♂	ad	P3	mandibular	L	—	matched with C10-36
15	45	C10	80–s	1g	C10-20	♂	ad	P3	mandibular	R	—	matched with C10-36
15	45	C10	80–s	1	C10-13j	♂	ad	P3	maxillary	R	—	matched with C10-36
15	45	C10	80–s	2f	C10-32	♂	ad	humerus	—	unk	—	pathological
15	45	C10	0–20	2	C10-2	♂	ad	phalanx	—	unk	—	—
15	45	C10	80–s	2p	C10-42	♂	ad	phalanx	—	unk	—	—
15	45	C10	80–s	2h	C10-34	♂	ad	radius	—	unk	—	—
15	45	C9	40–60	2	C9-6	♂	ad	radius	—	unk	fragment	—
15	45	C9	20–40	4	C9-4	♂	ad	radius	—	unk	diaphysis	—
15	45	C10	80–s	1	C10-13a	♂	ad	clavicle	—	R	—	—
15	45	C9	40–60	7	C9-11c	♂	ad	ulna	—	R	distal	—
15	45	C10	80–s	2b	C10-28	♂	ad	humerus	—	R	—	—
15	45	C10	80–s	1l	C10-25	♂	ad	innominate	—	R	ilium	—
15	45	C9	40–60	1	C9-5a	♂	ad	patella	—	R	—	—
15	45	C10	80–s	1	C10-13b	♂	ad	ulna	—	R	prox diaphysis	matched with C10-18c
15	45	C10	80–s	2d	C10-30	♂	ad	radius	—	R	—	—
15	45	C9	40–60	7	C9-11a	♂	ad	tibia	—	R	diaphysis	—
15	45	C10	80–s	2	C10-53c	♂	ad	ulna	—	R	—	matched with C10-18c
15	45	C10	80–s	1e	C10-18c	♂	ad	ulna	—	R	—	matched with C10-13b and C10-53c
15	45	C10	80–s	2	C10-53j	♂	ad	talus	—	unk	fragment	—
15	45	C9	40–60	7	C9-11e	♂	ad	tibia	—	unk	condyle	—
15	45	C10	80–s	1	C10-13d	♂	ad	metacarpal	—	unk	—	—
15	45	C10	80–s	1	C10-13d	♂	ad	metacarpal	—	unk	—	—
15	45	C9	40–60	1	C9-5b	♂	ad	ulna	—	unk	—	matched with C9-10b
15	45	C10	80–s	2	C10-53k	♂	ad	ulna	—	unk	fragment	—
15	45	C10	80–s	1	C10-13f	♂	ad	vertebra	—	axial	fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
15	45	C10	80–s	1h	C10-21	♂	ad	vertebra	—	axial	fragments	—
15	45	C10	80–s	2s	C10-45	♂	ad	vertebra	—	axial	fragments	—
15	45	C10	80–s	2	C10-53e	♂	ad	vertebra	—	axial	fragments	—
15	45	C10	80–s	2	C10-53e	♂	ad	C1	—	axial	fragment	—
15	45	C10	80–s	3A	C10-2a/56a	♂	ad	femur	—	unk	diaphysial fragment	matched with C9-3
15	45	C10	80–s	3	C10-2.1/56.1	♂	ad	ulna	—	L	prox	—
15	45	C10	80–s	2j	C10-36	♂	ad	mandible	—	axial	—	includes right C, P4, left P4
15	45	C10	80–s	2j	C10-36	♂	ad	C	mandibular	R	—	—
15	45	C10	80–s	2j	C10-36	♂	ad	P4	mandibular	R	—	—
15	45	C10	80–s	2j	C10-36	♂	ad	P4	mandibular	L	—	—
15	45	C10	80–s	1	C10-13i	♂	ad	I1	mandibular	R	—	—
15	45	C10	60–80	2	C10-12a	♂	ad	maxilla	—	R	—	includes articulated right C, P4, P4 root, M2
15	45	C10	60–80	2	C10-12a	♂	ad	maxilla	—	L		includes articulated left I2, C, P3, M2, M3
15	45	C10	60–80	2	C10-12a	♂	ad	I2	maxillary	L	—	—
15	45	C10	60–80	2	C10-12a	♂	ad	C	maxillary	L	—	—
15	45	C10	60–80	2	C10-12a	♂	ad	P3	maxillary	L	—	—
15	45	C10	60–80	2	C10-12a	♂	ad	M2	maxillary	L	—	—
15	45	C10	60–80	2	C10-12a	♂	ad	M3	maxillary	L	—	—
15	45	C10	60–80	2	C10-12a	♂	ad	C	maxillary	R	—	—
15	45	C10	60–80	2	C10-12a	♂	ad	M1	maxillary	R	root	crown destroyed by caries
15	45	C10	60–80	2	C10-12a	♂	ad	M2	maxillary	R	—	—
15	[45]	C10	80–s	3	C10-2.3/56.3	♂	ad	femur	—	unk	fragments	—
15	45	C9	20–40	screen	C9-4.5	♂	ad	unidentified bone	—	unk	fragments	—
15	45	C9	40–60	3	C9-7	♂	ad	unidentified bone	—	unk	fragments	—
15	45	C10	0–20	screen	C10-3	♂	ad	unidentified bone	—	unk	fragments	—
15	45	C10	0–20	screen	C10-3	♂	ad	ribs	—	unk	fragments	—
15	45	C10	0–20	screen	C10-3	♂	ad	unidentified bone	—	unk	long bone fragments	—
15	45	C10	0–20	screen	C10-3	♂	ad	cranial	—	axial	fragments	—
15	45	C9	40–60	1	C9-5	♂	ad	long bones	—	unk	fragments	—
15	45	C9	40–60	7	C9-11	♂	ad	long bones	—	unk	fragments	—
16	46	C10	80–s	1d	C10-17	♀	ad	cranial	—	axial	calvarium	—
16	46	C10	80–s	1i	C10-22e	♀	ad	fibula	—	unk	—	—
16	46	C10	80–s	2	C10-53f	♀	ad	clavicle	—	L	fragments	—
16	46	C10	80–s	1i	C10-22a	♀	ad	femur	—	L	diaphysis	matched with C10-23
16	46	D9	20–40	1	D9-3b	♀	ad	humerus	—	L	—	matched with C10-9c

