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SOUTHEASTERN ARCHAEOLOGICAL CONFERENCE

PROCEEDINGS OF THE
THIRTIETH
SOUTHEASTERN ARCHAEOLOGICAL CONFERENCE
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Edited by
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PREFACE

The Thirtieth Southeastern Archaeological Conference was held in Memphis, Tennessee on October 5-6, 1972. Israel Peterson served as chairman for the PROGRAM. Forty-eight papers were presented along with a special symposium on computerizing data from archaeological sites.

Originally, 28 papers were submitted for publication in the proceedings of the conference. Tom Hemings sent all of the papers to me in January, 1973, and I sent them back to the authors in order to give them an opportunity to revise, update, or withdraw. Most of the authors chose to withdraw, since much of the data was either very out-of-date or had been published elsewhere. Seven authors, whose papers are reproduced here, opted to publish them in BULLETIN. In addition, two authors did not respond and I assumed that they had also chosen to withdraw. Richard Pfeiffer, Chief of the Southeast Center of the National Park Service, aided in obtaining the names of the authors of the National Park Service. Two of the conference participants, Joseph Caldwell and W. F. Smith, have died in the intervening years since the conference.

Some authors exhibited disbelief that their papers might finally make it into print. Steve Cumbas passed along a sample "KOM" and Bruce Smith offered a more spectacular good time in Georgia.

In preparing this bulletin I have had the expert help of Vernon J. Knight, a graduate student in anthropology at the University of Florida, and Diane Compe, of the Florida State Museum. I am grateful to both of them for their contributions.

J. T. Millich
Florida State Museum

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An American Population from Mississippi—W. C. Bailey

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Friday, October 5

Symposium: Man-Animal Interactions in the Southeast
Chairman: E. T. Newman

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S. L. Cumbie (University of Florida): Aboriginal Use of Marine Mammals in the Southeastern United States
B. D. Smith (University of Chicago): Middle Mississippi Archeology of the White-Tailed Deer
C. R. Watkins (University of Georgia): Settlement, Subsistence, and Procurement Technology of the Georgia Coastal Shellmound Archæology
D. Glaizer (University of Tennessee, Chattanooga): An Interpretation of Faunal Remains from Four Sites in the Northern Great Lakes
F. R. Wing (Florida State Museum): Subsistence Systems in the Southeast

Symposium: A Symposium of Research Conducted Through the Southeast Archeological Center
Organizer: D. L. Cruice

The Mandate
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L. Aten (NPS): National Policies for Historic Preservation
W. D. Faust (NPS): The Southeast Archeological Center and the Service's Mandate

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J. W. Walker (NPS): Research in Areas Administered by the National Park Service
K. Dicknson (Georgia State University): Excavations at Morrow Mountain National Monument, Summer 1973
A. J. Macquarrie (Florida Atlantic University): An Archeological Survey of Raleigh National Seahorse

Symposium: Mississippi Period Archaeology in the Southeast
Chairman: J. F. Nelson
L. R. Lewis (Illinois State Museum): An Ecological Analysis of the Distribution of Mississippian Villages
D. Butler (State of Tennessee): Mound Building Around Blackland: Some Speculations
R. R. F. Fisher (NPS): The Mississippian Period Archaeological Survey in Mississippi
G. F. Smith (C. K. Nash Museum, Emory State University): Mississippian Traditions in the Mid-South
W. B. Crumley (University of Arkansas): Late Prehistoric Groups
J. A. Brown (Northwestern University): Spiro Stonehenge
H. A. Macek (Mississippi State University): Some Comments on the Mississippi Period Occupation of East Mississippi

Symposium: A Symposium of Research Conducted Through the Southeast Archeological Center
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G. R. Fisher (NPS): Underwater Archeological Activities of the Center
R. F. Cummings (NPS): The Underwater Archeological Project at Padre Island National Seashore
D. Wood (Florida State University): Remote Sensing as a Tool for General Archeological Research
W. L. Carrington (Florida Department of State): Preservation of Artifacts from Underwater Sites

Museum Studies
Chairman: C. L. Cruice
G. C. Bailey (Florida State University): An American Population from Mississippi
D. Morris, M.D. (Florida State University): Methods for the Paleohistological Examination of Human Skeletons
J. S. Caldwell (University of Georgia): The Wesley Chatting Clump Project Then and Now
R. G. Smith (Florida State University): Later. A Study in Museum Salvage Archeology
T. J. Pargetter (NPS): Observations on Musky Oil
D. L. Cruice (NPS): Radiography, A Tool for the Archeologist
D. L. Cruice (NPS): Museum Salvage Archeology

Public Archeology: River Basin Salvage
Chairman: R. D. Faust
R. D. Faust (NPS): The River Basin Salvage Program
L. Smith (University of Kentucky): National Park Service Projects in Kentucky, Retrospects and Prospects
A. E. Dutcher (University of Tennessee): The Tellum Project
J. E. Smith (University of Louisville): Archeology and the Militant Urban Indian Groups
J. R. Atkinson (Mississippi State University): Archeological Survey of the Upper-Central Tombigbee River Valley

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SATURDAY, OCTOBER 6

SYMPOSIUM:

TENNESSEE VALLEY AREA ARCHAEOLOGY: RECENT RESEARCH

Chairman: J. A. Malval
Co-Chairmen: J. Chapman

P. L. DeJarnette (Vand State Monument): The Foundation of Current Tennessee Valley Archaeology: The WPA Era

J. Chapman and P. Cridland (University of North Carolina): A Late Archaic Late Site in the Little Tennessee River Valley

D. A. Barrett (Memphis State University): Poverty Point and the Lower Tennessee Valley

M. D. Murphree (University of Alabama): The Micatane Phase and its Position in Southeastern Prehistory

D. H. See (Mississippi State University): The Alexander Phase in the Tennessee River Valley

D. D. Knepper (University of Kentucky): Prehistoric Plant Utilization at the Hog's Back Shelter, Powell County, Kentucky

J. A. Malval (University of Alabama): A Survey of the Wright Village (La 6), A Middle Woodland Habitation Site in Lauderdale County, Alabama

L. C. Adair (Memphis State University): Evidence of Cyprea Occupation at the Spring Creek Site, Tennessee

C. D. Oakley (University of Alabama): The Stone Mound of the Bear Creek Watershed Area in Northern Alabama

SYMPOSIUM:

MISSISSIPPI VALLEY ARCHAEOLOGY IN THE SOUTHEAST: II

Chairman: J. P. Brain

D. M. Wirth (Arkansas Archaeological Survey): A Microlithic Tool Assemblage from a Northwest Florida Site

J. D. South (University of Arkansas): An Indian Pottery Taxonomy of the Florida-South Carolina Coast

R. E. W. Madsen (University of Georgia): The Settlement Pattern of the King Site

M. T. Smith (University of Kentucky): Probability Functional Analysis of a Contact Period Structure in North Georgia

SYMPOSIUM:

COMPUTATIONAL SITE DATA: MID-SOUTH AND ADJACENT AREAS

Chairman: T. E. Maul

Participants: C. Bell (Tennessee State University), P. A. Calabrese (NPS), R. Crum (NPS), Bruce Dixon (University of Tennessee), D. Evans (University of Missouri), B. H. Fox (TVA), W. H. Riggs (Mississippi State University), K. Marshall (Mississippi State University), R. McGaffey (University of Arkansas), D. M. Wolfe (Arkansas Archaeological Survey), J. Oakley (University of Arkansas), M. Frish (State of Tennessee), C. Smith (C. E. Evans Museum, Memphis State University)
There is a prevalent, or at least strongly advocated, view in archeology today that past human cultures were more or less isolated from one another, and that there were few or no cultural influences or interactions between these cultures. This viewpoint is not without its support, as some archeologists argue that cultural development occurred independently in different parts of the world. However, this view has been challenged by the increasing evidence from comparative and experimental studies that suggests cultural interactions and exchanges were more common than previously thought. These interactions are not limited to material culture, such as tools and artifacts, but also include ideas, technologies, and even genetic material. The study of interactions between different cultural groups is crucial for understanding the development of human societies.

The interactions between different cultural groups can be studied through various methods, including comparative analysis of material culture, genetic data, and linguistic evidence. These methods allow researchers to identify patterns of exchange and interaction that were not obvious from the study of individual cultures in isolation. For example, the analysis of DNA from ancient human remains can reveal the extent of gene flow between different populations over time. Similarly, the study of linguistic similarities and differences can provide insights into the movements and contacts between different linguistic communities.

The study of cultural interactions is not limited to the past. Modern societies are characterized by a high degree of cultural exchange and interaction, which has led to the development of new cultural forms and the spread of cultural influences across the globe. The study of contemporary cultural interactions is crucial for understanding the dynamics of cultural change and the factors that drive it.

The study of cultural interactions is a complex and multidisciplinary field that draws on knowledge from archaeology, anthropology, linguistics, genetics, and other related disciplines. The goal of this study is to understand the patterns and processes of cultural exchange and interaction, and to use this knowledge to inform our understanding of the development of human societies and cultures.
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1. The dog is a "waching" (Westman and Lancaster 1949). Even without selective breeding or training, some domesticated dog breeds functioned as watchdogs. They both certainly have done so in the past, but without conferring genital value on particular cultures. Presumably, the watchdog was ubiquitous in the Southeast after 8000 BCE.

2. Dogs as domesticated food animals (from 1962:228). Ethnographic accounts and the Quimba figures indicate that dog ownership was common and sudden to the Southeast, but are not proportionally great in any food borne sample. Most Southeastern archaeologists who have interpreted without considering food. However, the Sahas as food is found in many cases. The productivity of dogs was fairly great. A single bitch can produce 50 living offspring in the time it is six years old. Even in the case of all indications that a significant protein food supply was obtained with little labor expenditure on the part of man. In times of real food stress we can assume that the non-animal interaction expedited from exploitation of dogs.

