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VERTEBRATE REMAINS FROM ARCHEOLOGICAL SITES IN THE TENNESSEE VALLEY OF ALABAMA

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FOREWORD

The productive capacity of primitive man's environment and the degree of success with which he extracted the necessities of life from his surroundings not only determined his survival but influenced his cultural development as well. Through a study of his art, structures, burials, and artifacts we may trace the development of his culture and by piecing together this evidence, often fragmentary, we may infer the manner in which primitive man met the challenge of his environment. It is in the animal and plant remains in his village sites and middens that we may expect to find the most valuable key to the nature of the environmental conditions themselves. The tether which bound the hunting and gathering cultures to their basic food resources was short indeed, for these people took what was available, consumed it on the spot or nearby, and discarded the unconsumed portion. This unwitting legacy from aboriginal man can provide us with both an insight into his activities and food habits, and an excellent knowledge of his local contemporary faunas. The record is there for the reading - - -

ACKNOWLEDGEMENTS

The writer is indebted to many people and institutions for help and support in the preparation of this report.

The vertebrate materials which form the basis of this paper were obtained during the 1933-1939 archaeological surveys of the Pickwick, Wheeler, and Guntersville Basins of the Tennessee River. These surveys, under the direction of Dr. Wm. S. Webb, as Senior Archaeologist, were sponsored jointly by the Alabama Museum of Natural History and the Tennessee Valley Authority, with the labor force being furnished primarily by the Works Project Administration.

I am particularly grateful to Mr. David L. DeJarnette, Archaeologist-in-Charge of Mound State Monument, Moundville, Alabama for his many kindnesses during my stay at Moundville and for his assistance in locating and interpreting the excavation data from the Tennessee Valley sites, and to Dr. William G. Haag, Department of Geography and Anthropology of Louisiana State University whose suggestions and answers to my numerous questions have been most helpful.

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The responsibility for the accuracy of the species identifications and the interpretation of the data rests solely with the author.

INTRODUCTION

Primitive peoples the world over use water courses as highways and as a source of food. The Tennessee River was an artery of prominence to the aborigines if the abundance of their occupational sites along its circuit through North Alabama is an indication of use for over 900 sites have been located in the Wheeler (Webb: 1939), Guntersville (Webb & Wilder: 1951) and Pickwick Basins (Webb & DeJarnette: 1942). The wealth of the molluscan fauna both in the number of species and the numbers of individuals is well known (Ortmann: 1924). The number and sizes of the shell mounds and the composition studies by Morrison (1942) leave little doubt as to the utilization of this resource by the early aborigines and its importance to them. In less than 25 cubic feet of material studied, Morrison counted more than 57,000 individual shells.

Morrison concluded that the Indians gathered every mollusc in sight that was available for food, but that they did not gather those which were restricted in habitat to the deeper water of the river. If the shell mound builders gathered any mussels from the tributary streams, they must have consumed them near the point of capture since such species were not found incorporated in the shell mounds on which they lived. It is believed that none of the molluscs was transported any appreciable distance up or down the river. While the evidence is quite strong for the hypothesis that the mollusc remains in the shell mounds represent species gathered in the immediate vicinity, comparable evidence in the case of the vertebrates is lacking, since these species do not show the micro-habitat species differences exhibited by the molluscs. It is, however, reasonable to assume that most if not all vertebrates found in the sites were taken nearby.

The time interval represented by the materials examined in this study is from what has been called Archaic I in site Cr^o 8 (Webb and DeJarnette: 1948c) through Late Mississippi in sites Ms 32 and Ms 100 (Gunterlands V, Webb and Wilder: 1951); a period from ca. 4674 \pm 250 years ago up to ca. 1800 A.D. The Archaic I was first described for Ma^o 48 (Webb and DeJarnette: 1948a) when it was thought that a wholly-bone, non-flint level might be defined for North Alabama. Later, Archaic I came to mean (as at the Little Bear Creek Site, Cr^o 8) a lower level in which bone projectile points appeared to be more numerous than flint projectile points for there is no purely bone culture in the Southeast which precedes the use of flint material.

Approximately 8,000 unworked bone fragments were identified from 23 mound and village sites in Colbert, Jackson, Madison and Marshall counties (Fig. 1). The majority of the ninety collections from the 23 sites were made from definitely established cultural levels; although in some, the stratum was not indicated or the collections were from mixed occupational levels (Table I). Additional material from a few of the sites was examined after the initial tabulations had been completed; in only a few instances were there any additions to the original species reported from the site.

All human and dog material, as well as all worked bone artifacts, had been removed from each collection prior to our examination. The material studied presumably represents the discarded portions of the vertebrate food items eaten by the site inhabitants.