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
16	46	C10	40–60	1	C10-9b	♀	ad	humerus	—	L	—	matched with D9-3b and D9-6e
16	46	D9	20–40	screen	D9-6e	♀	ad	humerus	—	L	fragment	matched with D9-3b
16	46	C10	80–s	1k	C10-24	♀	ad	innominate	—	L	with preauricular sulcus	—
16	46	C10	80–s	1j	C10-23	♀	ad	femur	—	L	prox	matched with C10-22a and C10-46c
16	46	C10	80–s	1b	C10-15a	♀	ad	metacarpal 2	—	L	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	metacarpal	—	unk	diaphysis	—
16	46	C10	80–s	1b	C10-15a	♀	ad	distal hand phalanx	—	unk	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	distal hand phalanx	—	unk	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	distal hand phalanx	—	unk	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	distal hand phalanx	—	unk	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	intermed hand phalanx	—	unk	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	prox hand phalanx	—	unk	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	prox hand phalanx	—	unk	—	—
16	46	C10	80–s	1b	C10-15a	♀	ad	hand/wrist bones	—	unk	—	—
16	46	C10	40–60	1	C10-9c	♀	ad	ulna	—	L	—	—
16	46	C10	80–s	1	C10-13c	♀	ad	zygomatic	—	L	—	—
16	46	C10	80–s	1i	C10-22b	♀	ad	prox hand phalanx	—	unk	—	—
16	46	C10	80–s	1c	C10-16	♀	ad	femur	—	R	—	—
16	46	C10	80–s	1c	C10-16	♀	ad	unidentified bone	—	unk	fragments	—
16	46	C10	40–60	1	C10-9a	♀	ad	humerus	—	R	—	—
16	46	C10	80–s	2w	C10-49	♀	ad	radius	—	R	distal	matched with C10-531
16	46	C10	80–s	2	C10-531	♀	ad	radius	—	R	fragment	matched with C10-49
16	46	C10	80–s	2g	C10-33	♀	ad	ulna	—	R	—	—
16	46	C10	80–s	1e	C10-18b	♀	ad	C2	—	axial	—	—
16	46	C10	80–s	1e	C10-18b	♀	ad	vertebra	—	axial	fragments	—
16	46	C10	80–s	1i	C10-22c	♀	ad	vertebra	—	axial	fragments	—
16	46	C10	80–s	3	C10-2.2/56.2	♀	ad	innominate	—	L	with partial acetabulum	—
16	46	C10	80–s	screen	C10-1c/55c	♀	ad	temporal	—	L	mastoid process and partial petrous portion	—
16	46	C10	80–s	screen	C10-1b/55b	♀	ad	parietal	—	axial	fragments	—
16	46	C10	80–s	1d	C10-1a/55a	♀	ad	occipital	—	axial		incomplete
16	[46]	C10	80–s	3	C10-2.6/56.6b	♀	ad	clavicle	—	R	—	—
16	46	C10	80–s	3	C10-2/56	♀	ad	radius	—	R	diaphysis	—
16	46	C10	80–s	3	C10-2/56	♀	ad	fibula	—	unk	diaphysis	—
16	46	C10	40–60	1	C10-9	♀	ad	unidentified bone	—	unk	fragments	—
16	46	C10	80–s	3	C10-1d/55d	♀	ad	cranial	—	axial	fragments	—
17	47	C10	80–s	2t	C10-46b	♂	ad	femur	—	unk	condyle fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
17	47	C10	80–s	1a	C10-14b	♂	ad	femur	—	unk	condyle fragments	—
17	47	C10	80–s	2m	C10-39	♂	ad	femur	—	unk	head	—
17	47	C9	40–60	3	C9-7a	♂	ad	femur	—	unk	diaphysis	matched with C10-46a
17	47	C10	80–s	2t	C10-46a	♂	ad	femur	—	L	distal	matched with C9-7a
17	47	C10	80–s	2t	C10-46c	♂	ad	femur	—	L	diaphysis	matched with C10-46a
17	47	C10	80–s	1a	C10-14a	♂	ad	parietal	—	R	—	—
17	47	C10	80–s	2o	C10-41	♂	ad	femur	—	R	prox	—
17	47	C10	80–s	2l	C10-38	♂	ad	tibia	—	R	—	—
17	47	C10	80–s	2t	C10-46d	♂	ad	tibia	—	unk	fragment	—
18	49	C11	40–60	1d	C11-27	♀	ad	cranial	—	axial	fragment	—
18	49	C11	0–20	screen	C11-6c	♀	ad	cranial	—	axial	fragment	—
18	49	C11	20–40	1	C11-7	♀	ad	cranial	—	axial	fragment	—
18	49	C11	20–40	14	C11-21g	♀	ad	cranial	—	axial	fragment	
18	49	C11	0–40	screen	C11-22a	♀	ad	cranial	—	axial	fragment	
18	49	C10	20–40	4	C10-7a	♀	ad	femur	—	unk	head	—
18	49	C11	60–s	7a	C11-48	♀	ad	femur	—	unk	head	—
18	49	C11	0–20	4	C11-4	♀	ad	fibula	—	unk	fragment	—
18	49	C11	balk	screen	C11-22c	♀	ad	fibula	—	unk	fragment	—
18	49	C11	40–60	1b	C11-25	♀	ad	fibula	—	unk	fragment	matched with C11-29
18	49	C11	40–60	1f	C11-29	♀	ad	fibula	—	unk	fragment	matched with C11-25
18	49	C11	20–40	14	C11-21j	♀	ad	fibula	—	unk	fragments	—
18	49	C11	20–40	11	C11-17a	♀	ad	foot phalanges	—	unk	—	—
18	49	C11	20–40	14	C11-21d	♀	ad	hand phalanges	—	unk	—	—
18	49	C11	20–40	14	C11-21d	♀	ad	metacarpal 3	—	L	—	—
18	49	C11	20–40	14	C11-21d	♀	ad	metacarpal 4	—	R	—	probably metacarpal 4
18	49	C10	20–40	4	C10-7b	♀	ad	innominate	—	unk	ilium with auricular surface	—
18	49	C11	40–60	1	C11-33a	♀	ad	innominate	—	unk	with auricular surface	—
18	49	C10	20–40	1	C10-4	♀	ad	innominate	—	unk	ischium	—
18	49	C10	60–80	1	C10-11d	♀	ad	femur	—	L	—	matched with C10-11a
18	49	C10	60–80	1	C10-11b	♀	ad	femur	—	L	—	matched with C10-11d
18	49	C11	40–60	screen	C11-37a	♀	ad	first cuneiform	—	L	—	—
18	49	C11	40–60	1g	C11-30	♀	ad	navicular	—	L	—	—
18	49	C11	60–s	7b	C11-49	♀	ad	humerus	—	L	—	matched with C11-21c
18	49	C11	20–40	14	C11-21c	♀	ad	humerus	—	L	—	matched with C11-49
18	49	C11	20–40	12	C11-19a	♀	ad	second cuneiform	—	L	—	—
18	49	C11	40–60	1h	C11-31	♀	ad	second cuneiform	—	L	—	—
18	49	C11	0–20	3	C11-3	♀	ad	ulna	—	L	fragments	—
18	49	C11	0–20	2	C11-2	♀	ad	unidentified bone	—	unk	long bone fragments	—
18	49	C11	20–40	7	C11-13e	♀	ad	malleus	—	unk	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
18	49	C11	40–60	3	C11-35	♀	ad	mandible	—	axial	probably left side	—
18	49	C11	40–60	3	C11-35	♀	ad	P3	mandibular	L	—	—
18	49	C11	40–60	3	C11-35	♀	ad	P4	mandibular	L	—	—
18	49	C11	40–60	3	C11-35	♀	ad	M1	mandibular	L	—	—
18	49	C11	40–60	3	C11-35	♀	ad	M2	mandibular	L	—	—
18	49	C11	20–40	screen	C11-23e	♀	ad	C	mandibular	L	—	matched with C11-35
18	49	C11	0–20	screen	C11-6e	♀	ad	I1	mandibular	L	—	—
18	49	C11	20–40	screen	C11-23d	♀	ad	C	mandibular	R	—	matched with C11-35
18	49	C11	0–20	screen	C11-6f	♀	ad	I1	mandibular	R	—	—
18	49	C11	40–60	1a	C11-24a	♀	ad	M3	mandibular	R	—	peg tooth; matched with C11-35
18	49	C11	20–40	screen	C11-23f	♀	ad	P3	mandibular	R	—	matched with C11-35
18	49	C11	0–20	screen	C11-6d	♀	ad	I1	maxillary	L	—	—
18	49	C11	0–20	screen	C11-6d	♀	ad	I1	maxillary	R	—	—
18	49	C11	40–60	1c	C11-26	♀	ad	M2	maxillary	L	—	—
18	49	C11	20–40	screen	C11-23a	♀	ad	M1	maxillary	R	—	—
18	49	C11	20–40	screen	C11-23b	♀	ad	M2	maxillary	R	—	—
18	49	C11	20–40	7	C11-13b	♀	ad	metatarsal	—	unk	fragment	—
18	49	C11	20–40	12	C11-19b	♀	ad	metatarsal	—	unk	fragments	—
18	49	C11	20–40	14	C11-21b	♀	ad	metatarsal	—	unk	fragment	—
18	49	C11	20–40	14	C11-21b	♀	ad	prox foot phalanx	—	unk	—	—
18	49	C11	20–40	7	C11-13c	♀	ad	prox foot phalanx	—	unk	—	—
18	49	C11	0–20	screen	C11-6b	♀	ad	radius	—	unk	fragment	—
18	49	C11	20–40	12	C11-19c	♀	ad	radius	—	unk	fragment	—
18	49	C10	60–80	1	C10-11a	♀	ad	femur	—	R	—	—
18	49	C11	20–40	7	C11-13a	♀	ad	fibula	—	R	—	matched with C11-11, C11-21f
18	49	C11	20–40	14	C11-21f	♀	ad	fibula	—	R	—	matched with C11-13a, C11-11
18	49	C11	40–60	1e	C11-28	♀	ad	humerus	—	R	—	matched with C11-18, C11-22d
18	49	C11	20–40	12a	C11-18	♀	ad	humerus	—	R	—	matched with C11-28, C11-22d
18	49	C11	balk	screen	C11-22d	♀	ad	humerus	—	R	—	matched with C11-28, C11-18
18	49	C11	0–40	screen	C11-22b	♀	ad	scapula	—	R	—	—
18	49	C11	20–40	11	C11-17b	♀	ad	tibia	—	R	fragments	—
18	49	C11	20–40	14	C11-21a	♀	ad	ulna	—	R	—	—
18	49	C10	20–40	3	C10-6	♀	ad	sacrum	—	axial	—	—
18	49	C11	0–20	screen	C11-6a	♀	ad	talus	—	unk	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
18	49	C11	20–40	2	C11-8	♀	ad	talus	—	unk	—	—
18	49	C10	60–80	1	C10-11c	♀	ad	tibia	—	unk	—	—
18	49	C10	60–80	1	C10-11c	♀	ad	unidentified bone	—	unk	fragments	
18	49	C11	0–20	1	C11-1	♀	ad	tibia	—	unk	—	—
18	49	C11	20–40	5	C11-11	♀	ad	fibula	—	R	fragments (2)	matched with C11-13a, C11-21f
18	49	C11	20–40	14	C11-21i	♀	ad	vertebra	—	axial	fragment	—
18	49	C11	40–60	1	C11-33b	♀	ad	vertebra	—	axial	fragment	—
18	49	C10	80–s	1m	C10-26	♀	ad	M3	mandibular	R	—	—
18	49	C11	20–40	7	C11-13d	♀	ad	pisiform	—	unk	—	—
18	49	C11	20–40	screen	C11-22c1	♀	ad	P4	mandibular	R	—	—
18	49	C11	40–60	1a	C11-24	♀	ad	unidentified bone	—	unk	fragment	—
18	49	C10	20–40	4	C10-7	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C10	20–40	screen	C10-8	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C10	60–80	1	C10-11	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	0–20	5	C11-5	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	0–20	screen	C11-6	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	20–40	7	C11-13	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	20–40	11	C11-17	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	20–40	12	C11-19	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	20–40	14	C11-21	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	40–60	1	C11-33	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	40–60	4	C11-36	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	40–60	screen	C11-37	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	60–s	5	C11-46	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	60–s	7	C11-51	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	cleaning profile	screen	C11-22	♀	ad	unidentified bone	—	unk	fragments	—
18	49	C11	cleaning profile	screen	C11-22	♀	ad	P3	mandibular	R	—	—
19	50	C11	60–s	3	C11-44c	♀	ad	clavicle	—	unk	—	matched with C11-14a
19	50	C11	20–40	8	C11-14a	♀	ad	clavicle	—	unk	—	matched with C11-44c
19	50	C11	20–40	4	C11-10	♀	ad	cranial	—	axial	fragments	—
19	50	C11	20–40	4	C11-10	♀	ad	long bones	—	unk	fragments	—
19	50	C11	40–60	2	C11-34	♀	ad	cranial	—	axial	fragment	—
19	50	C11	20–40	13	C11-20	♀	ad	cranial	—	axial	fragments	—
19	50	C11	60–s	3b	C11-41a	♀	ad	cranial	—	axial	fragments	—
19	50	C11	60–s	3	C11-44a'	♀	ad	cranial	—	axial	fragments	—
19	50	C11	60–s	4	C11-45a	♀	ad	cranial	—	axial	fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
19	50	C11	60–s	3a	C11-40a	♀	ad	ear ossicles	—	unk	—	—
19	50	C11	60–s	1	C11-38	♀	ad	femur	—	L	—	—
19	50	C11	60–s	1	C11-38	♀	ad	unidentified bone	—	unk	fragments	—
19	50	C11	60–s	3a	C11-40	♀	ad	temporal	—	L	—	—
19	50	C11	60–s	2	C11-39	♀	ad	tibia	—	L	—	matched with C11-47
19	50	C11	60–s	6	C11-47	♀	ad	tibia	—	L	—	matched with C11-39
19	50	C11	20–40	3	C11-9	♀	ad	long bones	—	unk	—	—
19	50	C11	60–s	3c	C11-42b	♀	ad	M3	mandibular	R	—	—
19	50	C11	60–s	3	C11-44f	♀	ad	M1	maxillary	L	—	—
19	50	C11	60–s	3d	C11-43b	♀	ad	P4	maxillary	L	—	—
19	50	C11	60–s	3	C11-44d	♀	ad	rib	—	unk	fragments	—
19	50	C11	60–s	3c	C11-42a	♀	ad	mandible	—	axial	right side	—
19	50	C11	60–s	3c	C11-42a	♀	ad	unidentified bone	—	unk	fragments	—
19	50	C11	60–s	3d	C11-43a	♀	ad	mandible	—	axial	right side	—
19	50	C11	20–40	6	C11-12	♀	ad	parietal	—	R	—	—
19	50	C11	20–40	6	C11-12	♀	ad	cranial	—	axial	—	—
19	50	C11	60–s	3	C11-44e	♀	ad	scapula	—	R	fragment	—
19	50	C11	60–s	3	C11-44a	♀	ad	temporal	—	R	—	—
19	50	C11	60–s	3	C11-44b	♀	ad	vertebra	—	axial	fragments	—
19	50	C11	60–s	6	C11-47a	♀	ad	vertebra	—	axial	fragments	—
19	50	C11	20–40	8	C11-14	♀	ad	unidentified bone	—	unk	fragments	—
19	50	C11	20–40	9	C11-15	♀	ad	unidentified bone	—	unk	fragments	—
19	50	C11	20–40	10	C11-16	♀	ad	unidentified bone	—	unk	fragments	—
19	50	C11	60–s	3b	C11-41	♀	ad	unidentified bone	—	unk	fragments	—
19	50	C11	60–s	3	C11-44	♀	ad	unidentified bone	—	unk	fragments	—
19	50	C11	60–s	4	C11-45	♀	ad	unidentified bone	—	unk	fragments	—
20	29	G9	60–s	9A	G9-10a	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9A	G9-10a.1	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9B	G9-10b	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9E	G9-10e	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9F	G9-10f	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9G	G9-10g	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9H	G9-10h	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9	G9-10	indet	juv	cranial	—	axial	fragments	—
20	29	G9	60–s	9	G9-10	indet	juv	I1	mandibular	R	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	M1	mandibular	R	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	M1	maxillary	L	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	I1	maxillary	R	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	I1	maxillary	L	found with infant burial G-9	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
20	29	G9	60–s	9	G9-10	indet	juv	dM1	mandibular	R	part of infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dM1	mandibular	L	part of infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dM2	mandibular	R	part of infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dM2	mandibular	L	part of infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dI1	maxillary	L	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dc	maxillary	L	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dc	maxillary	R	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dM1	maxillary	L	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dM1	maxillary	R	found with infant burial G-9	—
20	29	G9	60–s	9	G9-10	indet	juv	dM2	maxillary	R	found with infant burial G-9	—
20	29	G9	60–s	9I	G9-10i	indet	juv	temporal	—	L	petrous portion	—
20	29	G9	60–s	9C	G9-10c	indet	juv	occipital	—	axial	basilar	—
20	29	G9	60–s	9D	G9-10d	indet	juv	temporal	—	R	petrous portion	—
20	29	G9	60–s	5	—	indet	juv	dM2	maxillary	L	none	—
21	16	I9	40–60	screen	I9-7	♂	ad	clavicle	—	L	—	—
21	16	I9	40–60	screen	I9-7	♂	ad	fibula	—	unk	—	—
21	16	I9	60–80	screen	I9-9	♂	ad	unidentified bone	—	unk	long bone fragment	—
21	16	I9	40–60	5	I9-5	♂	ad	parietal	—	axial	—	matched with I9-4, G10-2G.1, G10-6.1, G10-2.4, G10-8, G10-11, G10-4.2
21	16	I9	40–60	4	I9-4	♂	ad	parietal	—	axial	fragment	matched with I9-5, G10-2G.1, G10-6.1, G10-2.4, G10-8, G10-11, G10-4.2
21	16	I9	60–80	7	I9-8	♂	ad	radius	—	unk	diaphysis fragment	—
21	16	I9	40–60	3	I9-3	♂	ad	tibia	—	unk	diaphysis	matched with I9-6 and J9-3
21	16	I9	40–60	6	I9-6	♂	ad	tibia	—	unk	diaphysis	matched with J9-3 and I9-3
21	16	I9	20–40	2	I9-2	♂	ad	Femur	—	unk	fragments	matched with I9-1
21	16	I9	20–40	1	I9-1	♂	ad	Femur	—	unk	fragments	matched with I9-2
23	44	F11	80–s	screen	—	indet	juv	I2	maxillary	R	—	—
23	44	F11	80–s	screen	—	indet	juv	P3 or P4	maxillary	R or L	crown fragment	—
24	34	F10	80–s	1k	F10-21k	♀	ad	frontal or temporal	—	axial	—	—
24	34	F10	80–s	1l	F10-21l	♀	ad	mandible	—	axial	left side	matched with F10-21i
24	34	F10	80–s	1l	F10-21l	♀	ad	I2	mandibular	L	—	matched with F10-21i
24	34	F10	80–s	1l	F10-21l	♀	ad	C	mandibular	L	—	matched with F10-21i
24	34	F10	80–s	1l	F10-21l	♀	ad	P3	mandibular	L	—	matched with F10-21i
24	34	F10	80–s	1l	F10-21l	♀	ad	P4	mandibular	L	—	matched with F10-21i
24	34	F10	60–80	1l	F10-19	♀	ad	maxilla	—	L	—	—
24	34	F10	60–80	1l	F10-19	♀	ad	I1	maxillary	L	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
24	34	F10	60–80	11	F10-19	♀	ad	I2	maxillary	L	—	—
24	34	F10	60–80	11	F10-19	♀	ad	C	maxillary	L	—	—
24	34	F10	60–80	11	F10-19	♀	ad	P3	maxillary	L	root	carious
24	34	F10	60–80	11	F10-19	♀	ad	P4	maxillary	L	—	—
24	34	F10	60–80	11	F10-19	♀	ad	M1	maxillary	L	—	—
24	34	F10	80–s	2q	F10-22q	♀	ad	ulna	—	L	prox	—
24	34	F10	80–s	1b	F10-21b	♀	ad	temporal	—	L	—	—
24	34	F10	80–s	1d	F10-21d	♀	ad	temporal	—	L	—	—
24	34	F10	80–s	1h	F10-21h	♀	ad	zygomatic	—	L	—	—
24	34	F10	80–s	1h	F10-21h	♀	ad	maxilla	—	L	—	—
24	34	F10	80–s	1g	F10-21g	♀	ad	prox hand phalanx	—	unk	—	—
24	34	F10	80–s	1	F10-21	♀	ad	ribs	—	unk	—	—
24	34	F10	80–s	1	F10-21	♀	ad	calcaneus	—	unk	—	—
24	34	F10	80–s	1	F10-21	♀	ad	foot phalanges	—	unk	—	—
24	34	F10	80–s	1	F10-21	♀	ad	hand phalanges	—	unk	—	—
24	34	F10	80–s	1	F10-21	♀	ad	foot bones	—	unk	—	—
24	34	F10	80–s	1	F10-21	♀	ad	unidentified bone	—	unk	—	—
24	34	F10	80–s	1	F10-21	♀	juv	unidentified bone	—	unk	—	—
24	34	F10	80–s	1p	F10-21p	♀	ad	ulna	—	R	distal	—
24	34	F10	80–s	1m	F10-21m	♀	ad	mandible	—	axial	right side	—
24	34	F10	80–s	1i	F10-21i	♀	ad	mandible	—	axial	right side	matched with F10-21i
24	34	F10	80–s	1i	F10-21i	♀	ad	P3	mandibular	R	—	matched with F10-21i
24	34	F10	80–s	1i	F10-21i	♀	ad	P4	mandibular	R	—	matched with F10-21i
24	34	F10	60–80	11a	F10-19a	♀	ad	maxilla	—	R	—	—
24	34	F10	60–80	11a	F10-19a	♀	ad	I1	maxillary	R	—	—
24	34	F10	60–80	11a	F10-19a	♀	ad	I2	maxillary	R	—	—
24	34	F10	60–80	11a	F10-19a	♀	ad	C	maxillary	R	—	—
24	34	F10	60–80	11a	F10-19a	♀	ad	P3	maxillary	R	—	—
24	34	F10	80–s	1a	F10-21a	♀	ad	navicular	—	R	—	—
24	34	F10	80–s	1c	F10-21c	♀	ad	cervical vertebra	—	axial	—	includes ondontoid process
24	34	F10	80–s	1j	F10-21j	♀	ad	zygomatic	—	unk	—	—
25	41	F10	20–40	2d	F10-5d	indet	juv	cervical vertebrae	—	axial	—	—
25	41	F10	80–s	3	F10-23	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	80–s	screen	F10-26	indet	juv	carpal	—	unk	fragments	probably carpal
25	41	F10	80–s	screen	F10-27	indet	juv	cranial	—	axial	fragments	probably cranial
25	41	F10	60–80	5	F10-13	indet	juv	cranial	—	axial	fragments	—
25	41	F10	60–80	7	F10-15	indet	juv	cranial	—	axial	fragments	—
25	41	F10	20–40	screen	F10-5l	indet	juv	cranial	—	axial	fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
25	41	F10	20–40	screen	F10-5l	indet	juv	phalanx	—	unk	fragments	—
25	41	F10	80–s	3e	F10-23e	indet	juv	tibia	—	unk	distal	—
25	41	F10	60–80	4a	F10-12a	indet	juv	fibula	—	unk	diaphysis	—
25	41	F10	80–s	3b	F10-23b	indet	juv	fibula	—	unk	fragments	—
25	41	F10	20–40	2	F10-5	indet	juv	first rib	—	unk	fragments	—
25	41	F10	20–40	2	F10-5	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	20–40	1	F10-4	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	80–s	5	F10-25	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	80–s	2	F10-22	indet	juv	unidentified bone	—	unk	fragments	includes epiphyses
25	41	F10	60–80	4	F10-12	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	60–80	4	F10-12	indet	juv	ribs	—	unk	fragments	—
25	41	F10	60–80	3b	F10-11a	indet	juv	intermed hand phalanx	—	unk	—	—
25	41	F10	60–80	3b	F10-11a	indet	juv	phalanx	—	unk	fragment	—
25	41	F10	20–40	2i	F10-5i.1	indet	juv	frontal	—	axial	—	—
25	41	F10	20–40	2i	F10-5i	indet	juv	frontal	—	axial	fragments	—
25	41	F10	60–80	1	F10-9	indet	juv	femur	—	L	prox and diaphysis	matched with F10-7
25	41	F10	20–40	2a	F10-5a	indet	juv	humerus	—	L	—	—
25	41	F10	80–s	5a	F10-25a	indet	juv	talus	—	L	—	—
25	41	F10	80–s	3c	F10-23c	indet	juv	tibia	—	L	—	—
25	41	F10	20–40	screen	F10-5k	indet	juv	maxilla	—	unk	—	—
25	41	F10	20–40	2f	F10-5f	indet	juv	clavicle	—	unk	diaphysis	—
25	41	F10	20–40	2h	F10-5h	indet	juv	clavicle	—	unk	diaphysis	matched with F10-6c
25	41	F10	80–s	2b	F10-22b	indet	juv	ulna	—	unk	prox	—
25	41	F10	20–40	2g	F10-5g	indet	juv	pubis	—	unk	—	—
25	41	F10	80–s	4	F10-24	indet	juv	pubis	—	unk	—	—
25	41	F10	60–80	4b	F10-12b	indet	juv	femur	—	R	distal	matched with F10-10
25	41	F10	60–80	2	F10-10	indet	juv	femur	—	R	prox and diaphysis	matched with F10-12b
25	41	F10	20–40	2j	F10-5j	indet	juv	scapula	—	R	—	—
25	41	F10	60–80	4c	F10-12c	indet	juv	tibia	—	R	—	—
25	41	F10	60–80	screen	F10-20	indet	juv	talus	—	R	—	—
25	41	F10	60–80	screen	F10-20	indet	juv	calcaneus	—	R	—	—
25	41	F10	60–80	screen	F10-20	indet	juv	unidentified bone	—	unk	epiphyses (2)	—
25	41	F10	60–80	6	F10-14	indet	juv	parietal	—	axial	large fragments	matched with F10-13b and F10-6f
25	41	F10	40–60	2	F10-7	indet	juv	femur	—	L	distal	matched with F10-9
25	41	F10	60–80	7c	F10-15c	indet	juv	maxilla	—	L	—	—
25	41	F10	60–80	7c	F10-15c	indet	juv	P3	maxillary	L	—	unerupted
25	41	F10	60–80	7c	F10-15c	indet	juv	M1	maxillary	L	—	erupted
25	41	F10	60–80	7c	F10-15c	indet	juv	dM2	maxillary	L	—	erupted