3. Dogs used in hunting (for locating, tracking, bringing to bay, and even killing) (Westman and Lancaster 1992:213). Dogs were important adjuncts to hunting societies or partly every continent. They were, in fact, employed in hunting Cheetah in historic times (Dawson 1984). The dogs occurring in European Neolithic sites, generally accompanied a role in hunting (Figott 1943; Clark 1966), suggests this possibility for the Southeast. The dogs, however, may have been the task of by military hunters. Until a cross-cultural comparison indicates in detail the cultural ecological settings, the specific procurement systems, associated with use of hunting dogs, we cannot easily define this interaction for the prehistoric Southeast.

4. The dog as a domesticated animal (Leavitt 1961). Large dogs have been used to draw sleds by Eskimo and travels in the Piedmont, including southeastern regions. This is closely an important interaction, limited by open terraces as well as the availability of large robust dogs.

5. The dog as a social companion (Leavitt 1961). Most dogs interested in prepared Graves or associated with human burials in African countries, and occasionally in later burial mounds, are commonly taken to indicate the affection lavished on pets as our own culture. At Akani Knoll in Kentucky and Cave in Tennessee were dogs associated with adult males, females, and children without apparent preference. None of these animals must have been sacrificed in accordance with religious attitudes or as personal or contributed property. A more careful analysis of these graves associations should lead to refined hypothesis about the interaction of man and dogs in specified cultural settings.

6. Dogs as transmitters of disease in human populations (Scott and Fuller 1965). Almost all important constitutions diseases have counterparts in dogs, hence their usefulness in medical studies. I have not been able to ascertain the role of dogs in transmitting parasitic disease to humans (or vice versa), but suggest that this mechanism may be significant in perpetuating semi-isolated human populations. David Chase (1972) has reported the interesting case of a thousand-year-old dog burial in central Alabama in which hyperplasia of the teeth was noted. He concluded that the dog had been ingesting a heavy accumulation of calcium during the two small. According to Chase, the highest incidence of this disease in the United States today is among residents of this central Alabama area.

Cautions: This list is not intended to exhaust the possible associations between men and dogs, and I have intentionally omitted some which seem to be of little consequence. It appears that there are interactions directed by man to his own benefit, and others undefined, which may or may not be immediately advantageous. No single category of man-dog association has been satisfactorily assigned for the prehistoric Southeast, either for particular cultures or for Southeastern culture in general. We have in hand, however, an approach to these questions and to larger consideration. Man-animal interaction systems may be characterized from archaeological evidence in sites and in regions, just as a variety of procurement systems for plant and animal resources.

Note: By Clarence S. Webb

With respect to the question raised of potential dangers to man from infections acquired from the domestic dog, I have been interested in infection shared by dogs and children. There is presently a surge dog population in the United States today, 25 million. On the basis of recent studies and reports, dogs do not seem to offer a significant health hazard.

Certain infections can be acquired from dogs. Structural and viral respiratory infections are possible, but are not deemed serious, except when the skin offers no health problem. Dogs, like many animals, have salmonella infections but do not offer the danger to humans that infected poultry, eggs, and meats do. This is a matter and kitchen problem. Dogs, like humans, can acquire rabies from the wild animal reservoirs (bats and skunks, especially). The dog can acquire and transmit tularemia, and the dog can transmit dusty foot (medicine spotted fever and tick paralysis), but wild animals and wood ticks are much more likely sources.

Dogs persist and complete their cycle in other species, including man. The only parasitic infection of the dog which has an obvious route of significance is the anemia or nonspecific dermatitis (the "hot spot" or "hot spot"). The young dog does not acquire this infection by contact with the animal, only by eating dirt contaminated with dog feces and containing host larvae. If infected, the larvae pass through the child's intestinal wall into the bloodstream, but are sequestered in the liver or lung. Human tissue reacts to produce an illness that is usually mild, rarely fatal. The canine anemia larvae cannot complete its life cycle and rarely is deposited in areas that would be dangerous.

A closer examination of the dog and the close relationship to man aware uniquely to have offered a significant health hazard to prehistoric men.
The marine mammals which are now or have been present in the historic past along the coastal southeastern United States include the various whales and porpoises (dolphins) of the order Cetacea, the West Indian dugong (Hippopotamus) and the aquatic Tursiops (the bottlenosed dolphin). These animals are hunted through time by a number of Indian groups, primarily along the Gulf and Atlantic coasts of Florida and at scattered sites elsewhere along the coast of the southeastern United States (Figure 1). This report will attempt to summarize the archaeological occurrence of these marine mammals in the Southeast, pertinent ethnohistorical and ecological data relevant to their capture and use, and will conclude with a discussion of the importance of the various marine mammals in the subsistence base of the peoples involved. Data presented are current only to early 1973.

**Figure 1.** Archaeological occurrence of marine mammals.

- **P-porpoise; W-whale; C-identified Cetaceae; S-West Indian seal; A-australe**

**Porpoise:**
Perhaps the earliest published account of cetacean remains in a southeastern archaeological site was C. B. Nucu’s description (1902:248) of 74 teeth of the Atlantic bottlenosed dolphin (Tursiops truncatus) drilled and in situ around the wrist of an early Santa Rosa-Wet Creek, or Vent Cemople (1962:17), burial in the Tusa Mound on the Gulf coast in Franklin County, Florida. Other Florida Gulf coast sites containing identified porpoise remains are the famous Crystal River site in Citrus County, which produced vertebrae identified as those of the bottlenosed dolphin (Tursiops truncatus) in the collections of the University of Florida Museum of Natural History; the collections of the American Museum, Florida State Museum, Gainesville; and, a Gladens I period site (GCI702) on Marco Island, Collier County, which also contained vertebrae of this species. Another Gladens I site (GCI703) produced the auditory bullae of the short-finned pilot whale (Globicephala macrocephalus) (Cumbas 1964). This “whale” is actually a member of the porpoise and whale family, Delphinidae.

**Whale:**

The majority of sites containing porpoise remains are on the Atlantic Coast of Florida. The Surfside site (Willie 1946:69) in Brevard County contained remains of the common dolphin (Delphinus delphis), Atlantic sites from which bottlenosed dolphin remains have been identified include the Castle Windy (Bull 1959:20) and Green Mound (Allen and Slaughter 1960:21) in Martin County and the Houston Beach (1953) in St. Johns County. It is only possibly the Norwegian, although identification is not positive. Recent finds in St. Johns County yielded bones identified to the family level as delphinidae (King 1964:1).

**Fish:**

Whale remains are somewhat more scarce. A dolomite whale jaw has been reported from the Gulf Breeze III site in Santa Rosa County in an early Gulf Creek context (Schooler, personal communication). An unidentified, fragmentary whale vertebra, similar in size and gross features to the whale-necked whale (Gigantocebus groenlandicus; Schalligel and Slaughter 1957:4) was recovered from the New Breakfast site in Levy County about a mile inland from the Gulf. The site is approximately the warden (Island 21 period (B. Thomas Manning, personal communication). Other sites from which whale remains have been identified are the Florida site in Broward County (King 1957) and the Jupiter site, also in Broward County, which contained an auditory bulla identified as being from the grey sperm whale (Physeter macrocephalus; King 1964:13). An unidentified whale jaw fragment was apparently picked up recently by a surfer in an area normally associated with phosphates. The site was West Slaton, New Smyrna Beach (1962:21). The auditory bulla of a large whale (Cetacea) has been described from a Marco Island shell bed (Bull 1959:20). Additional archaeological record of a whale noted in a single, non-floral tooth from the Dug Island Oyster Shell Bed at Alliston in the St. Johns River in Volusia County, Florida.
Cryptic Hunting Techniques:

Larson (1969) has done an excellent job of gathering and analyzing ichthyological data on the capture of whales, in particular the Atlantic right whale. It has been seen in several recent areas and often in the same general area (e.g., Roost 1962, Woodhead 1969, and others quoted in Larson 1969:212-222) as are consistent with the notion that hunting these large marine mammals, although the hunting took place in water, presumably when the whales were near abundant. When one or more whales, usually 3 or more and often all, were spotted coming along in reasonably shallow water close to shore, a group of individuals would paddle out in dugout canoes to surround or impound the whales, getting close enough so that one man could jump on the back of the chosen whale. He would then use explosives to break into the whale. The whale would sound immediately, but in shallow water some with a limited supply of oxygen, would soon return to the surface to breathe. After the whale had breathed it would be killed by piercing the lungs and the blubber cut off into strips to dry. The heavy bones, not being very useful, would be left on the beach.

In 1948 Priar Andreson de Miguel described whale bones lying on the beach as a result of a recent Indian wharf kill (Garcia 1962:26 quoted in Larson 1969:212). This presents a problem to ichthyologists in that no bones are left behind in the middens to identify. Unless the bones were used for tool making or the hunting site happened to be immediately adjacent to the kill site, the presence of whale bones is not likely to be known.

The Indian who killed the whales was not known to be a good hunter; other aboriginal techniques for the hunting of cetaceans in the southeast have not as yet been expected.

Larson notes that the 18 species of whale and porpoises present at times off the Florida coast (Larson 1969:212-213, 1971:214), are often seen with their masts and are not likely to be mistaken for any other species in the area. The species listed are the common (Delphinus capensis), the Atlantic bottlenosed dolphin (Tursiops truncatus) and the pilot whale (Globicephala melas).

As noted earlier, it would be little chance of confirming this type of whale hunting archeologically, as the bones are not in the habitation areas and there is no specialized artificial inventory to provide secondary confirmation. However, right whale bones plates could easily have been cut and used in the making of the canoes and would probably have left some cultural traces, which the habitability of the site can be determined.

It is well known that many species of whale and porpoises are at least occasionally found stranded in low water or washed up on a beach (Crosby 1965, L yes 1985). These strandings could probably account for many of the cetacean remains from northeastern aboriginal sites. However, the frequent strandings of marine mammals, the pilot whale (Larson 1969:114) is representative archeologically by only one individual, from the Treasure Island site off the Gulf Coast. These strandings, often stranded in numbers greater than 50, can carry in weight from calorie of 130 lbs to adult male of 2000 lbs (Larson 1965:168) and would be known to have predated, at least ony then, a foraging resource, however, unless they were stripped of flesh at the beach and the bones were not preserved, they were not eaten in large numbers.