We assumed that repeated occurrences of the remains of a particular species was evidence of its presence in the immediate vicinity, while the single or infrequent occurrence of unworked skeletal fragments was not of itself sound evidence of its occurrence near the site even though the inhabitants of that area were habitually non-migratory. It was also assumed that worked remains found in the early Archaic

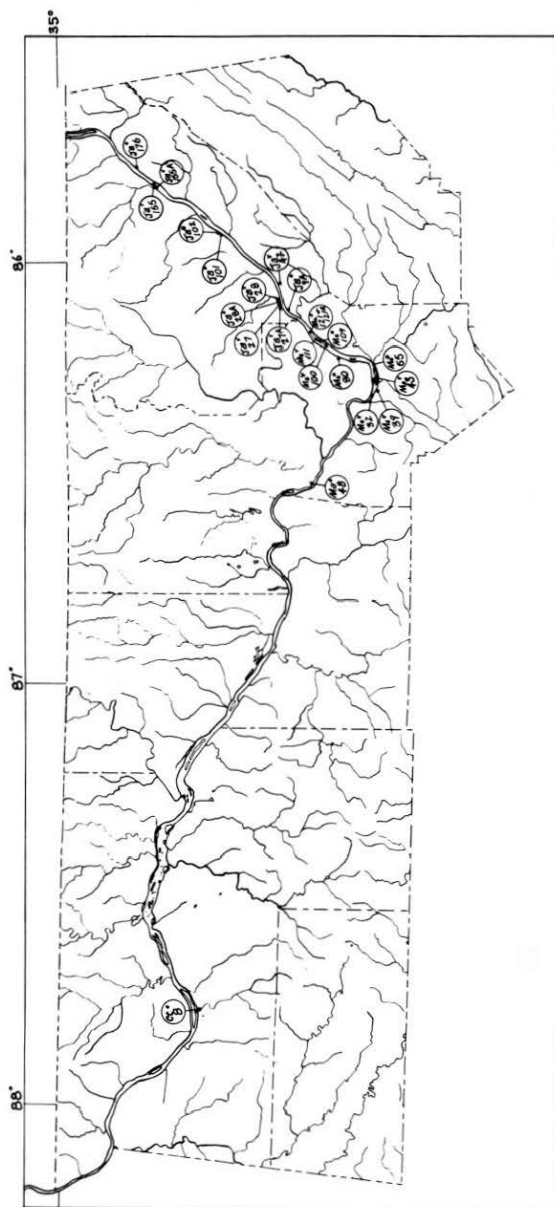


Figure 1

Site locations along the Tennessee River in North Alabama from which vertebrate remains were examined.

Table I
GUNTERLANDS CULTURES REPRESENTED

Site	G. I	G. II	G. III	G. IV	G. V	Remarks
Ct° 8	A:O	A?:O?	A:O	A?:O?:B		Primary occupancy in G. I. Minor occ. in G. III.
Ja° 9A			A:O	A:O		Early G. III and Late G. IV. White occupancy of site.
Ja√27			A:O	B		Early G. III occupancy: Burials Early G. IV intrusive.
Ja√27A			A:O	B		G. III occupancy: Burials of G. IV intrusive.
Ja√28			A:O	B		G. III occupancy: Burials of G. IV intrusive.
Ja° 28A			A:O	B		G. III occupancy: Burials of G. IV intrusive: Site mixed.
Ja√42	A:O		A:O			G. I and early G. III occupancy.
Ja° 101				A:O		White occupancy of site, corn cribs, etc. G. III sherds in mound fill presumed from other sites nearby.
Ja√102			A:O	A?:B		Site mixed animal bones possibly all G. III.
Ja√155			A:O	B		Early G. III burials, Late G. IV.
Ja√155A			A:O	B		Early G. III occupancy.

Ja° 176	O	O	O	A?:O	Mixing prevented assignment of animal material recovered. White occupancy of site.
Ma° 48	O	O	A:O	B	Only one feature examined.
Ms [✓] 32				A:O	Glass beads of Venetian origin ca. 1740 A.D. in B44.
Ms [✓] 39			A?:O	A?:O	G. III and G. IV occupancy: Deer bones only. Unplaced age.
Ms [✓] 43			A:O	A?:O?:B	G. III occupancy: G. IV intrusive burials and possibly one structure; White occupancy and civil war camp site.
Ms [✓] 55			A:O	A:O	G. III earliest occupancy continued almost to G. V.
Ms° 80			A:O	B	Single occupancy in G. III.
Ms [✓] 100	O		A:O	A?:O	Pig, cow? or bison? recovered.
Ms [✓] 109			A:O	B	Early G. III occupation.
Ms [✓] 111	O		A?:O	A:O	G. IV occupancy largely assumed material largely C. IV.
Ms° 121			A:O	AP:O:B?	Iron axe of white origin?
Ms [✓] 121A			A?:O	A?:O	Iron axe unplaced?

Legend: A = animal remains examined: O = occupancy period:
 B = intrusive burial of cultural age indicated

strata were more likely to have come from animals taken locally than those occurring in the immediate precontact or postcontact periods when trade channels reached a high degree of development.