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
25	41	F10	20–40	2e	F10-5e	indet	juv	temporal	—	L	—	—
25	41	F10	60–80	4d	F10-12d	indet	juv	third cuneiform	—	L	—	—
25	41	F10	0–20	2	F10-2	indet	juv	unidentified bone	—	unk	long bone fragments	—
25	41	F10	40–60	1g	—	indet	juv	C	maxillary	L	—	—
25	41	F10	60–80	screen	—	indet	juv	dC	maxillary	L	—	—
25	41	F10	60–80	7a	—	indet	juv	dM1	maxillary	L	—	—
25	41	F10	60–80	3d	—	indet	juv	I1	maxillary	L	—	—
25	41	F10	60–80	3d	—	indet	juv	I2	maxillary	L	—	—
25	41	F10	60–80	3a	—	indet	juv	M2	maxillary	L	—	—
25	41	F10	60–80	3c	—	indet	juv	dC	maxillary	R	—	—
25	41	G11	80–s	8	—	indet	juv	dM1	maxillary	R	—	—
25	41	G11	80–s	8	—	indet	juv	dM2	maxillary	R	—	—
25	41	G11	80–s	8	—	indet	juv	P3	maxillary	R	—	—
25	41	G11	80–s	8	—	indet	juv	P4	maxillary	R	—	—
25	41	G11	80–s	8	—	indet	juv	M1	maxillary	R	—	—
25	41	G11	80–s	8	—	indet	juv	M2	maxillary	R	—	—
25	41	F10	40–60	1e	F10-6e	indet	juv	occipital	—	axial	—	matched with F10-6f and F10-13a
25	41	F10	40–60	1e	F10-6e	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	60–80	5a	F10-13a	indet	juv	occipital	—	axial	fragments	matched with F10-6e and F10-6f
25	41	F10	40–60	1f	F10-6f	indet	juv	occipital	—	axial	fragments	matched with F10-6e and F10-13a
25	41	F10	40–60	1f	F10-6f	indet	juv	parietal	—	axial	fragments	matched with F10-14 and F10-13b
25	41	F10	40–60	1f	F10-6f	indet	juv	temporal	—	axial	fragments	—
25	41	F10	60–80	5b	F10-13b	indet	juv	parietal	—	axial	fragments	matched with F10-14 and F10-6f
25	41	F10	60–80	5b	F10-13b	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	80–s	3d	F10-23d	indet	juv	mandible	—	axial	—	matched with F10-1a
25	41	F10	80–s	3d	F10-23d	indet	juv	I1	mandibular	L	—	erupted; matched with F10-1a
25	41	F10	80–s	3d	F10-23d	indet	juv	M1	mandibular	L	—	erupted; matched with F10-1a
25	41	F10	80–s	3d	F10-23d	indet	juv	dM1	mandibular	L	—	erupted; matched with F10-1a
25	41	F10	80–s	3d	F10-23d	indet	juv	dM2	mandibular	L	—	erupted; matched with F10-1a
25	41	F10	80–s	3d	F10-23d	indet	juv	C	mandibular	L	—	unerupted; matched with F10-1a