Strandings of the Atlantic bottlenosed dolphin are relatively infrequent considering that it is the most abundant marine mammal on the Gulf and Atlantic coasts (Larson 1965:148) yet the remains of these strandings are usually noted. The remains of the Atlantic bottlenosed dolphin (Tursiops truncatus) are usually the remains of the pilot whales (adults are 9-12 ft long) and weigh 190 lbs. Why these dolphins are not treated in the same manner, by butchering at the beach, we do not certain this question can be answered satisfactorily. However, it does seems more, particularly at sites such as Green Point on the Atlantic coast and Monticello Point on the Gulf Coast, strand on the reef where several individuals are represented, that the stranded dolphin was hunted or cut as a somewhat regular food resource. The relatively lower archiological distribution of the purpose along the northwest half of the east coast of Florida, and perhaps the Gulf coast as well, may point toward some manner of specialized hunting.

These possibilities are frequent tidal watersways, lagoons, and estuaries year round in Florida and seasonally farther north, sites in social groups. They are powerful predators and can clear the water, but might possibly be trapped or necessarily restrained by a tidally weirs or nets. These possibilities are probably not fast to be archeologically recognized. The strandings on the Gulf Coast during the winter season may be related to the Cushing site on Marco Island that the Calusa had a sophisticated netting technology (Cushing 1921), with the use of weirs and nets. The whole body of data suggests that the strandings on the Gulf and Atlantic coasts of Georgia and South Carolina are often斛t; with sharks representing several species. Vertebrae from shark remains are not abundant, and these from such places were known to have presented somewhat similar problems of capture and of the butchering of a very large carcass.
The remains of the West Indian seal (Monachus tropicalis) are rare in archaeological sites. House (1951:81) noted the presence of seal bones at South Farm Field in Bogue County, Florida. Further excavation and collections at the site by J. T. Anderson and Robert Gough have produced a rich faunal assemblage (Cubbes MA.1) which includes at least three other individual seals (Cubbes MA.2). These seal bones were associated with fiber-tempered ceramics of the Orange period (Robert Gough, personal communication), so on other sites to be represented by more than one individual seal is a large enough sample to be included in the study. At Collins, Colbert County, Florida, excavated within the last eight years by the Bureau of American Ethnology and the State of Alabama, the faunal remains, according to J. C. D. Imlay, have yielded at least three individuals (Cubbes MA.3).

Perkins (1964:34) reports the discovery of a West Indian seal mallet dropped along with an Indian artifact at Long Bayou in Pinellas County off the Gulf Coast (Ray 1961:113). He notes that the seal mallet was one of two not necessarily contemporaneous. C. I. C. Perkins has identified West Indian seal remains in faunal material from the Table Point site on Cumberland Island, Georgia (Miller 1973:125). This finds, if confirmed, would be significant, apparently the earliest faunal remains in the Southeast, potentially of the species, as a previous fossil record from near Charleston, South Carolina, has proved to be erroneous (Clayton K. Ray to Elizabeth King, personal communication).

The only other archaeological sites which have recorded seal remains are in Texas. One, represented by a single canine tooth, was at Ranchito Prieto in Nueces County, a Spanish ranch headquarters in the early 1800s and the center of an important early Indian campsite. The other site is a mission, Mission Nuestra Señora del Espíritu Santo de Tunig at Goliad. This site was represented by five mammal teeth (Mann 1911:111).

Seal Hunting Techniques:

There are no published descriptions of an aboriginal seal hunt in the Southeast. However, seals were discovered quite early by explorers in the Caribbean area. In fact, as early as 1564, during the second voyage of Columbus, one of his crew members killed eight seals at Alota Veja, just off the south coast of Hispaniola (Schneider 1958:121; King 1944:73; Rice 1972:41). In 1613 the crew of Juan Ponce de León killed 24 seals in addition to 70 turtles and 500 pelicans and other birds during a brief stop in the Tortugas (Domer 1935:124). The pace appears to have picked up after that with intensive efforts to hunt the seal for oil from at least the 17th to nearly the end of the 19th century (Allen 1880:768-710). The seals were on the verge of extinction by the late 19th century and were never adequately studied by scientists. What we do know about the West Indian seal has been pieced together from occasional sightings over the years. The West Indian seal is now considered to be an extinct species (Schneider 1958:91).

The aboriginal method of hunting the West Indian seal was probably much like that of the Europeans, which was to quietly approach a hunting ground or nesting site (usually a protected sandy beach near rock outcrops). They would then attempt to attack a small herd of seals with clubs. Many historic accounts describe similar methods (House 1851:312-313; Ward 1887:216-217). The seals apparently only roamed when frightened, attacked or when an interloper came too close for the individual seals' tolerance. This is a quite different situation from that of another species of the same genus, the common seal (Monachus Schreibersii), which roams widely and to the very frigid limits of the temperate zone to the point of due to the presence of seals and dogs (et al. 1972:88-90).

Although these methods were frequently employed during the gregarious breeding and pupping season (Rice 1972:111), this would have been the optimum time to hunt the seals, but even then they were probably avoided due to their potential to harm the seal's young or to make them more difficult to catch. Only a small section of the Atlantic coast near South Indian Field and perhaps a few of the Gulf Islands near Mosquito are at risk of 1996. At their respective points in time, two such successful breeding and pupping locations. The agility and speed in the seal in the water would almost certainly preclude their capture away from such an area.

Manatees:

The remains of manatees appear with one exception to be restricted to inland and coastal marine sites. The exception is the Balsa Glade site in Lake Okeechobee in Palm Beach County, Florida (Willsey 1949:361). A shell midden in Citrus County, Florida, 다소만 is the Crystal River site, has also produced freshwater rat fragments (Rana) as have the Biscayne and Tile Island middens on the St. Johns River in Volusia County (RMS).

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Perhaps the most spectacular time to hunt manatees would be in the winter. They cannot tolerate cold water (Woods 1953:18; Laine 1961:48) and will gather around the flow of constant-temperature freshwater springs when surface runoff drops the river temperature below about 72°. Revers cold on in fact all them (Moore 1931:15; Laine 1961:161). At other times they avoid clear water (Woods 1959:241) and are seldom seen in groups (Woods 1945:167). The naturalist William Morris, in his travels in Florida in the 1700s, noted the haunts of a manatee killed by the Indians for food the previous winter at last was not eating at the time of his visit. He recorded the particular reproductive season to key on, as the females were to have one calf per year without regard to any species-wide breeding or calving season (Paxson and King 1965:167).

**Summary**

In summary we should relate the importance of these marine mammals to the subsistence base of the people involved. We know from Landa (Freyer 1941:191) that the manatee was a very prolific catch in his locale. In some there are all fish and fat and daily, even lettuce-reve-per-the delicious taste of manatee steaks. Laron notes that a small boat weighed 450 lbs (1969:214) and animals twice that size are not at usual. Certain manatees would have been a worthwhile catch, but with the possible exclusion of the Pan-N ordinarian riverine sites, Manatee was in the southeast appears negligible and probably focused no more than a local abundance at infrequent times. There were never enough manatees in any one area to constitute a harvestable, renewable resource.

The scene can be said of the West Indian seal. Seals are scarce enough in areas inhabited by abori- nal peoples that Pomona was, in his travels over South Florida, as a captive of various Indian groups, often used as pets. They are so tame that at least one of them swam across the Lake Monroe high status site at one time. Where human contact was at an all-time high, such animals might be an appreciated and sought-after cocourse when they were in and among us. An adult was 5 to 7 ft in length, weighed between 100 and 200 lbs and had gold eyes and teeth for possible use when the species were in the two coastal records. The oil was certainly valuable; Goss reports that a specimen of 4.2 in long yielded 8 gallons of oil (1831:269-270). Nowadays, the scarcity of West Indian seals in the southeast make their capture infrequent in historic times and only of temporary local importance. An example in the Marco site (49C171) where there were only three individual seals in some 3200 varrocal use individuals identified (Vannam 1964:248).

The cetaceus, particularly the whales in South Florida, remain as the really important group of marine mammals. It is unusual, but understandable in this case, that their importance is not always directly reflected in the archaeological record. An exception in the presence of bones representing what may be a specialization on the Florida east coast north of Cape Canaveral on the Atlantic bottlenecked dolphin. The finding of teeth or other artifacts or non-subistence utilization of these mammals is in a minor factor here, and almost certainly accounts for the Bluffton and Milton site records, as well as the Tent mound reported tooth breads.

It is not until we look at the ethnohistorical data that we get an idea of the importance of white hunting in South Florida. Pomona, writing again of the Keys, states that the common fish are fish and whale (1941:28). A January 1649 letter from Walcedor to Father Royal Plata that neighboring vil- lages of the popupaniscan met to decide on the killing of a whale. The specimen was more than twice the length of a human and looked like the species in the Bluffton records. Heeled men may have been a part of the hunting performance (Pearce 1967:248). Similar, although not localized ethnographic descriptions of whale hunting and the use of the whale as a food resource are located on the popo popo goggin and Stenwarden (1964:186-189) to consider whale hunting as a cultural subsidies technique.

The independent accounts of whale hunting, remarkable in the lack of necessity for complex equipment, leave no doubt as to the importance of these large marine mammals. There are important social ramifications in the cooperative group effort necessary for the spotting, capture, butchering, distribution and redistribution of the tremendous amounts of meat and blubber, present in even one large individual. A 5-ton whale (the size of the North Atlantic right whale may have up to 45% of its body weight as usable blubber (Laron 1969:214). The meat and blubber, rich in animal protein and fat and storable when dried, would generate a significant surplus to give the group through possible lean times and whale blubber can be used to make valuable products for local consumption. What do we glean from the discovery of the dug, systematic hunting at certain localities make winter residence on the Joanna stands a possibility.

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The white-tailed deer (Odocoileus virginianus) was an important source of animal protein for human populations in the eastern United States throughout much of the prehistoric period, and the abundance with which its skeletal elements are recovered from Middle Mississippi sites stresses to its significant utilization by these agricultural groups.

As is the case with any other animal species utilized by prehistoric human populations, five of the most critical questions to be asked concerning the utilization of the white-tailed deer by Middle Missis-
sippi populations are:

1) the contribution of the species to the diet of the human populations is question, expressed in terms of percent of the total estimated animal protein;

2) the extent to which exploitation was selective: was the species exploited more intensively than other species/species groups in relation to their relative abundance (biomass levels);

3) seasonality of exploitation: what would be the broad range of time in which the species could be harvested, and is there any ethnohistorical information and/or direct archaeological evidence available concerning the seasonal nature of exploitation;

4) similarly, is there any ethnohistorical information and/or direct archaeological evidence available concerning possible techniques of hunting/capturing, and

5) what was the predation profile: what was the age composition and sex ratio of the deer herd, and what was the impact of human predation on the prey population and non-human predator populations?

Before considering these questions, however, it is necessary to consider the seasonal habits of the white-tailed deer within the central section of the Mississippi Valley.

The seasonal habits of deer vary in a given region very little from year to year. The rutting period, the fawning period, the seasonal groupings, and the periods during which antlers are grown and shed are reasonably consistent from year to year, as are seasonal food preferences and seasonal movements.

The peak of the fawning period in the southeast Missouri area is approximately the first of June, with most births occurring in late May and after the first two weeks of June (Dunnevan 1938).

Antler growth in males begins around the middle of May, full growth is attained by August first, but antlers are not fully hardened until the beginning of September. Antlers are dropped by January or early February.

The rutting season lasts from late September through November, with the peak occurring during the first two weeks of November.

The white-tailed deer quite probably has the smallest home range of any member of the deer family in North America. The average minimum home range of deer in an area of central Missouri was found to be 495 acres, or a little more than 1 mi² (Proctor and Jaakkola 1958). This figure of 1 mi² seems to hold true for much of the eastern United States (Severinghaus and Chatan 1956:154). This home range is in no sense a defended territory, but rather the area utilized by a single individual. Obviously a great amount of overlap of individual home ranges exists. There is some seasonal variation in the size of home ranges, with increases especially noted during the fall rutting season.

The theoretical maximum growth rate of a species, which occurs only when a species reproduces under ideal conditions and in the absence of mortality, is termed the biotic potential of a species. The white-
tailed deer has a fairly high biotic potential, which has been estimated at over 64% per year. If this maximum growth rate continues for any period of time, it would produce a larger deer population than the plant-food base of the area could support. This critical level above which the available food resources cannot support the population can be lowered to a minimum. As a result of the existence of a number of different interpretations of the meaning of "carrying capacity" however, wildlife ecologists have developed a number of concepts concerning the relative density of animal populations, and have strictly defined a number of different density levels, 1) of which apply to deer populations. These three density levels are subsistence density, optimal density, and security density.

White-tailed deer usually inhabit brushy or wooded edge areas most of the year. Hunting pres-
sure elicits highly effective avoidance behavior which includes prolonged hiding and a shift to nighttime feeding. For these and other reasons the white-tailed deer is considered a "resistant species" by wildlife ecologists. This means that given suitable habitat conditions, it is almost impossible to remove high percentages of white-tailed deer populations by hunting.

When a white-tailed deer population is reduced to a certain density level of modern hunting, it is theoretically impossible to further harvest the population. This density level at which the population is invulnerable to further predation is termed the security density level.

Given the excellent cover conditions that must have existed in the Mississippi Valley during the Mississippian period, there is little doubt that this security density concept can be applied to predation of white-tailed deer populations by Middle Mississippian hunters. No matter how great the predation pressure by Middle Mississippian hunters, they could not harvest enough deer each year to endanger the ultimate sur-
vival of the deer population.

1This paper, presented at the 1973 S.E.A.M. meeting in Memphis, Tennessee, was submitted for publication in the Spring 1974 issue of CW. After seven years, this paper is finally appearing in print. During this long period many articles have appeared which deal with the general topic of prehistoric ex-
ploration and exploitation of the white-tailed deer. This paper has not been updated to incorporate these recent studies. It appears in its original form. and reflects the author's position in 1973.

Southeastem Archaeological Conference Bulletin 17, 1980
The upper limit that a deer population can reach in a given environment is termed the subsistence density level. A population at such a high level "obtains enough food for bare survival, but not enough to maintain good health, optimum growth, optimum longevity, or peak birth rates" (Gutman 1964, 1981). Subsistence density has been aptly described as a disastrous level. Deer populations at such high levels are more vulnerable to such factors as disease and predation, and when a deer population at subsistence density is raised with a sudden reduction of the carrying capacity of an area, widespread starvation and a subsequent rapid decline in population will result. Periodically enough, an insufficient deer harvest by Middle Mississippians hunters can be seen to have been a greater threat to the continued existence of their primary animal food source than extreme predation pressure on their part.

An optimum density level is located between the security density and subsistence density levels. It corresponds to the existing demand for "carrying capacity" in range management studies. At this density, maximal health, growth, and productivity will be realized. Morbidity due to shortages of food, water, and shelter do not occur.

Having briefly discussed selected aspects of the seasonal behavior and population dynamics of the white-tailed deer, we can now turn to the five questions raised earlier. While the data presented herein come from a number of Middle Mississippi sites (Sauk Trail, Chalilass, Banks Village, Liiboun structure 9, Liiboun structure 12, Liiboun structure 23, Turner, Goodpasture, Powers Fort, and Gooseneck), most of the conclusions I will offer will hold true for Middle Mississippians in general, with a few notable exceptions, such as Chalilass, where a white-tailed deer contribution from 508 to 914 of the estimated total meat yield at this sample of seven sites (Table 1). While part of the intrasite variation in the importance of the white-tailed deer is a function of biased sampling at some sites (poor preservation of skeletal elements of smaller species resulting in overestimating the importance of larger species), it is also apparent from the faunal samples that there is a real variation in the importance of the deer from zone to zone, with fish and migrant waterfowl being exploited, not surprisingly, much more intensively at smaller sites than at sites in other zones.

<table>
<thead>
<tr>
<th>Site</th>
<th>Percent of total meat yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalilass</td>
<td>Village 63.4% Mound 73.1%</td>
</tr>
<tr>
<td>Banks Village</td>
<td>80.5%</td>
</tr>
<tr>
<td>Liiboun structure 9</td>
<td>42.8%</td>
</tr>
<tr>
<td>Liiboun structure 12</td>
<td>63.0%</td>
</tr>
<tr>
<td>Liiboun structure 23</td>
<td>61.6%</td>
</tr>
<tr>
<td>Turner</td>
<td>55.8%</td>
</tr>
<tr>
<td>Goodpasture</td>
<td>69.1%</td>
</tr>
<tr>
<td>Powers Fort</td>
<td>76.3%</td>
</tr>
<tr>
<td>Gooseneck</td>
<td>91.1%</td>
</tr>
</tbody>
</table>

The second question to be considered is the extent to which exploitation of the white-tailed deer population by Middle Missippian groups was seasonally oriented, and possible techniques of exploitation that may have been employed. Since these questions have been covered elsewhere (Smith 1974a, 1974b, 1975), only the main points of the argument will be presented herein.

Although it is difficult to show conclusively the relative extent to which deer hunting was a seasonal pursuit, I would like to consider the extent to which exploitation of white-tailed deer populations by Middle Missippian groups was seasonally oriented, and possible techniques of exploitation that may have been employed. Since these questions have been covered elsewhere (Smith 1974a, 1974b, 1975), only the main points of the argument will be presented herein.

The occurrence of a high availability of a given food source (corn) within alluvial bottomland hardwood and bottomland hardwood area produces a higher density of deer for several months (September-October-November), and with this higher density of deer within known ranges, the probability of a hunter-prey encounter is substantially increased. The increase in the probability of a hunter encountering deer is both a matter of simple higher prey density and the fact that hunters could depend upon this seasonal concentration, and would quite probably take advantage of it. In terms of the feeding habits and seasonal movements of the prey, the fall and early winter would be the most advantageous period to hunt. It is also during this late fall and early winter period that deer attain their maximum yearly weight. A further factor which should be considered is that in the first few months of the year, the deer would facilitate deer hunting during the early spring hunting period.

Perhaps the greatest problem presented to a hunter armed only with a bow and arrow is getting enough food for a shot at the prey without being detected. But from the type a bow and arrow drop their velvet (the first week in September) until the end of the fall season in late November, I, behavioral change groups which greatly increases the hunter's chances. During this period the "personality" of the male deer changes radically from being ready to flee to being bold, curious, and inquisitive, as it avidly seeks out individuals of both sexes.
This personality change seems to have been exploited by early historical tribes. Swanton states the etiological references to individual stalking of white-tailed deer by Indians in the southeastern United States. He suggests that these references, along with occasional, detailed references to the killing of deer skins and/or heads both for amusement and to attract the deer, this sometimes involved painted9\n
13

_to paralyze the way in which deer attack trees and bushes immediately prior to and during the mating season. This hunting strategy is one of slow stalking, concealment, and attraction of the deer prior to shooting.

Ranging from seasonal movements, feeding habits, maximum annual weights, to induced behavioral changes, and the seasonal flood stages of the Mississippi River, the period from September through November was the most advantageous time of year to hunt deer in open upland areas, while the winter-spring flood stage of the Mississippi River would have extended this optimal period through the early spring in the forested bottom area. This suggests a rationale for extending the early historical period to take advantage of those openings for exploitation.

Archaeological evidence for the seasonality of deer hunting can be obtained by analysis of both the growth and shedding of deer antlers, and the eruption and wear patterns of mandibular deciduous. While the presence or absence of deer antlers on human gives a rough indication of season of death, it is possible to determine the season of death of white- tailed deer within finer limits by analysis of deer shedding from antlers, permanent dentition, and the replacement of deciduous pre-molars in decapitated specimens. The fact that the sample of life proceeds at a relatively reliable rate, it allows estimation of individuals of less than 30 months of age to be accurately aged within a 2 or 3 month range (Harverson 1969).

By taking June 1st (the peak of the fox-growing period) to the birth date of each deer, an estimate of the age of death can be computed for each. Each deer mandible recovered from the sites that was complete enough to be used was represented by an individual less than one year of age, and less than 2 to 3 month range. Histograms of the distribution of age for the three juvenile deer are shown in Figure 3. Black and white periods show individuals less than 12 months of age.