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
25	41	F10	80–s	3d	F10-23d	indet	juv	P3	mandibular	L	—	unerupted; matched with F10-1a
25	41	F10	80–s	3d	F10-23d	indet	juv	M2	mandibular	L	—	unerupted; matched with F10-1a
25	41	F10	60–80	4f	F10-12f	indet	juv	fibula	—	unk	prox diaphysis	—
25	41	F10	60–80	3e	F10-11e	indet	juv	prox hand phalanx	—	unk	—	—
25	41	F10	80–s	3a	F10-23a	indet	juv	tibia	—	unk	prox epiphysis	—
25	41	F10	0–20	1b	F10-1b	indet	juv	radius	—	unk	fragments	—
25	41	F10	0–20	1b	F10-1b	indet	juv	ulna	—	unk	fragments	—
25	41	F10	40–60	1a	F10-6a	indet	juv	radius	—	unk	diaphysis	—
25	41	F10	40–60	1a	F10-6a	indet	juv	scapula	—	unk	fragment	—
25	41	F10	40–60	2b	F10-7b	indet	juv	radius	—	unk	diaphysis	—
25	41	F10	0–20	1	F10-1	indet	juv	rib	—	unk	fragments	—
25	41	F10	0–20	1	F10-1	indet	juv	vertebrae	—	axial	fragments	—
25	41	F10	80–s	3f	F10-23f	indet	juv	rib	—	unk	fragments	—
25	41	F10	40–60	1c	F10-6c	indet	juv	clavicle	—	R	—	matched with F10-5h
25	41	F10	0–20	1a	F10-1a	indet	juv	mandible	—	axial	right side	matched with F10-23d
25	41	F10	0–20	1a	F10-1a	indet	juv	I2	mandibular	R	—	erupted
25	41	F10	0–20	1a	F10-1a	indet	juv	M1	mandibular	R	—	erupted
25	41	F10	0–20	1a	F10-1a	indet	juv	M2	mandibular	R	—	unerupted
25	41	F10	0–20	1a	F10-1a	indet	juv	dC	mandibular	R	—	unerupted
25	41	F10	0–20	1a	F10-1a	indet	juv	dM1	mandibular	R	—	unerupted
25	41	F10	0–20	1a	F10-1a	indet	juv	dM2	mandibular	R	—	unerupted
25	41	F11	80–s	2a	F11-3a.1	indet	juv	innominate	—	R	—	—
25	41	F10	60–80	4e	F10-12e	indet	juv	patella	—	R	—	—
25	41	F10	60–80	8	F10-16	indet	juv	temporal	—	R	—	—
25	41	F10	80–s	2c	F10-22c	indet	juv	scapula	—	unk	fragment	—
25	41	F10	60–80	7b	F10-15b	indet	juv	sphenoid	—	axial	fragment	—
25	41	F10	40–60	1	F10-6	indet	juv	occipital	—	axial	fragments	includes an occipital condyle
25	41	F10	40–60	1	F10-6	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	60–80	3	F10-11	indet	juv	ribs	—	unk	fragments	—
25	41	F10	60–80	3	F10-11	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	40–60	screen	F10-8	indet	juv	unidentified bone	—	unk	fragments	—
25	41	F10	60–80	10	F10-18	indet	juv	vertebrae	—	axial	fragments	—
25	[41]	F11	20–40	1	F11-1	indet	juv	unidentified bone	—	unk	fragments	probably associated with indiv 25
25	[41]	F11	40–60	1	F11-1.1	indet	juv	unidentified bone	—	unk	fragments	probably associated with indiv 25

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
25	[41]	F11	60–80	3	F11-4	indet	juv	pubis	—	unk		probably associated with indiv 25
25	[41]	F10	60–80	10a	F10-18a	indet	juv	C2	—	axial	—	probably associated with indiv 25
26	25	G11	40–50	na	—	indet	juv	M1	maxillary	R	developing crown	found in 1981 excavation of unit; originally called indiv B by L&T
26	25	G9	60–80	na	—	indet	juv	cranial	—	axial	fragment	[a]
26	25	G9	60–80	na	—	indet	juv	I1	maxillary	L	—	[a]
26	25	G9	60–80	na	—	indet	juv	M1	maxillary	L	—	[a]
26	25	G9	60–80	na	—	indet	juv	I2	maxillary	R	—	[a]
26	25	G9	60–80	na	—	indet	juv	dM1	mandibular	L	—	[a]
26	25	G9	60–80	na	—	indet	juv	dI1	maxillary	L	—	[a]
26	25	G9	60–80	na	—	indet	juv	dI2	maxillary	L	—	[a]
26	25	G9	60–80	na	—	indet	juv	dM1	maxillary	L	—	[a]
26	25	G9	60–80	na	—	indet	juv	dM2	maxillary	L	—	[a]
26	25	G9	60–80	na	—	indet	juv	dM1	maxillary	R	—	[a]
26	25	G10	50–60	na	—	indet	juv	cranial	—	axial	fragment	from TP III (unit G10) in 1979 excavation
26	25	G10	60–70	na	—	indet	juv	cranial	—	axial	fragment	from TP III (unit G10) in 1979 excavation
26	25	G10	60–70	na	—	indet	juv	C	maxillary	L	developing crown	from TP III (unit G10) in 1979 excavation
26	25	G10	60–70	na	—	indet	juv	C	maxillary	R	developing crown	from TP III (unit G10) in 1979 excavation
26	25	G10	70–80		—	indet	juv	cranial	—	axial	—	[b]
26	25	G10	70–80		—	indet	juv	temporal	—	L	—	[b]
26	25	G10	70–80		—	indet	juv	dM2	maxillary	R	—	[b]
27	24	G11	80–s	11o	G11-6o	♀	ad	ulna	—	R	complete	—
27	24	G10	0–20	1	G10-2.3	♀	ad	cranial	—	axial	fragment	—
27	24	G10	20–40	2	G10-4.1	♀	ad	cranial	—	axial	fragments	—
27	24	G10	40–60	4	G10-6.1	♀	ad	cranial	—	axial	fragments	matched with 19-4, 19-5, G10-2G.1, G10-2.4, G10-8, G10-11, G10-4.2
27	24	G11	80–s	3	G11-3	♀	ad	femur	—	L	distal	includes partial condyles; matched with G10-2a
27	24	G10	20–40	1f	G10-2f.1	♀	ad	cranial	—	axial	fragment	—
27	24	G10	0–20	2	G10-4	♀	ad	unidentified bone	—	unk	fragments	—

[a] Teeth originally identified as indiv B in TP VI (unit G9) in 1979 excavations of mound by L&T.
[b] Found in TP III (unit G10) in 1979 excavation; originally called indiv B by L&T.

APPENDIX 1
(Continued)

Indiv no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
27	24	G11	60–80	hb	G11-2	♀	ad	unidentified bone	—	unk	fragments	—
27	24	G10	20–40	1	G10-2.4	♀	ad	cranial	—	axial	fragments	matched with I9-4, I9-5, G10-2G.1, G10-6.1, G10-8, G10-11, G10-4.2
27	24	G10	20–40	1	G10-2.4	♀	ad	hand phalanx	—	unk	—	—
27	24	G10	ws	1e	G10-2e	♀	ad	humerus	—	unk	diaphysis	—
27	24	G10	20–40	1e	G10-2e.1	♀	ad	occipital	—	axial	left condyle	—
27	24	G10	ws	1a	G10-2a	♀	ad	femur	—	L	prox	matched with G11-3
27	24	G10	20–40	1g	G10-2g.1	♀	ad	parietal	—	axial	fragment	matched with I9-4, I9-5, G10-6.1, G10-2.4, G10-8, G10-11, G10-4.2
27	24	G11	80–s	11q	G11-6q	♀	ad	capitate	—	R	—	—
27	24	G11	80–s	11q	G11-6q	♀	ad	scaphoid	—	R	—	—
27	24	G11	80–s	11g	G11-6g	♀	ad	metacarpal 4	—	R	—	—
27	24	G10	20–40	2a	G10-4a.1	♀	ad	incus	—	R	—	—
27	24	G11	80–s	11h	G11-6h	♀	ad	lunate	—	R	—	—
27	24	G11	60–80	1b	G11-1b	♀	ad	mandible	—	axial	right side with horizontal ramus and alveolus	—
27	24	G10	20–40	2a	G10-4a	♀	ad	temporal	—	R	includes mastoid process	—
27	24	G10	20–40	1b	G10-2b.1	♀	ad	occipital	—	axial	right condyle	—
27	24	G10	ws	1f	G10-2f	♀	ad	radius	—	R	prox	—
27	24	G10	ws	1c	G10-2c	♀	ad	tibia	—	R	diaphysis	—
27	24	G10	ws	1i	G10-2i	♀	ad	tibia	—	R	diaphysis	—
27	24	G11	80–s	5	G11-4	♀	ad	tibia	—	unk	prox epiphysis and diaphysis	—
27	[24]	G10	60–s	5	G10-12	♀	ad	first prox foot phalanx	—	unk	—	probably associated with indiv 27
27	[24]	G11	80–s	11d	G11-6d	♀	ad	humerus	—	unk	head	probably associated with indiv 27
27	[24]	G10	40–60	2a	G10-4a.2	♀	ad	innominate	—	unk	includes auricular surface	probably associated with indiv 27
27	[24]	G10	ws	1g	G10-2g	♀	ad	patella	—	R	—	probably associated with indiv 27
27	24	G10	all	—	—	♀	ad	innominate	—	L	ilium	indiv A in L&T
27	24	G10	all	—	—	♀	ad	innominate	—	R	ilium	indiv A in L&T
27	24	G10	all	—	—	♀	ad	innominate	—	L	ischium	indiv A in L&T
27	24	G10	all	—	—	♀	ad	innominate	—	R	ischium	indiv A in L&T
27	24	G10	all	—	—	♀	ad	scapula	—	R	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	humerus	—	L	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	humerus	—	R	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	radius	—	L	—	indiv A in L&T

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
27	24	G10	all	—	—	♀	ad	radius	—	R	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	ulna	—	L	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	femur	—	R	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	fibula	—	unk	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	pisiform	—	unk	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	trapezium	—	R	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	trapezoid	—	R	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	hamate	—	R	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	metacarpals	—	R	—	1; indiv A in L&T
27	24	G10	all	—	—	♀	ad	metacarpals	—	L	—	4; indiv A in L&T
27	24	G10	all	—	—	♀	ad	prox hand phalanges	—	unk	—	2; indiv A in L&T
27	24	G10	all	—	—	♀	ad	intermed hand phalanx	—	unk	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	ribs	—	unk	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	thoracic vertebrae	—	axial	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	lumbar vertebrae	—	axial	—	indiv A in L&T
27	24	G10	all	—	—	♀	ad	sacral vertebrae	—	axial	—	indiv A in L&T
28	22	G10	ws	1j	G10-2j	♂	ad	fibula	—	unk	—	matched with G10-1, G10-2
28	22	G10	ws	1	G10-2	♂	ad	fibula	—	unk	fragments	matched with G10-1, G10-2j
28	22	G11	80–s	11e	G11-6e	♂	ad	clavicle	—	L	—	—
28	22	G10	ws	1d	G10-2d	♂	ad	femur	—	L	distal	—
28	22	G10	ws	1b	G10-2b	♂	ad	humerus	—	L	distal	—
28	22	G10	40–60	1e	G10-2e.2	♂	ad	femur	—	L	diaphysis	matched with G10-2a.2
28	22	G10	40–60	1a	G10-2a.2	♂	ad	femur	—	L	head and neck	matched with G10-2e.2
28	22	G10	40–60	1b	G10-2b.2	♂	ad	humerus	—	L	diaphysis	—
28	22	G10	40–60	1c	G10-2c.2	♂	ad	tibia	—	L	diaphysis	—
28	22	G10	40–60	1d	G10-2d.2	♂	ad	tibia	—	L	diaphysis	—
28	22	G10	0–20	hb	G10-3	♂	ad	parietal	—	axial	fragment	—
28	22	G10	0–20	hb	G10-3	♂	ad	scapula	—	unk	acromion process	—
28	22	G11	80–s	11a	G11-6a	♂	ad	prox hand phalanx	—	unk	—	—
28	22	G11	80–s	10a	G11-5a	♂	ad	scaphoid	—	R	—	—
28	22	G11	80–s	screen	G11-8	♂	ad	ulna	—	R	prox diaphysis	—
28	22	G11	60–80	1c	G11-1c	♂	ad	metacarpal 3	—	R	—	—
28	[22]	G10	40–60ws	screen	G10-9	♂	ad	occipital	—	axial	fragment	probably associated with indiv 28
28	22	G10	all	—	—	♂	ad	calcaneus	—	unk	—	indiv A in L&T
28	22	G10	all	—	—	♂	ad	medial cuneiform	—	R	—	indiv A in L&T
28	22	G10	all	—	—	♂	ad	intermed cuneiform	—	R	—	indiv A in L&T

APPENDIX 1
(Continued)