The histograms of seasonality for each site except for the sample from the Lithium site are quite similar, with the peaks corresponding closely to the availability of acorns in the hardwood areas and to the rutting period. It is not possible, however, to determine from the archaeological evidence of deer hunting patterns during the "autumn" deer period, whether utilization was intensified periodically through the winter months. This would be consistent with the late fall and winter.

The low mortality levels through the rest of the year suggest that although deer hunting was not a major activity, this was indeed the period of most intensive exploitation.

The fifth question to be considered is what the production profile was like. What was the sex ratio and age composition of the deer harvest at these sites? Yet what was the effect of human predation on the prey population and on non-human predator populations.
Two skeletal indicators of sex were employed to estimate the sex ratio of the deer kill at these 7 sites, these being the presence or absence of antlers on skull fragments, and morphological characteristics of the pelvis (Elder 1965). Table 2 shows the sex ratio of the deer harvest suggested by each of these two methods. There exists an obvious discrepancy between the results obtained from the 2 sets of data. Judging from the pelvis morphology the sex ratio of the deer kill was fairly evenly balanced. The presence or absence of antlers on skull fragments suggests a definite selection of male vs. female individuals by Middle Mississippians hunters. This selection for male animals is most likely not a result of hunter preference, but rather a bias introduced by two factors: 1) Female deer are less likely to be preserved in recognisable condition, and 2) Because of the attached antlers, which were used in a variety of ways, male skulls and skull fragments would be more likely to be brought back to the village. Male antlers are more likely to be preserved in a recognisable condition because of the ibon in which they are preserved. The antlers are still attached to the skull fragments, and strongly suggest a sexually balanced kill. Hopefully dinner attention will be paid to this problem in the future. Since seeing how pelvic fragments depends on almost complete elements, and if a simple task even then, samples will be small, even when large amounts of bone are recovered from sites (pelvic elements were quite often shattered during the butchering process).

<table>
<thead>
<tr>
<th>Site</th>
<th>Sexing Criteria</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chocelisian</td>
<td>Antlers</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Pelvis</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Bans</td>
<td>Antlers</td>
<td>44</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Pelvis</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Liliburn</td>
<td>Antlers</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Pelvis</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Goodgrass</td>
<td>Antlers</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Pelvis</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Turner</td>
<td>Antlers</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Pelvis</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Powers Fort</td>
<td>Antlers</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Pelvis</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Gomcrack</td>
<td>Antlers</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Pelvis</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>56</td>
<td>15</td>
</tr>
</tbody>
</table>

The age composition of the deer kill at these seven sites is shown in Figure 2. Deer mandibles recovered from the sites were aged according to the eruption pattern of permanent dentition and relative amount of tooth wear (Kerrbyhous 1941). These age composition curves can be seen to be generally similar in form, except for the Bans site curve. There is a low representation of the zero age class (0-10% of the harvest) while the first, second, and third age classes represent the bulk of the sample. The older age classes are represented in lower percentages, with all but the two smallest samples including relatively old individuals (7 years plus). This general pattern compares favourably with that obtained by Elder (1965) from three prehistoric sites in Missouri. One of the most interesting characteristics of the Middle Mississippi harvests is the low percentage of fawns (zero age class) represented in the kill. This is the most unusual in that young of the year are a very large, vulnerable section of the deer population. In attempting to determine the most probable explanation for the characterist low percentage of young of the year in the prehistoric deer kills, Elder suggested that predators such as fawns and their effects on the population were low, but rejected their possible impact on the deer population. Elder's impression was that predators, and in particular the coyote, were killing the fawns by predating on the young. Consequently, the predator program he produced in early spring. A voluntary and effective conservation measure - sparing the fawns to grow into better herd and more meat' (Elder 1965:49). A closer look at the selective nature of predation by wolves on deer populations, however, strongly suggests that it was the impact of wolves, rather than any conscious conservation measure by human predators, that was producing the low percentage of young of the year in the Middle Mississippi deer kills.

The age distribution curve of wolf predation of white-tailed deer obtained by Peiott at Algonquin Park, Ontario is shown on Figure 2. (Peiott et al 1967). A comparison of these two age distribution curves provides a partial answer to the last question raised earlier, the relationship that existed between these two predator populations. The very high aspective correlation between the two curves strongly suggests that there was very little direct competition between the two predator populations. Predation by wolves and Middle Mississippian hunters concentrated on almost mutually exclusive portions of the deer population.

Man's role as a predator in the ecosystem can most accurately be viewed as being complementary to the wolf. This complementary predation would be an important inhibitory factor that would function to maintain the deer population below subsistence density. Obviously it would have been advantageous for Middle Mississippian groups if the deer population was stabilized at close to optimum density. This would allow a maximum harvest from the deer population on a consistent basis, and would maintain the deer population at a healthy level. However, a major collapse of the deer population would have a positive impact on the general health of the deer herd would be reduced, and the possibility of a rapid decline in the deer population would be greatly increased. By keeping the prey population from reaching a subsistence density level, the predator populations not only provide for their own survival, but ensure a future source of food, and protect both the prey population from over hunting due to starvation and the plant food supply from being over-browed (see Smith 1974a for a complete discussion).
While it is difficult if not impossible to measure the degree to which human and non-human predators were harvesting the deer population, the relatively high representation of older individuals (14% years) in the harvest suggests that the winter death rate of the deer population was lower than that which modern day populations experience.

Similarly, if the total number of deer represented at two completely excavated Middle Mississippi sites (Parker and Snodgrass) are believed to have been occupied for only from 9 to 10 years represents the total deer harvest for the two sites, it still represents less than 10% of the total projected potential yield from the deer population within a ten square mile area. Thus while the evidence is limited, it suggests that harvesting of deer populations during the Mississippian period was not intensive.

Acknowledgments

I would like to acknowledge the assistance of Jean Fitzgerald in the final preparation of this manuscript.

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*Characteristics of the middle ground in relation to use in black-tailed and white-tailed deer. California Fish and Game 42(1):1-23.*
AN AMERICAN POPULATION FROM MISSISSIPPI

E. C. Bailey

This report describes the analysis of a skeletal population from the Hixson site (WGI 99), a Pleistocene morricle located in the Machesney Park area, Clarke County, Mississippi. The human skeletal collec-
tions was one of the first to be processed by the Center for Anthropology, Florida State University, under contract with the Southeastern Archaeological Center, National Park Service. The other sites included in this report were the Hixson site, Indian Cave, and the ground floor of the 1928 Fort. In addition, the material coming out of the Illinois caves.

Under the terms of the contract the human remains are to be cleaned, preserved, accessioned and restored. Each skeleton is then measured using standard anthropometric techniques, and a gross analysis performed to determine any pathological changes as well as identifying the presence of non-skeletal variations. The completed report includes all the specific numerical data, standard indices of the cranial and post-cranial skeletons, and photographs, and a general description of the population including estimates of sex, age, and stature.

The Hixson site, named after its owner, was first noted in an official document the Work Progress Administration by E. C. Bailey (1941). Jesse Jennings (1942) listed it in the following year in his in-
ventory. It is currently in the possession of the Center for Anthropology and consists of 31 burials in 1935 (Cutler 1935). Twelve years later Charles F. Bohnon—now the Hixson Site for the National Park Service—excavated 23 burials (Bohnon n.d.). Cotter's burials are not included in the collection under consideration here.

According to Bohnon, the site lies on the top of an isolated knoll with the burials concen-
trated in a small area near the top. Bohnon found the burials generally scattered at random but in some instances they had been placed close together. There was, he says, no consistent orientation with points of the compass. He describes the burials as follows: 8 individual primary inhumations, 1 individual bundle placement, 12 multiple burials and 1 consisting of 2 isolated crania. Bohnon also notes that several of the burials which he found contained only the remains of articulated arms and legs. These he suggests occurred when a previous burial was encountered and partially removed to make way for the place-
ment of a subsequent one. The presence of headless skeletons which he found to be seven in number was at-
tributed to the activities of a local amateur who had a penchant for collecting skulls. The isolated crania Bohnon thought might best be explained as trophy burials.

My investigation of this skeletal population indicates that a minimum of 68 individuals are repre-
sented. Bohnon reported 64. These 68 contain the remains of both the cranial and post-cranial skeletons, in addition I found another 10 crania which had been separately placed in the field but had no information attached. This would indicate a minimum of 78 individuals. The number of post-cranial remains are most likely the ones thought to be trophies, this would increase the total number of skeletons to 78. The other 2 isolated crania also probably belong but I was unable to associate any of them with the head-
less post-cranial skeleton in the collection.

Though most of the bones were in a good state of preservation not one skeleton was found to be com-
plete. Indeed some contained only the largest bones and parts of these were often missing. Also many of the small or irregular bones such as carpals, tarsals, phalanges, vertebrae, and the like were simply non-existent.

Again with one exception the crania were undamaged and usually considerable restoration was required before even the cranial index could be determined. Upon completion of the restoration phase of the pro-
ject it was found that all but 4 crania were faceless, and in only one of these was the basal part present. Thus because of the general incompleteness of the crania I am not able to provide the kind of metrical profile which could be used to compare this Indian population with others in the area.

Of the measurable cranial vaults most were either brachycephalic or hyperbrachycephalic. The fact that virtually every skull exhibited some degree of occipital flattening undoubtedly contributed to this condi-
tion. The ratio of the length of the vault to its width was found to be high or hyperbrachycephalic and would seem to indicate that this population lived in an environment where the demands of cold and possibly migration was a part of life. The technique of pathology in the letter. The cranial-flatness of the tibiae was also found to be average in platymeric.

Using either of the method of Stewart and McKern or the less reliable pattern of stature clavicles, it was found that 19 males and 19 females in the population were adults. In addition there were 2 adults from which no reliable age estimation could be obtained. The ages of infants and sub-adults were estimated on the basis of tooth eruption and length of long bones. The mean age at death for the entire population was 17 years. Stature estimates were obtained using the system of Trotter and Gleser for 14 adult males and 12 adult females. This mean stature for the males was 108.95 cm and for the females 151.19 cm.