Indiv no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
28	22	G10	all	—	—	♂	ad	metatarsals	—	L	—	5; indiv A in L&T
28	22	G10	all	—	—	♂	ad	metatarsals	—	R	—	4; indiv A in L&T
28	22	G10	all	—	—	♂	ad	prox foot phalanges	—	L	—	5; indiv A in L&T
28	22	G10	all	—	—	♂	ad	prox foot phalanges	—	R	—	5; indiv A in L&T
28	22	G10	all	—	—	♂	ad	middle foot phalanges	—	L	—	2; indiv A in L&T
28	22	G10	all	—	—	♂	ad	middle foot phalanges	—	unk	—	2; indiv A in L&T
28	22	G10	all	—	—	♂	ad	distal foot phalanx	—	L	—	indiv A in L&T
28	22	G10	all	—	—	♂	ad	foot sesamoid	—	unk	—	indiv A in L&T
29	[43]	F11	60–80	2a	F11-3a	♀	ad	radius	—	unk	diaphysis	probably associated with indiv 29
29	[43]	F11	80–s	1	F11-1.3	♀	ad	ribs	—	unk	—	probably associated with indiv 29
29	[43]	F11	80–s	1	F11-1.3	♀	ad	metatarsals	—	unk	—	probably associated with indiv 29
29	[43]	F11	80–s	1	F11-1.3	♀	ad	unidentified bone	—	unk	fragments	probably associated with indiv 29
29	[43]	F11	60–80	2	F11-3	♀	ad	scapula	—	R	lateral border	probably associated with indiv 29
29	[43]	F11	60–80	2b	F11-3b	♀	ad	ulna	—	unk	diaphysis	probably associated with indiv 29
[22]/[21]	13/16	J9	0–20	screen	J9-1	indet	ad	intermed foot phalanx	—	unk	found in screen	—
[22]/[21]	13/16	J9	20–40	screen	J9-3	indet	ad	tibia	—	unk	diaphysis and fragments	matched with I9-6 and I9-3
[22]/[21]	13/16	J9	20–40	screen	J9-2	indet	ad	unidentified bone	—	unk	fragments	—
[25]/[23]	41/44	F11	60–80	1	F11-1 2	indet	juv	unidentified bone	—	unk	fragments	—
[25]/[23]	41/44	F11	60–80	screen	F11-5	indet	juv	unidentified bone	—	unk	fragments	—
[25]/[23]	41/44	F11	80–s	2	F11-3.1	indet	juv	unidentified bone	—	unk	fragments	—
16/17	46/47	C10	80–s	3	C10-2.6/56.6a	indet	ad	maxilla or mandible	—	unk	alveolar fragment	—
16/17A	46/47	C10	80–s	3	C10-2.9/56.9	indet	ad	mandible	—	axial	anterior	—
16/17A	46/47	C10	80–s	3	C10-2.9/56.9	indet	ad	I1	mandibular	L	—	—
16/17A	46/47	C10	80–s	3	C10-2.9/56.9	indet	ad	I2	mandibular	L	—	—
16/17A	46/47	C10	80–s	3	C10-2.8/56.8	indet	ad	C	mandibular	L	—	—
16/17A	46/47	C10	80–s	3	C10-2.8/56.8	indet	ad	P3	mandibular	L	—	—
16/17A	46/47	C10	80–s	3	C10-2.8/56.8	indet	ad	M1	mandibular	L	—	—
16/17A	46/47	C10	80–s	3	C10-2.8/56.8	indet	ad	M2	mandibular	L	—	—
16/17A	46/47	C10	80–s	3	C10-2.8/56.8	indet	ad	M3	mandibular	L	—	carious
16/17A	46/47	C10	80–s	3e	C10-2e/56e	indet	ad	maxilla	—	L	—	—
16/17A	46/47	C10	80–s	3e	C10-2e/56e	indet	ad	I2	maxillary	L	—	—
16/17A	46/47	C10	80–s	3e	C10-2e/56e	indet	ad	C	maxillary	L	—	—
16/17A	46/47	C10	80–s	3e	C10-2e/56e	indet	ad	P3	maxillary	L	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
16/17A	46/47	C10	80–s	3	none	indet	ad	I1	maxillary	R	—	—
16/17A	46/47	C10	80–s	3	none	indet	ad	M3	maxillary	R	—	—
16/17A	46/47	C10	80–s	3	none	indet	ad	I1	maxillary	L	—	—
16/17A	46/47	C10	80–s	3	none	indet	ad	M1	maxillary	L	—	—
16/17A	46/47	C10	80–s	3	none	indet	ad	P4	mandibular	L	—	—
16/17A	46/47	C10	80–s	3	none	indet	ad	I1	mandibular	R	—	—
16/17A	46/47	C10	80–s	3	none	indet	ad	I2	mandibular	R	—	—
16/17A	46/47	C10	80–s	3	none	indet	ad	C or P3	mandibular	R	—	—
16/17A	46/47	C10	80–s	3	C10-2.7/56.7	indet	ad	maxilla	—	R	—	—
16/17A	46/47	C10	80–s	3	C10-2.7/56.7	indet	ad	P4	maxillary	R	—	—
16/17A	46/47	C10	80–s	3	C10-2.7/56.7	indet	ad	M1	maxillary	R	—	—
16/17B	46/47	C10	80–s	3	none	indet	ad	M2	mandibular	L	—	—
16/17B	46/47	C10	80–s	3	none	indet	ad	P3	maxillary	R	—	—
16/17B	46/47	C10	80–s	3	none	indet	ad	P4	maxillary	R	—	—
16/17B	46/47	C10	80–s	3	none	indet	ad	M3	mandibular	R	—	—
18/19	49/50	C11	60–s	screen	C11-52a	♀	ad	cranial	—	axial	fragments	—
18/19	49/50	C11	60–s	screen	C11-52	♀	ad	unidentified bone	—	unk	fragments	—
22/21	13/16	J9	40–60	screen	J9-4	indet	ad	unidentified bone	—	unk	fragment	—
25/23	41/44	F11	80–s	screen	F11-7	indet	juv	femur	—	L	distal epiphysis	—
26/13	25/27	G10	60–s	3	G10-5.3	indet	juv	ribs	—	unk	fragments	—
26/13	25/27	G10	60–s	3	G10-5.3	indet	juv	cervical vertebrae	—	axial	fragments	—
26/13	25/27	G10	60–s	3	G10-5.3	indet	juv	unidentified bone	—	unk	fragments	—
27/28	22/24	G11	80–s	11b	G11-6b	indet	ad	cervical vertebrae	—	axial	—	—
27/28	22/24	G11	80–s	10	G11-5.1	indet	ad	unidentified bone	—	unk	fragments	—
27/28	24/22	G10	60–s	hb	G10-11	indet	ad	parietal	—	axial	—	I9-4, I9-5, G10-2G.1, G10-6.1, G10-2.4, G10-8, G10-4.2
27/28	24/22	G10	60–s	hb	G10-11	indet	ad	ribs	—	unk	—	—
27/28	24/22	G10	60–s	hb	G10-11	indet	ad	fibula	—	unk	—	—
27/28	24/22	G10	60–s	hb	G10-11	indet	ad	occipital	—	axial	condyle	—
27/28	22/24	G10	ws	screen	G10-1	indet	ad	capitate	—	L	—	—
27/28	22/24	G10	ws	screen	G10-1	indet	ad	lunate	—	L	—	—
27/28	22/24	G10	ws	screen	G10-1	indet	ad	trapezoid	—	L	—	—
27/28	22/24	G10	ws	screen	G10-1	indet	ad	triquetral	—	L	—	—
27/28	22/24	G10	ws	screen	G10-1	indet	ad	fibula	—	unk	—	matched with G10-2, G10-2j
27/28	22/24	G11	80–s	5a	G11-4a	indet	ad	unidentified bone	—	unk	long bone fragments	—
27/28	24/22	G11	80–s	11s	G11-6s	indet	ad	mandible	—	axial	R ascending ramus	—
27/28	22/24	G10	various		—	indet	ad	unidentified bone	—	unk	postcranial fragments	—
27/28	22/24	G11	80–s	11j	G11-6j	indet	ad	innominate	—	unk	acetabulum and ischium	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
27/28	22/24	G11	80–s	11	G11-6	indet	ad	sacrum	—	axial	—	—
27/28	22/24	G11	80–s	11	G11-6	indet	ad	vertebrae	—	axial	—	—
27/28	22/24	G11	80–s	11	G11-6	indet	ad	ribs	—	unk	fragment	—
27/28	22/24	G11	80–s	11k	G11-6k	indet	ad	sacrum	—	axial	fragments	—
27/28	22/24	G11	80–s	hb	G11-7	indet	ad	scapula	—	unk	fragments	—
27/28	22/24	G11	80–s	hb	G11-7	indet	ad	unidentified bone	—	unk	—	—
27/28	22/24	G11	60–80	1	G11-1	indet	ad	unidentified bone	—	unk	—	—
27/28	22/24	G11	60–80	1	G11-1	indet	ad	thoracic vertebra	—	axial	—	—
27/28	22/24	G11	60–80	1	G11-1	indet	ad	ribs	—	unk	fragments	—
27/28	22/24	G11	80–s	11p	G11-6p	indet	ad	tibia	—	unk	condyle fragment	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	vertebrae	—	axial	fragments	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	metacarpal 2	—	R	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	metacarpal 3	—	L	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	metacarpal 1	—	R	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	metacarpal 1	—	L	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	metacarpal	—	unk	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	ribs	—	unk	fragments	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	intermed hand phalanx	—	unk	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	intermed hand phalanx	—	unk	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	distal hand phalanx	—	unk	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	trapezium	—	R	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	scaphoid	—	R	—	—
27/28	24/22	G10	ws	1	G10-2.2	indet	ad	mandible	—	axial	coronoid process and condyle	—
27/28A	24/22	G11	80–s	screen	—	indet	ad	I1	mandibular	L	—	—
27/28A	24/22	G11	80–s	11i	—	indet	ad	M3	mandibular	L	—	—
27/28A	24/22	G11	80–s	screen	—	indet	ad	I2	mandibular	R	—	—
27/28A	24/22	G11	80–s	6	—	indet	ad	C	maxillary	L	—	—
27/28A	24/22	G11	80–s	11l	—	indet	ad	I1	maxillary	L	—	—
27/28A	24/22	G11	80–s	11f	—	indet	ad	I2	maxillary	L	—	—
27/28A	24/22	G11	80–s	11s	—	indet	ad	M2	maxillary	L	—	—
27/28A	24/22	G11	80–s	7	—	indet	ad	P4	maxillary	L	—	—
27/28A	24/22	G11	80–s	11n	—	indet	ad	molar root	maxillary	unk	—	crown destroyed by caries
27/28A	24/22	G11	80–s	11	—	indet	ad	molar root	maxillary	unk	—	crown destroyed by caries
27/28A	24/22	G11	80–s	11m	—	indet	ad	I1	maxillary	R	—	—
27/28A	24/22	G11	80–s	4	—	indet	ad	I2	maxillary	R	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	mandible	—	axial	right and left portions	[c]

[c] Matched right half of mandible with left half of mandible called indiv A by L&T, which includes articulated I2, C, P3, P4, M1, M2; left half of mandible inventoried here because it was not found inventoried elsewhere.

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	C	mandibular	R	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	P4	mandibular	R	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	M1	mandibular	R	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	M2	mandibular	R	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	I2	mandibular	L	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	C	mandibular	L	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	P3	mandibular	L	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	P4	mandibular	L	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	M1	mandibular	L	—	—
27/28A	24/22	G11	80–s	llc	G11-6c	indet	ad	M2	mandibular	L	—	—
27/28B	24/22	G11	60–80	2	—	indet	ad	M1	mandibular	R	—	—
27/28B	24/22	G11	60–80	2	—	indet	ad	M2	mandibular	R	—	—
27/28B	24/22	G11	60–80	1d	—	indet	ad	M3	mandibular	R	—	—
6 or 14	39 or 38	D9	0–20	screen	D9-2a	indet	ad	M1	maxillary	L	—	—
6 or 14	39 or 38	D9	0–20	screen	D9-2b	indet	ad	cranial	—	axial	fragments	—
6 or 14	39 or 38	D9	0–20	screen	D9-2	indet	ad	unidentified bone	—	unk	fragments	—
6 or 14	39 or 38	D9	20–40	1	D9-3	indet	ad	unidentified bone	—	unk	fragments	—
6 or 14	39 or 38	D9	20–40	2	D9-4	indet	ad	unidentified bone	—	unk	fragments	—
6 or 14	39 or 38	D9	20–40	3	D9-5	indet	ad	unidentified bone	—	unk	fragments	—
6 or 14	39 or 38	D9	20–40	screen	D9-6	indet	ad	unidentified bone	—	unk	fragments	—
6 or 14	39 or 38	D9	40–60	1	D9-7	indet	ad	unidentified bone	—	unk	fragments	—
6 or 14	39 or 38	D9	60–80	screen	D9-9	indet	ad	unidentified bone	—	unk	fragments	—
6 or 14	39 or 38	D9	80–s	screen	D9-10	indet	ad	unidentified bone	—	unk	fragments	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	maxilla	—	unk	fragments	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	mandible	—	unk	fragments	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dI1	mandibular	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dC	mandibular	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dM1	mandibular	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dI1	maxillary	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dC	maxillary	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dM2	maxillary	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dI1	maxillary	R	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dC	maxillary	R	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dI1	mandibular	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dM1	maxillary	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	dM2	maxillary	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	I1	maxillary	L	—	—
7 or 8	31 and 42	C8	60–80	screen	C8-13	indet	juv	I2	maxillary	L	—	—
7 or 8	31 or 42	D8	0–20	screen	D8-2	indet	juv	unidentified bone	—	unk	fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
7 or 8	31 or 42	D8	20–40	screen	D8-13	indet	juv	cranial	—	axial	fragments	—
7 or 8	31 or 42	D8	20–40	screen	D8-6	indet	juv	temporal	—	R	petrous	—
7 or 8	31 or 42	D8	20–40	screen	D8-6	indet	juv	temporal	—	L	petrous	—
7 or 8	31 or 42	C8	60–80	screen	C8-2a	indet	juv	calcaneus	—	R	—	—
7 or 8	31 or 42	D8	20–40	screen	D8-5	indet	juv	ischium	—	R	—	—
7 or 8	31 or 42	C8	60–80	screen	C8-2	indet	juv	vertebrae	—	axial	fragments	—
7 or 8	31 or 42	D8	40–60	screen	D8-15	indet	juv	ribs	—	unk	fragments	—
7 or 8	31 or 42	D8	60–80	screen	D8-24	indet	juv	ribs	—	unk	fragments	—
7 or 8	10?	D8	20–40	screen	D8-11	indet	juv	vertebrae	—	axial	centra	—
7 or 8	10?	D8	20–40	screen	D8-11	indet	juv	vertebrae	—	axial	processes	—
7 or 8	31 or 42	D8	60–80	screen	D8-19	indet	juv	vertebrae	—	axial	fragments	—
7 or 8	31 or 42	D8	20–40	screen	D8-7	indet	juv	occipital	—	axial	basilar	matched with D8-21
7 or 8	31 or 42	D8	80–100	3D	D8-28	indet	juv	unidentified bone	—	unk	fragments	—
7 or 8	31 or 42	D8	60–80	screen	D8-25b	indet	juv	cranial	—	axial	fragments	—
7 or 8	31 or 42	D8	20–40	screen	D8-8	indet	juv	frontal	—	axial	superior left orbit	—
7 or 8	31 or 42	D8	60–80	screen	D8-21	indet	juv	occipital	—	axial	condyle	matched with D8-7
7 or 8	31 or 42	D8	80–100	1D	D8-26	indet	juv	temporal	—	L	petrous	—
7 or 8	31 or 42	D8	80–100	1D	D8-26	indet	juv	temporal	—	unk	—	—
7 or 8	31 or 42	D8	80–100	3D	D8-28a	indet	juv	occipital	—	axial	—	—
7 or 8	31 or 42	C8	60–80	screen	C8-12	indet	juv	ribs	—	unk	—	—
7 or 8	31 or 42	D8	80–100	3D	D8-28b	indet	juv	sphenoid	—	axial	—	—
7 or 8	31 or 42	C8	60–80	screen	C8-14	indet	juv	unidentified bone	—	unk	fragments	—
7 or 8	10?	D8	20–40	screen	D8-12	indet	juv	unidentified bone	—	unk	possible epiphyses	—
7 or 8	31 or 42	F8	60–80	screen	F8-7	indet	juv	rib	—	unk	fragment	—
7 or 8	31 or 42	F8	80–s	screen	F8-8	indet	juv	rib	—	unk	fragment	—
7 or 8	31 or 42	F8	0–20	screen	F8-1	indet	juv	rib	—	unk	fragments	—
7 or 8	31 or 42	F8	20–40	screen	F8-3	indet	juv	rib	—	unk	fragments	—
7 or 8	31 or 42	D8	40–60	screen	D8-16	indet	juv	unidentified bone	—	unk	fragments	—
7 or 8	31 or 42	D8	80–100	screen	D8-51	indet	juv	vertebrae	—	axial	centra	—
—	—	C11	40–60	1i	C11-32	indet	juv	tibia	—	unk	diaphysis	—
—	—	G9	40–60	2	G9-5	indet	juv	femur	—	unk	fragments	—
—	—	G9	60–s	8	G9-9	indet	juv	unidentified bone	—	unk	fragments	—
—	—	G9	60–s	mixed	G9-12	indet	juv	unidentified bone	—	unk	fragments	—
—	—	G9	60–s	3	G9-7	indet	juv	rib	—	unk	—	—
—	—	H9	20–40	screen	H9-6b	indet	ad	cranial	—	axial	fragments	—
—	—	D9	40–60	1	D9-7b	indet	ad	rib	—	unk	fragments	—
—	—	C10	80–s	2v	C10-48a	indet	ad	humerus	—	unk	fragments	—
—	—	C10	80–s	1	C10-13g	indet	ad	innominate	—	unk	fragments	—
—	—	C10	80–s	2x	C10-50	indet	ad	innominate	—	unk	ischium	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
—	—	D9	20–40	2	D9-4a	indet	ad	radius	—	L	—	—
—	—	D8	80–100	screen	D8-59	indet	ad	humerus	—	R	diaphysis	—
—	—	C10	80–s	1b	C10-15c	indet	ad	P3	mandibular	R	—	—
—	—	C10	80–s	2y	C10-51	indet	ad	I1	maxillary	R	—	—
—	—	C10	80–s	2z	C10-52	indet	ad	M3	maxillary	R	—	—
—	—	D8	80–100	9G	D8-39	indet	ad	patella	—	unk	fragment	—
—	—	C10	80–s	2v	C10-48b	indet	ad	radius	—	unk	fragments	—
—	—	C10	80–s	3	C10-2.6/56.6i	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	20–40	screen	D8-4	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	100–s	5	E8-80	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F10	0–20	screen	F10-3	indet	ad	unidentified bone	—	unk	fragments	calcined
—	—	F10	0–20	screen	F10-3	indet	ad	vertebrae	—	axial	fragments	—
—	—	C10	80–s	3	C10-2.6/56.6d	indet	ad	radius	—	unk	distal	—
—	—	C10	80–s	3H	C10-2h/56h	indet	ad	ulna	—	unk	Distal	—
—	—	C10	80–s	3	C10-2.4/56.4	indet	ad	femur	—	unk	condyle fragments	—
—	—	E8	60–80	2	E8-64	indet	ad	unidentified bone	—	unk	fragment	—
—	—	G10	0–20	4	G10-6	indet	ad	unidentified bone	—	unk	fragment	—
—	—	C10	80–s	screen	C10-4/58	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	60–80	screen	D8-60	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F8	0–20	screen	F8-11	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F9		screen	F9-1	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F10	80–s		F10-24.1	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F11	20–40	screen	F11-2	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F11	60–80	screen	F11-6	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F11	80–s	3	F11-4.1	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	60–80	screen	H9-39	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G9	ews	screen	G9-2	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G11	80–s	11r	G11-6r	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G10	60–s	8	G10-14	indet	ad	cervical vertebrae	—	axial	—	fused
—	—	H9	60–80	22	H9-29	indet	ad	innominate	—	unk	acetabulum	—
—	—	C10	80–s	3	C10-2.5/56.5	indet	ad	innominate	—	unk	with greater sciatic notch	—
—	—	H9	60–80	23	H9-30	indet	ad	innominate	—	unk	fragments	—
—	—	G9	60–s	1	G9-6	indet	juv	rib	—	unk	—	—
—	—	G9	10–20	screen	G9-1	indet	juv	rib	—	unk	fragment	—
—	—	E9	80–100	screen	E9-7	indet	ad	metacarpal 5	—	L	—	—
—	—	E9	80–100	screen	E9-7	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E9	80–s	1	E9-5	indet	ad	humerus	—	L	—	—
—	—	E9	80–s	screen	E9-6a	indet	ad	scaphoid	—	L	—	—
—	—	C10	80–s	2e	C10-31	indet	ad	scapula	—	L	—	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
—	—	C10	80–s	2e	C10-31	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	80–s	2	C10-53g	indet	ad	scapula	—	L	—	—
—	—	G10	40–60	1	G10-2.5	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G10	60–s	9	G10-15	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	60–80	25	H9-32	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G10	40–60	2b	G10-4b	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G10	60–s	7	G10-13	indet	ad	lumbar vertebrae	—	axial	fragments	—
—	—	C10	80–s	3	C10-2.6/56.6c	indet	ad	mandible	—	axial	left ascending ramus	—
—	—	F10	60–80	9	F10-17	indet	ad	mandible	—	axial	fragments	—
—	—	I9	40–60	screen	—	indet	juv	dM2	mandibular	L	—	—
—	—	F10	80–s	1f	—	indet	ad	I1	mandibular	L	—	—
—	—	F10	80–s	10	—	indet	ad	M2	mandibular	L	—	—
—	—	G10	20–40	screen	—	indet	ad	M2	mandibular	L	—	—
—	—	F11	80–s	screen	—	indet	ad	molar	mandibular	unk	—	carious crown
—	—	F10	0–20	screen	—	indet	juv	I2	mandibular	L	crown only	—
—	—	F10	20–40	screen	—	indet	juv	dM1	maxillary	L	—	—
—	—	F10	80–s	1n	—	indet	ad	C	mandibular	R	—	—
—	—	G10	ws	screen	—	indet	juv	dM1	mandibular	R	—	—
—	—	F10	80–s	1e	—	indet	ad	I2	mandibular	R	—	—
—	—	G10	20–40	hb	G10-7	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G10	40–60	hb	G10-8	indet	ad	unidentified bone	—	unk	fragments	I9-5, I9-4, G10-2g.1, G10-6.1, G10-2.4, G10-11, G10-4.2
—	—	G11	80–s	screen	—	indet	juv	dM1	maxillary	L	—	—
—	—	G10	40–60	2	G10-4.2	indet	ad	parietal	—	axial	—	I9-5, I9-4, G10-2g.1, G10-6.1, G10-2.4, G10-8, G10-11
—	—	G10	40–60	2	G10-4.2	indet	ad	rib	—	unk	—	—
—	—	G10	40–60	2	G10-4.2	indet	ad	radius or ulna	—	unk	—	—
—	—	F8	0–20	screen	F8-2	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F8	80–s	screen	F8-10	indet	ad	femur	—	unk	prox	—
—	—	F10	20–40	2b	F10-5b	indet	ad	radius or ulna	—	unk	fragments	—
—	—	G10	20–40	3	G10-5.1	indet	ad	rib	—	unk	fragment	—
—	—	C10	60–80	3	C10-12c	indet	ad	ribs	—	unk	fragments	—
—	—	C10	80–s	1	C10-13e	indet	ad	ribs	—	unk	fragments	—
—	—	C10	80–s	1e	C10-18a	indet	ad	ribs	—	unk	fragments	—
—	—	C10	80–s	1i	C10-22d	indet	ad	ribs	—	unk	fragments	—
—	—	C10	80–s	3	C10-2.6/56.6e	indet	ad	ribs	—	unk	fragments	—
—	—	E8	80–100	screen	E8-75d	indet	ad	ribs	—	unk	fragments	—
—	—	G10	60–s	2	G10-4.3	indet	ad	ribs	—	unk	fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
—	—	C10	80–s	2	C10-53a	indet	ad	ribs	—	unk	—	—
—	—	C10	80–s	2	C10-53a	indet	ad	first rib	—	R	—	—
—	—	C10	80–s	screen	C10-3/57	indet	ad	ribs	—	unk	—	—
—	—	C10	80–s	screen	C10-3/57	indet	ad	unidentified bone	—	unk	—	—
—	—	G10	ws	1	G10-2.1	indet	ad	ribs	—	unk	—	—
—	—	G10	ws	1	G10-2.1	indet	ad	phalanges	—	unk	—	—
—	—	G10	ws	1h	G10-2h	indet	ad	rib	—	R	—	—
—	—	C10	80–s	2	C10-53b	indet	ad	scapula	—	R	fragment	—
—	—	H9	60–80	1	H9-8b	indet	ad	scapula	—	R	fragment	—
—	—	C10	20–40	4	C10-7c	indet	ad	tibia	—	R	diaphysis	—
—	—	G10	0–20	3	G10-5	indet	ad	scapula	—	unk	fragment	—
—	—	G10	20–40	1c	G10-2c.1	indet	ad	scapula	—	unk	fragment	—
—	—	F10	80–s	2a	F10-22a	indet	ad	temporal	—	axial	petrous	—
—	—	G10	40–60	3	G10-5.2	indet	ad	temporal	—	axial	fragments	—
—	—	G9	40–60	screen	G9-4	indet	ad	temporal	—	axial	—	—
—	—	G9	40–60	screen	G9-4	indet	ad	unidentified bone	—	unk	fragments	—
—	—	G10	20–40	1a	G10-2a.1	indet	ad	distal hand phalanx	—	unk	—	—
—	—	G10	20–40	1d	G10-2d.1	indet	ad	distal hand phalanx	—	unk	—	—
—	—	G10	60–s	4	G10-6.2	indet	ad	thoracic vertebrae	—	axial	—	—
—	—	G10	60–s	4	G10-6.2	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	80–s	3	C10-2.6/56.6f	indet	ad	thoracic vertebrae	—	axial	fragments	—
—	—	C10	80–s	3	C10-2.6/56.6g	indet	ad	tibia	—	unk	condyle	—
—	—	H9	20–40	screen	H9-6d	indet	ad	ribs	—	unk	fragments (2)	—
—	—	C10	80–s	3	C10-2.6/56.6h	indet	ad	ulna	—	unk	diaphysis	—
—	—	E9	40–60	screen	E9-2	indet	ad	tooth root	unk	unk	root only	—
—	—	D8	80–100	10	D8-45	indet	ad	unidentified bone	—	unk	fragment	—
—	—	C10	80–s	1i	C10-22	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	80–s	2	C10-53	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	80–s	screen	C10-54	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	80–100	2D	D8-27	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	100–s	1	E8-76	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	100–s	4	E8-79	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E9	40–60	screen	E9-3	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	0–20	screen	H9-1	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	60–80	24	H9-31	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	80–s	2t	C10-46	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C9	40–60	7	C9-12	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C9	60–80	screen	C9-14	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	40–60	screen	C10-10	indet	ad	unidentified bone	—	unk	fragments	—