Since life expectancy was not great this suggests that the Hixson population was not particularly healthy. And while, except in one case, the causes of death are unknown, the condition of the skele-
tons indicated that whatever the cause, the skeletal system was not involved. Teratological was rare and in only one skeleton was evidence of infantile paralysis noted. Rather accounting for most of the cases were multiple myeloma, a seldom reported fatal malignancy in prehistoric Indian populations and two instances of osteomyelitis. Two cases of fractures were found, but involved the right hip of a 22 year old male, undoubtedly the consequence of a fracture to the neck of the femur. Mild-osteomyelitic frac-
tures were observed in the vertebrae and joints of seven individuals. There were also several instances of osteophytosis.

Periodical disease was quite prevalent. There was considerable resorption of the alveolar borders often with bone erosion. Caries were found in the dentition of almost half of the skeletons. Apical ope-
rations were also quite frequent. Considering that this is a young population, attrition of the occlusal surfaces of the maxilla had not progressed much beyond a slight exposure of the enamel. All of the upper incisors in the collection were found to be shovel-shaped, though there was a very great post-mortem loss.

Though this part of the report is incomplete the kinds of non-skeletal variations identified thus far has proven to be somewhat disappointing. To date I have observed one perforated sterno, one case of in-
complete closure of the mandibular foramina in two cervical vertebrae, two nasal pearls, and a number of skeletons, mostly female, with natal pustules in the distal ends of their humeri. Undoubtedly the in-
completeness of the collection is a contributing factor to this low frequency.
In summary, the nature of my contractual relationship with the Southeast Archaeological Center, National Park Service, has been described, as have some of the problems and preliminary results of the analysis. Data have been presented correcting the size of one population as well as providing estimates of sex, age, and stature. Examples of pathological change in the skeletons and the presence of non-metrical variations were also noted.

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Balcom, Charles F., Jr. The Nacogdoches site: A Pleistocene necropolis in Claiborne County, Mississippi. Ms on file, Southwest Archaeological Center, Tallahassee.


This paper attempts to document a protest by urban Indians directed against excavations carried out by the University of Louisville Archaeological Survey (UMA). We shall describe the chronology and form of this protest, its elements, and possibly some lessons behind its occurrence. Obviously, there are limits to judgment in any confrontation and perhaps a participant is not as adequate person to prevent the situation objectively. So that in any way, we can only hope to be moderately objective and basically analytical in this report.

During the summer field season of 1973 the University of Louisville Archaeological Survey conducted rescue excavations at a field site on a late Archaic habitation component located within the confines of the urban center and within urban fields. This station, the Western Hill Site (15LO1577) yielded a large and varied assemblage of lithic and bone tools, and many very fine burials. These interments were sterile of grave goods with one exception and none were ever casually introverted. Several of the burials also displayed post-interment disturbance by time-successive invasive burials or other features. The site was of significant because of the excellent bone preservation which allowed accumulation of a very large sample of faunal remains from a single which displayed several stratified living floors (Figure 3).

KYANG COMPOSITE PROFILE

![Diagram of KYANG Composite Profile]

Funding for the KYANG site excavations was derived from several cooperating local and state agencies. During excavations the Air National Guard provided "on base" security. All agencies were concerned that the site not be curtled away for fill to build a jet warm-up pad but before archaeologists were able to suggest that alternate sources of fill be used, a small portion of the site had been totally scissored. The site was placed on the National Register of Historic Places on an emergency basis (December 1972-1973).

Confrontation:

When the excavations were all but concluded a news conference was held to acknowledge contributions from the funding agencies and the public or skilled employees in conserving the community's subsistence heritage. Unfortunately, some news photographers covered from the planned activities and photographed some exposed burials which were still in situ, but in the process of removal. These were discarded upper bone burials (Figure 1) and the most obvious impression to non-archaeologists was that there was no pattern to the material which appeared to be a scatter of bone.

The next day a call from an extremely upset native American was received. This Indian, a Louisville resident, said that he had seen the news stories and photographs. He ordered the Archaeological Survey to stop "desecrating the graves of his ancestors" and stipulated that "all bones and other materials must be put back immediately." He further indicated that he was the newly elected President of the American Indian Club of Kohlke (AIC) which allegedly consisted of approximately 40 Indians in the Louisville metropolitan area. This Club had held a recently reported (July 1973) powwow in the city.

Immediately a private meeting with the club officers was requested by the University: however, not before a move to organize an institutional response had taken place. The Academic Vice President of the University of Louisville, when informed of the nature and gravity of the situation, ordered that all communications be directed to his office which would negotiate for the university in consultation with the legal officers and the Director of the University of Louisville Archaeological Survey.

The Club President, Dr. Vans Killingsworth, explained at a pre-arranged meeting but before holding forth to the news media, consisting of the press and TV, that archaeologists were destructive and grave-robers. The university was subsequently controverted by statements from the Native American Rights Foundation of Boulder, Colorado, who requested an outline of the situation and the University's position. They had, up to that
time, only an emotional assessment of the "decommission" from AICW which had contacted them for assistance to their causes. They requested that meetings be held to resolve the situation possibly by removal of the excavated remains. They indicated, however, that the legal position of AICW was not good and further that they probably would not take the case.

One week later the situation had become more solidified. The University, in consultation with the State Archaeologists, had adopted a firm position of "no removal" and supported it with a statement (Appendix 1). The AICW President held several press conferences, each expressing more virulent demands than the last. Finally, after AICW's refusal to enter the case, the American Indian Movement, Illinois Chapter, IAM was called to AICW's assistance (Appendix 2). The Director of the Archaeological Survey of the Illinois State Museum was a frequent visitor to the Director's home office, demanding that he be immediately complied with AICW's wishes in lieu of bodily harm to himself or his crew. It was at this point that a meeting was held.

The Club Officers and representatives of IAM, attended the first meeting with the University Supervisors for Inter-Academic Relations. The meeting was held in the University Administration Building and was attended by the Director of the Archaeological Survey, and two legal officials. The Indians were represented by a legal aid lawyer, Mr. Baer, who was also present. The archaeologists discussed the "wanton wasting of 50 years of work" and a demand was presented that all cultural and human remains be removed by AICW for excavated by Indian medicine men immediately. Further the Indians maintained that they had been prevented from viewing the site by the Air Force--very neatly due to on-base safety procedures, in reality because the University of Louisville Archaeological Survey had requested that access be denied. This was true to the extent that Club had been reliably informed that a ritual was to be held by AICW and the site on the premises for which permission was to be sought against archaeologists and the site remained "a sacred precinct." Scienfific justifications for archaeology and regulations for the safety of the site and persons on it were presented by the University officials but the demand for visitation rights and "reburial now" was voiced again. The representatives demanded to know who had the right to allow such destruction. It was informed that the State had issued the necessary permits, and that even though the site was on the National Register of Historic Places, the State Antiquity Law permitted and led priority. All the Indian Representatives firmly refused to accept this, stating that only Federal law applied to Indians and anything which was Indian. The Indians informed the meeting that they had already discovered that other IIA excavation activities and threatened to shut them down by force if necessary. The University officials offered to take one positive step toward a policy of Indian opportunity at the university and these suggestions were rejected by the Indian representatives. In the end it was agreed that an Indian representative would sit on all contact committees from the Indians were received. IAM, AICW, and ultimately the Legal Aid Society, all rejected AICW's case.

Assessment:

The situation in today's urban society is in many ways unique and ahistorical (1969). It is, in many ways, the situation in the AICW's case is typical. He is of Middle Eastern origin, with the usual vocabulary and tradition of the Orient, with over 25 years in the United States Army and had recently moved to Louisville (February, 1973) from his last duty station. Part of the culture which has been acquired is the language of the Indian and the Indian culture. Also, there are other Indians in the vicinity, and held the poorly attended Indian pow-wows. Herbert (1971,225) suggests that "the control of the Indian's spirit and the way he used to be". The pow-wows are featured... and better education in Indian traditions is a personal thing. The role and position of the University's role is a personal thing. The role and position of the University's role is a personal thing. The role and position of the University's role is a personal thing. The role and position of the University's role is a personal thing.

The Club is the most active of the Pokagon area Native American Club is primarily the establishment of those "ties" with some form of organization since:

A person who is on the role of a tribe and lives on a reservation clearly is an Indian.

-- If he moves from a reservation but remains on the role, he continues to be an Indian.

-- If he receives a clear title to allotted reservation land, he may or may not subsequently lose that status. Depending on the circumstances, he would appear to be an Indian if he is in an Indian is lost by disincorporating voluntarily from other Indians and becomes "Indian".

The Club is a legitimate, independent body of concerned individuals and offers a degree of corporate status to tribally organized urban Indian families.

Indiansness is ahistorical in that ethnic affiliation with all Indians of whatever ancestry, prophetic status on any tribe is claimed. The AICW President often states that "my people tell me that I am an Indian and that all the history I need to know." This statement reflectst an attitude that is significantly anti-archaeological. Indian primaries are made superfluous by an ethnological context. This position is adopted to express the urban Indian, involved in movements for social justice, from the white man's concept of the "Historical Indian" (Kroebinger, cited in Maddal and Kaven 1971). The archaeologists, is that of the archaeological record and it is maintained that this is a fact that is irrefutably maintained by the reservation of the Indian's identity, but not necessarily by the archaeological record. The reservation of the Indian's identity is not necessarily maintained by the archaeological record.

The Club is organized as a "tribal" society, which the AICW and others claim to be an Indian, and it is an Indian if he is lost by disincorporating voluntarily from other Indians and becomes "Indian".

The relationship of the University of Indiana to the AICW is primarily the establishment of those "ties" with some form of organization since:

A person who is on the role of a tribe and lives on a reservation clearly is an Indian.

-- If he moves from a reservation but remains on the role, he continues to be an Indian.

-- If he receives a clear title to allotted reservation land, he may or may not subsequently lose that status. Depending on the circumstances, he would appear to be an Indian if he is in an Indian is lost by disincorporating voluntarily from other Indians and becomes "Indian".
Much of the urban Indian's frustration is his awareness that he is not consulted about tribal affairs, or because of his usually low socio-economic status, about urban politics. He has communication is everything - without it, he is frustrated - with it, he may become a willing partner in archaeological conservation. If the protest at Louisville has accomplished anything, it has been a concerted effort at planning a dialogue with an Indian population we didn't even know existed and establishment of clear and specific guidelines for the treatment of all prehistoric human remains.

Conclusion

In conclusion we have not yet been able to meet with the Louisville urban Indians on a level of mutual acceptance. The University has its scientific and legal responsibilities and must abide by them. The Indians, who have apparently exhausted their resources, have let the matter drop, but, we assure, have not forgotten it. Re-interment or storage of the human remains is subject to strict guidelines and Kentucky law, which we provide for stringent controls.

Our attitude as archaeologists is that in situations of rescue archaeology we will have to protect the heritage of the urban Indians until they understand that their Indianness can be better defined in the time perspective provided by prehistory. Recognition and adoption of a firm legal position and a deter-
nation to adhere to it may be the only way the archaeologist has to confront similar situations of pros-
tect. We feel that the unsolved and unresolvedissue of full public view is wishful thinking. Still the archaeologist must assert a flexible stance when the point is made that one cannot simplistic work out the issues as agreed to in the individuals involved. Human treatment of both is mandatory in ord-
er to avoid the pitfalls and to protect the Indian heritage, and, in the last, the Indian's knowledge. A failure in understanding the Indians has a legitimate role in the disposition of their heritage is as great a mistake.

Much of the urban Indian's frustration is his awareness that he is not consulted about tribal affairs, or because of his usually low socio-economic status, about urban politics. He has communication is everything - without it, he is frustrated - with it, he may become a willing partner in archaeological conservation. If the protest at Louisville has accomplished anything, it has been a concerted effort at planning a dialogue with an Indian population we didn't even know existed and establishment of clear and specific guidelines for the treatment of all prehistoric human remains.

References cited:


Appendix I

STATEMENT

UNIVERSITY OF LOUISVILLE ARCHAEOLOGICAL SURVEY

August 9, 1973

The XVIII site 15 AL 267 was discovered August 4, 1972 by workmen engaged in construction of additional facilities for Shawnee Air Base. The University of Louisville Archaeological Survey was contacted immediately by the Kentucky Air National Guards Command and arrangements were made to preserve the site from imminent total destruction by bulldozer stripping, erosional effects, land clearing, and other activities. Upon request, the Survey was granted permission to excavate the site prior to construction of the additional facilities until a professional evaluation of the site could be made by archaeologists from the University of Louis-
ville, who had a valid permit under the provisions of Kentucky Revised Statutes section 156.750.21
University officials have acted with deliberate speed to accomplish the scholarly objectives as quickly as possible, despite inherent speed in which the site's location within the commercial area of the airport and 2) a lack of immediate funding for the project.

After one year of intensive activity, all the site and working with governmental and community officials, the University of Louisville Archaeological Survey concluded its scheduled work and issued a preliminary report to representatives of cooperating agencies and to the public on Monday, August 8, 1971. Activities at the site during the past year have been the "closing-out" operation normally associated with ending any such project. The University has received a grant to deal with all agencies involved in the project and is now aware of its responsibility to act with deliberate speed to allow airport and National Guard officials to proceed with their construction and to be relieved of the ongoing task of providing special security arrangements for the site.

The Archaeological Survey's specific objectives are:

Point 1: Human remains that represent historic populations will be re-interred by the University of Louisville Archaeological Survey only if specific tribal associations are demonstrated by a legally qualified descendant.

Point 2: The remains referred to in Point 1 will be thoroughly analyzed before re-interment.

Point 3: No illegally documented remains will be re-interred or will grave goods or products associated with these undocumented remains be re-interred.

Point 4: In the University of Louisville Archaeological Survey excavations all human remains and associated artifacts will continue to be treated with the respect normally due human beings, no matter of what affiliation.

Point 5: University of Louisville Archaeological Survey artifacts and cultural materials will continue to be displayed in a selective basis for educational purposes.

Point 6: Human remains retained in the University of Louisville Archaeological Survey collections will continue to be available for study by qualified scientists.

Point 7: Any materials held in the University of Louisville Archaeological Survey collections are not now nor will they in the future be displayed for purposes of shock value or merely to satisfy public curiosity.

Point 8: Publicity attendant upon University of Louisville Archaeological Survey projects will continue to be presented in such a way that reflects no discredit upon the materials or cultures being excavated.

Point 9: No intrusions, interruptions, or destruction will be tolerated in any site or project being investigated by the University of Louisville Archaeological Survey.

Point 10: Scientific data resulting from archaeological activities will continue to be made public in conformity to publication policies of the University of Louisville and the Society for American Archaeology.

Point 11: Other information on site locations, projects being developed, operations, employees and collections will continue to be confidential and available only to qualified persons.

Appendix A

AMERICAN INDIAN MOVEMENT
Illinois Chapter
BROTHERHOOD

FOR IMMEDIATE RELEASE

It has been called to the attention of the American Indian Movement, that an Indian burial ground was discovered and excavated, next to the main runway at O'Hare Field near Des Moines, Illinois. It has been further brought to our attention that photographs were printed in the local newpapers, showing the bones stacked and classified as if their ancestors type.

It is our feeling that the desecration of our ancestral burial ground cannot be of any real value to anyone.

If we tried to dig up a white man's grave, we would be arrested and incarcerated for disturbing someone's final resting place. Grave robbing and body searching for the purpose of scientific study was outlawed in the early 19th century. By those same laws, white men should be prevented from digging up ours.

The American Indian Movement supports the American Indian Club of Kentucky in their demand that these bones be returned to their original resting place, and the area be restored to its original state. If this is not feasible, we demand that the United States Government, through their respective state agencies, under any contract or agreement not perform any digging up of our ancestral burial grounds. We believe that no man, scientific pursuit, can justify the destruction of these most holy grounds. Our beliefs, as do yours, state that no one has the right to disturb the final resting place of our ancestors.

The American Indian Movement supports any program necessary to meet future excavations, unless we can get permission to dig our own cemeteries for our own study of physical anthropology.

AYEAH SPOKEN!

*Note: This copy contains the text of two statements; one prepared to be issued in case the site was still being excavated, the other in case the site excavation had been concluded. We have omitted the temporal references only in combining these two releases.
METHODS FOR THE PATHOLOGICAL EXAMINATION OF HUMAN SKELETONS

Don Morse, M.D.

At this present time there are three principal methods in conducting a pathological survey of a skeletal population. All three will undoubtedly add many more. These three are: Gross examination of the bones, use of the x-ray and use of the microscope.

Before discussing these in some detail, your attention is called to a fact that those of us who have attempted to analyze skeletons, both physically and pathologically, are well aware of—that the amount of information obtained is directly related to the skill of the excavator when he removes the bones and prepares them for transportation to the laboratory.

With this in mind, it is recommended that every archaeological excavation should have as a member of the team a physical anthropologist. If the project is small, then, at least, a physical anthropologist should be available as a consultant, preferably to periodically visit the excavation. The physical anthropologist should be able to examine the burials in situ, conduct a simple on-the-spot bone inventory and supervise the removal of the skeletal material. The Taping, the boxing and transportation to the laboratory. The late Dr. George Reemann said that it should take at least as much time in removing the skeleton as it does to deposit it in its first place. A few extra minutes in the field can save many hours of work in the laboratory. It is important to get all the bones-hence the necessity of the bone inventory. This inventory does not need to be recorded and it is not advisable to make an extensive description of the bones as they are removed. This can be done more accurately in the laboratory. Frequently pathological bones are more fragile and consequently more care is necessary in their removal.

If a physical anthropologist is not used, then the archaeologist in charge should assume these additional responsibilities and should be qualified to perform this preliminary bone work. Unfortunately this is not always true. For example, Dr. Robert Delboy and I recently conducted a survey of a skeletal population for the National Park Service. This material had been excavated, under contract, several years ago. Of the seventy individuals represented, none of the skeletons were complete. Many of the larger bones were missing. Less than 50% of the finger and toe bones were present and only one coccyx was recovered and it was fused to the sacrum. In addition the bones were mixed up in the boxes, making it difficult to impossible to separate the individual skeletons. The field notes reported that a few bundles were found and these are never complete. There also can be large root and rodent disturbances but these deficiencies should not be compounded by the excavator. In collections like this, such things as post-mortem variation, population comparison and incidence of diseases are of very little value.

Gross Examination of the Bones:

Gross examination of skeletons need no detailed explanation. Experience will pay off in determining what is pathology and what is pseudopathology caused by post-mortem changes. Legal use of the magnifying glass is important.

Use of the X-ray:

The x-ray machine must be enclosed in a lead-lined box. The equipment should be inspected by a radiation safety inspector and the box should be constantly monitored so that the occupants of the room will not be exposed to radiation. Before the machine is turned on, the door to the box must be closed and secured.

The ideal situation would be to x-ray every bone in every skeleton, but the results obtained would hardly justify the time and expense. However, in selected cases, it would be imperative that the skeleton should be x-rayed in its entirety. One such case is illustrated in Figures 6, 7, and 8.

There are two specialized x-ray methods that are sometimes used in the study of archaeological bones: planigrams and micro radiographs. Planigrams or body section x-rays are produced by a simultaneous movement of the x-ray tube and the film so that only one plane of the object is in focus during the exposure. This has the effect of x-raying a slice of the object. Additional slices can be obtained by varying the distance from the tube to the object. Micro radiography usually requires a specialized machine which uses low kilovoltage and long exposure time. High resolution film is necessary in order to permit the visualization of tiny details that can be seen only through a microscop. A thin section of bone is required.

Use of the Microscope:

The method used in medical laboratories for examining bone microscopically is to demineralize fresh bone by soaking in an acid solution until it is soft enough to be cut with the microtome knife. This does not give uniformly good results with archaeological bone because demineralization just adds to the cutting process that the bone has already experienced while in the ground. One solution to this problem is polished sections which utilizes the diamond saw, grinder and polisher (Figure 9). The thin section should be 2-5 mm in thickness and the surface must be microscopically smooth. Another solution, which will probably be the accepted method of the future for examination of dried bone, is the scanning electronmicrograph. All our needs is a bone surface or a break in the bone. Transmitted light is not used and the depth of field is tremendous.