APPENDIX 1
(Continued)

Indiv. no.	Moore burial	Unit	Level (cm)	Field no.	Cat. no.	Sex	Age	Element	Dental arcade	Side	Portion of element	Comments
—	—	C10	80–s	1	C10-13	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	80–s	1b	C10-15	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C10	80–s	1e	C10-18	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	20–40	screen	D8-14	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	80–100	9	D8-40	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	80–100	10D	D8-44	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	80–100	screen	D8-46	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	0–20	screen	E8-16	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	20–40	2	E8-18	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	20–40	screen	E8-37	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	40–60	1	E8-38	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	40–60	4	E8-41	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	40–60	screen	E8-52a	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	40–60	screen	E8-52	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	60–80	1	E8-53	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	60–80	screen	E8-63b	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	80–100	screen	E8-75	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E8	100–s	7	E8-82	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E9	0–20	screen	E9-1	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E9	60–80	screen	E9-4	indet	ad	unidentified bone	—	unk	fragments	—
—	—	E9	80–s	screen	E9-6	indet	ad	unidentified bone	—	unk	fragments	—
—	—	F8	20–40	screen	F8-4	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	20–40	screen	H9-6	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	40–60	screen	H9-7	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	60–80	1	H9-8	indet	ad	unidentified bone	—	unk	fragments	—
—	—	H9	60–80	screen	H9-38	indet	ad	unidentified bone	—	unk	fragments	—
—	—	C9	40–60	7	C9-10	indet	ad	tibia	—	unk	fragments	possibly tibia
—	—	H9	60–80	17	H9-24	indet	ad	unidentified bone	—	unk	long bone	—
—	—	G10	40–60ews	screen	G10-10	indet	ad	unidentified bone	—	unk	fragments	—
—	—	D8	60–80	screen	D8-23	indet	ad	vertebrae	—	axial	fragments	—
—	—	H9	60–80	18	H9-25a	indet	ad	vertebrae	—	axial	fragment	—
—	—	H9	60–80	21	H9-28	indet	ad	vertebrae	—	axial	fragments	—
—	—	F10	20–40	2c	F10-5c	indet	ad	vertebrae	—	axial	fragments	—
—	—	G9	70–80	na	—	indet	juv	dM2	mandibular	unk	—	very worn, tooth found in 1979 excavation in TP VI (unit G9), and originally called indiv C
—	—	H9	20–40	2	H9-3	indet	ad	rib	—	unk	fragment	—
—	—	H9	20–40	2	H9-3	indet	ad	unidentified bone	—	unk	fragment	—

St. Catherines Island, Georgia, has been the focus of l
a century, beginning with excavation of mortuary loc
Clarence Bloomfield Moore. Moore's pioneering resea
prehistoric inhabitants of the region, including what ca
tal remains. Following up on this work, Larsen and his
I, one of seven burial mounds first described by Moore
Mounds of the Georgia Coast (1897).

Bioarchaeology of the Late Prehistoric Guale describ aken by Larsen, which confirmed Moore's written comments that very few remains were removed from the site. Rather, skeletal remains were left in close proximity to their original location of discovery. Documentation of the remains by Larsen and his research team permitted the identification of burials encountered by Moore. Followup laboratory investigation involved identifying and conjoining thousands of skeletal and dental elements, matching many of the skeletons described by Moore. The present investigation resulted in the identification of the partial skeletons of 26 of Moore's 50 burials.

The South End Mound I skeletal series is the only late prehistoric sample from St. Catherines Island. The study of the remains allows key temporal comparisons with earlier populations (Johns Mound and various early prehistoric skeletons described previously in the *Anthropology of St. Catherines Island* series of monographs) and with later populations (Mission Santa Catalina de Guale). Analysis of animal remains and stable isotope ratios of carbon and nitrogen revealed that this late prehistoric population consumed a variety of terrestrial and marine resources, but with a significant amount of maize included in the diet. High frequency of dental caries is consistent with a diet high in plant carbohydrates. Presence of a high frequency of skeletal infections in comparison with skeletons from earlier sites suggests that the health of late prehistoric populations living on St. Catherines Island declined. At least some of the infections documented in the South End Mound I skeletons were likely caused by treponemal disease (nonvenereal syphilis). The general pattern of health reconstructed from this series is remarkably consistent with other late prehistoric samples from the Georgia coast in particular and the American Eastern Woodlands in general. The change in health likely reflects the shift from a lifeway based exclusively on hunting, gathering, and fishing to a lifeway that included maize. This shift in dietary focus in later prehistory saw a decline in some aspects of nutrition and populations became more sedentary, creating conditions that reduced health.

This study is a continuation of Larsen's quarter century of bioarchaeological research on native populations on the southeastern U.S. Atlantic coast. The analysis underscores the utility of reexcavation and reanalysis of sites thought to have been depleted of significant data. Contrary to that assumption, a wealth of information from the South End Mound I site reveals key aspects of biocultural adaptation in this fascinating region of North America.

Clark Spencer Larsen is a biological anthropologist with interests in the history of the human condition. Most of his research is the study of human remains from archaeological settings throughout North America and Europe. He currently codirects the Global History of Health Project, an international research program involved in the reconstruction and interpretation of human health based on the study of ancient skeletons from around the globe. He is the author or editor of more than 20 books and monographs, including *Bioarchaeology: Interpreting Behavior from the Human Skeleton* and *Skeletons in Our Closet: Revealing Our Past through Bioarchaeology*. He is the past president of the American Association of Physical Anthropologists and is the present Editor-in-Chief of the American Journal of Physical Anthropology. He chairs the Department of Anthropology at Ohio State University where he is the Distinguished Professor of Social and Behavioral Sciences.

Cover: Frontispiece from C.B. Moore's *Certain Aboriginal Mounds of the Georgia Coast* showing an urn burial from South End Mound I.