Specimens of Particular Interest:

Variability, both genetic and acquired, is a prominent characteristic of man. It seems that every skeletal collection contains several unusual and interesting anomalies.

Recently Dr. Robert Delboy and the author examined 14 skeletons from the Virgin Islands for the National Park Service. These bones had been recovered by park rangers from Cinnamon Bay, St. John. The bones had been exposed by surf erosion and were thought to be from an unmarked cemetery. Radiographs brought back into the lab 14 were male and all 14 were Negro. One male, who was 63 to 65 years of age at time of death showed a diamond-shaped defect involving the upper right canine and first premolar. This is a pipe stem attrition (Figure 3). Another individual, a female, aged 60 to 65 years, demonstrated a pronounced osseous of the frontal bone. The evidence for antemortem existence of this lesion was the presence of many sutures extending across the suture. The most likely diagnosis would be a treponema infection such as syphilis (Figure 3).

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Another collection belonging to the National Park Service was examined by Dr. Bailey and myself. Some 90 fragmented skeletons had been excavated in 1963 from the Mound Round in Claiborne County, Mississippi, on the Natchez Trace Parkway, and were identified as belonging to the Late Mississippi Period (ca. A.D. 1300). Eleven, (Catalogue 66895) age about 20 years, had a severe osteomyelitis of the right hip joint (Figure 4). As no other joints were involved, it was thought that this was a traumatic arthritis. Gross examination and x-ray confirmed this impression as there was shortening and distortion of the neck of the femur, indicating a healed fracture. In the same collection there was a 25 year old person (Catalogue 6697). The post cranial portion consisted of 21 vertebrae, 14 rib fragments, the pelvic, all the long bones and base of the bones of hands and feet. The greatest involvement was in the seventh cervical vertebra. On the surface of the body of the vertebrae were seven distinct punched out areas from 2 to 9 mm in diameter (Figure 5). X-ray showed several additional engaged areas which had not yet reached the bone surface (Figure 6). Gross and roentgenographic examinations of the entire skeleton reveal similar involvement of left vertebrae, 11 rib fragments, the right and left ilium and the right scapula. The long bones were not involved, unfortunately in the right humerus and radius, but two in the left radius, and an ulna. In the left arm four vaults were removed, two of the skulls, assigned letters A and B were males, 'C' and 'D' were probably females, 'E' and 'F', similar to 'C', are in the discarded bones in the postcranial skeleton, and it is assumed that 'D' belongs to the dissected skeleton. This case will be reported in greater detail in a future issue of the Bulletin of the Natchez Trace Parkway. The most likely diagnosis is multiple myeloma, which is a malignant tumor of the bone marrow.

Suggestion:
Following are some suggestions for the palaeopathologist when he attempts a survey of a skeletal population:
1. Examine in situ whenever possible.
2. Consider the entire skeleton, because distribution of disease is important in arriving at a diagnosis.
3. Take special care in bone removal, labeling, boxing, and transporting to the laboratory.
4. Preserve the future so that new techniques can be applied if and when they are developed.
5. Get help from others such as the roentgenologist, the orthopedic surgeon and the pathologist.

Figure 4. An example of thin section microscopy. Photograph of a dissected archeological tibia from the Round Mound, near Natchez, Mississippi. In the center is the section line in a normal specimen. The distortion of the remainder is due to a sclerotic osteomyelitis.
Figure 2. Pipe stem attrition in an elderly male from the Virgin Islands National Park.

Figure 3. Pronounced osteitis of the frontal bone (Virgin Islands National Park).

Figure 4. Traumatic arthritis of the right hip joint in a 29-year-old male found in the Acquaviva, Calcasieu County, Mississippi.

Figure 5. Photograph of the seventh cervical vertebra and the first, second, and third thoracic in a 55-year-old gressed-heat lesions are typical of a multiple myeloma.
Figure 6. Myelomatous involvement of several vertebrae from the Magrino Hoard skeleton. The diagnosis was made pre-exhumation in the seventh cervical vertebra.

Figure 8. Enlarged view of skull showing lesions compatible with multiple myeloma.

Figure 7. X-rays of the long bones of skeleton 6692 are normal.
SOME OBSERVATIONS ON MOSSEY OAK

Thomas J. Shellogg

Although the pottery type Mossey Oak Simple Stamped has been known since the WPA era, the cultural and temporal relationships of Mossey Oak are among the least understood in the Southeast. Sears (1936:1) referred to it as the "mysterious Mossey Oak," since a report on the type site was never published. What is generally known of Mossey Oak is found in regional synthesis (Fairbanks 1932, 1956; Willey 1956). The purpose of this brief paper is to review the Mossey Oak problem and present additional data from the field notes and the artifacts which have been in storage for thirty-five years.

Mossey Oak Simple Stamped pottery was labeled "Sigma Ware" when first encountered in the excavations at Nocoo Kelly (1936:31). For a brief period it was called "Vining Simple Stamped," after the Vining site in north-central Florida (Fairbanks 1932:267; Kelly 1956). The Vining site is one of several rock mound sites (some of them effigy mounds) which have produced small amounts of Mossey Oak Simple Stamped pottery. Waring (1945) reported on some Hopewellian artifacts from the Shaw Round, a rock mound near Catterole that yielded several simple as well as complex stamped sherds. Fairbanks (1952) has used this evidence to postulate an Adena complex associated with Mossey Oak ceramics.

Warning and入选 (1956:145) mentioned finding Mossey Oak sherds in association with Deepford ceramics at a site north of Atocosa, Texas (Midkiff 1962:28) reported Mossey Oak associated with Denaah fabric marked pottery in his north Georgia survey. A small amount of Mossey Oak material was found in the subangular boulders of the St. Mary Mound Group at Marion Phase, with Denaah, Lagniappe, Slavin Phase, and fiber-tempered ware (Fairbanks 1956:31). Of course, since those early reports, Mossey Oak sherds have been found on Georgia sites from Cartersville to Moccasin. At the type site in central Georgia, the Mossey Oak component was described as "pits" (Fairbanks 1932:288).

It would be presumptuous to attempt a complete site report on a site which has been discussed briefly for many years by archaeologists who have not been actively associated with it. However, since another generation of Southeastern archaeologists has emerged, most of whom have never seen the site or the collections from it, this review may be of interest. I have examined the surviving fieldnotes and collections, and, although the collections suffer from some of the same problems which late Smith detailed in regard to the Lamar material, I will present a brief discussion of the site and the excavations.

Description:

The Mossey Oak site is located on the west bank of the Ocmulgee River 4 mi south of Mocoo, Georgia. The lower mound is approximately 2 mi upstream. In 1933, the site was described as a flat island, bordered on the south by Mossey woods and on the north and east by a bend in the river (Figure 1). The area of the site was cultivated, and the site was subject to periodic flooding, and at the time of excavation was covered by alluvial deposits over 1 ft thick in some places. A semi-mound strata was more alluvial soil of a different color.

Like many sites along the Ocmulgee, dark, organic midden strata were exposed by bank-cutting erosion. The fact that this was a middle mound present at the site was not discovered until a close examination of the riverbank deposits revealed what appeared to be a pure Mossey Oak component underlying a Lamar phase occupation.

Excavations:

The Mossey Oak site was visited by R. H. Kelly in 1933, and some test pits were excavated at that time. No records of these excavations have survived at the Southeast Archeological Center. Apparently three excavations were made in the project known as the Central Georgia Stratigraphic Survey. Through excavations at a number of sites in the central Georgia area, the project hoped to clarify the sequence of events which Kelly found to be close to Marshall Phase. Mossey Oak was one of the sites chosen for excavation in this project. Others included Cowards Landing, Mapletown Village, Tuff's Springs, Shell Rock Cove, and Staines Mound.

Willey did a considerable amount of methodological experimentation during the course of his surveys in Georgia. He tried to establish a Bordenchronology for the area, and also experimented with procedures such as the "stratigraphic block" technique that colleagues were using in North Alabama (Hab and Decherre 1921), and the "test hole" controlled surface collection technique that Kinford (1946) reinvented a quarter-century later.

At the Mossey Oak site, Willey began with eight 10 x 10 ft (3 x 3 m) test pits using 3 in (7.6 cm) arbitrary levels below the plowzone, which was shaved off as a unit. These first pits were placed randomly (i.e., nonindependently) over the site, but three later pits were placed along the riverbank upon completion of the excavation unit a soil profile was drawn, and the arbitrary levels were superimposed over this profile.

Most of the test pits sampled both the Lamar midden and the Mossey Oak midden deposits. Pits 9, 10, and 11 were extended along the bank in order to sample the Mossey Oak component more thoroughly. These pits concentrated exclusively on the Mossey Oak strata, although it was noted that some of the upper midden would be sampled in pit 8. Pit 11 was apparently too deep in lumps that continued to the 30° slope of the riverbank where the pit was located. Very little material was collected in this unit.

Unfortunately, the test pit data are no longer with the original records, and no topographic map was made of the site. No photographs are included in the collections, but few of them survive in good shape.

Materials Recovered:

Although a few burials were encountered, there is little surviving data pertaining to them. Apparently they were all Lamar burials. There is a small collection of lithic material, but the vast majority of the artifacts consist of ceramics.

I have examined all of the potsherds from four of the eleven Willey pits at the Mossey Oak site. After examining several thousand sherds from Pits 1, 9, 10, and 11, it was apparent that the Mossey Oak ceramic assemblage included a plain, sand-tempered ware as well as the better known simple stamped type. The plain

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Figure 1. Moosy Oak site taken from map by Temple in Willey’s field notes (1927).
Figure 2. Percentages of Lamar versus Mossy Oak ceramic by excavation level.

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Table 1. Sherd analysis of pit 7, Mossy Oak Site (11 Bl 17).
Moosy Oak has been causally linked to too many things — Hopewell, Coseopa, Adena, Deptford, Dunlap, Switz Creek. We can only proceed to grander questions of natural process when the cultural historical foundation has been laid. Until that is accomplished we continue to be stuck with problems that we either ignore or elevate to the realm of the 'mysterious.'

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