The relative abundance of a species at a particular time cannot, of course, be obtained from a tabulation of frequency of the species' occurrence in a site; neither can one obtain but a general impression of the total diet or food preferences of a people from a study of their middens. The following factors each have a bearing on the likelihood of a species being found in a site:

1. The presence of decay resistant parts in the species.
2. The size of the resistant parts and the likelihood of its recovery during excavation.
3. The relative abundance of the species at the time of its capture by the site occupants.
4. The relative availability of the species to the aboriginal hunters.
5. The taboos of the people themselves.

There are other sources of error which must be recognized such as the possibility that the association of two or more species in apparently the same strata may actually be the result of an unrecognized intrusion or site disturbance making the interpretation of evidence presented by a single or even a few occurrences extremely tenuous (Figs. 2 and 3).

It is recognized that conditions for the preservation of bone in the river bank sites is far from favorable and that the vertebrate material recovered in the collections may be heavily biased in favor of those species with more durable structures. Despite these rather formidable obstacles it is believed that a great deal can be learned about the environmental conditions which existed at the various cultural levels by a study of the faunal remains in these aboriginal middens (Tables II, III).

Cultural Level Assignments of Site Material

Published descriptions are available for each site with the exception of Ms° 121 and Ms° 121A. See Table I for periods of occupancy and cultural levels from which vertebrate material were examined.

Webb and DeJarnette (1948a: 1948c) proposed an arbitrary six step chronology for the Flint River Site, Ma° 48 in the Wheeler Basin and the Little Bear Creek, Ct° 8 in the Pickwick Basin. In setting up the chronological scale no attempt was made to assign diagnostic traits to any horizon. The beginning of each time band was defined in terms of certain objective criteria which were easily observable by excavation and which had been repeatedly discovered to exist in many sites. These time bands or horizons as originally proposed are as follows:

- | | |
|--------------|--|
| Archaic I. | From earliest occupancy of the shell middens on Tennessee River to Archaic II times. (No wholly-bone culture has been defined for N. Alabama. Archaic I now is interpreted to imply simply a predominance of bone projectile points over flint projectile points). |
| Archaic II. | Introduction of worked flint to Archaic III. (Archaic II as used here implies a predominance of flint projectile points to bone projectile points.) |
| Archaic III. | Introduction of sandstone and steatite vessels to Pottery I times. |

- Pottery I. Introduction of fiber-tempered pottery to Pottery II times.
Pottery II. Introduction of grit-tempered pottery to Pottery III times.
Pottery III. Introduction of shell-tempered pottery to the historic contact period.

Webb and Wilder (1951) proposed a five step chronology for the sites in Guntersville Basin. Vertebrate materials from 21 Guntersville sites were included in our study, 19 of these sites were reported upon by Webb and Wilder. We have followed the five step chronology in the case of Ms° 121 and Ms° 121A. The Guntersville chronology as proposed by Webb and Wilder is as follows:

- Gunterlands I. From the earliest occupancy in prepottery times to Gunterlands II.
Gunterlands II. Beginning with the introduction of fiber-tempered pottery to Gunterlands III.
Gunterlands III. Beginning with the introduction of limestone-tempered pottery to Gunterlands IV.
Gunterlands IV. Beginning with the introduction of shell-tempered pottery to Gunterlands V.
Gunterlands V. Beginning with the introduction of artifacts made by white men and extending up to the time of removal of the aborigines from the basin.

SITE DESCRIPTIONS

Ct° 8 - Little Bear Creek Site. (Webb, Wm. S. and David L. DeJarnette: 1948 c).

Vertebrate remains were recovered from Archaic I, Archaic II, and Archaic III cultural levels. There are no radiocarbon dates for this site, but the Perry Site, Lu° 25, in Pickwick Basin, which is about 4.5 miles distant, is closely related culturally (Webb and DeJarnette: 1948 b) to Ct° 8. Lu° 25 is dated 4764 ± 250 years ago by Libby 1955: p. 105). The upper two feet of Ct° 8 was disturbed as a result of extensive digging by a second people having a shell-tempered pottery culture. This people added little to the mound and it is believed that the site was used only as a burial area by this later group. All non-human vertebrate remains in the upper three feet of this site were assigned a cultural age of Archaic III.

Ja°9A - Langston Mound. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 168).

The cultural periods represented were Early Gunterlands III and Late Gunterlands IV. There no evidence of aboriginal contact with the whites. In the 1880's the top of the mound had been leveled and a house built on it which subsequently burned. The pig, *Sus* and cow, *Bos* material found in the top level was presumed to have been from this last occupancy.

Ja° 27 - Hardin Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 176).

All vertebrate, non-human material assumed to be of Early Gunterlands III cultural age. Site also used as a burial ground by a people of Early Gunterlands IV time horizon.

Ja° 27A - Guffey Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 179).

All vertebrate, non-human material assigned to a Gunterlands III culture. Intruded burials of Gunterland IV but no occupation of site occurred during this period.



Figure 2

The heavy dependence upon molluscs for food is clearly demonstrated. The assignment of animal remains to a particular cultural level with certainty is often complicated by intrusive pits such as the one above (88 Ma° 48, Ala. Mus. Nat. Hist.).

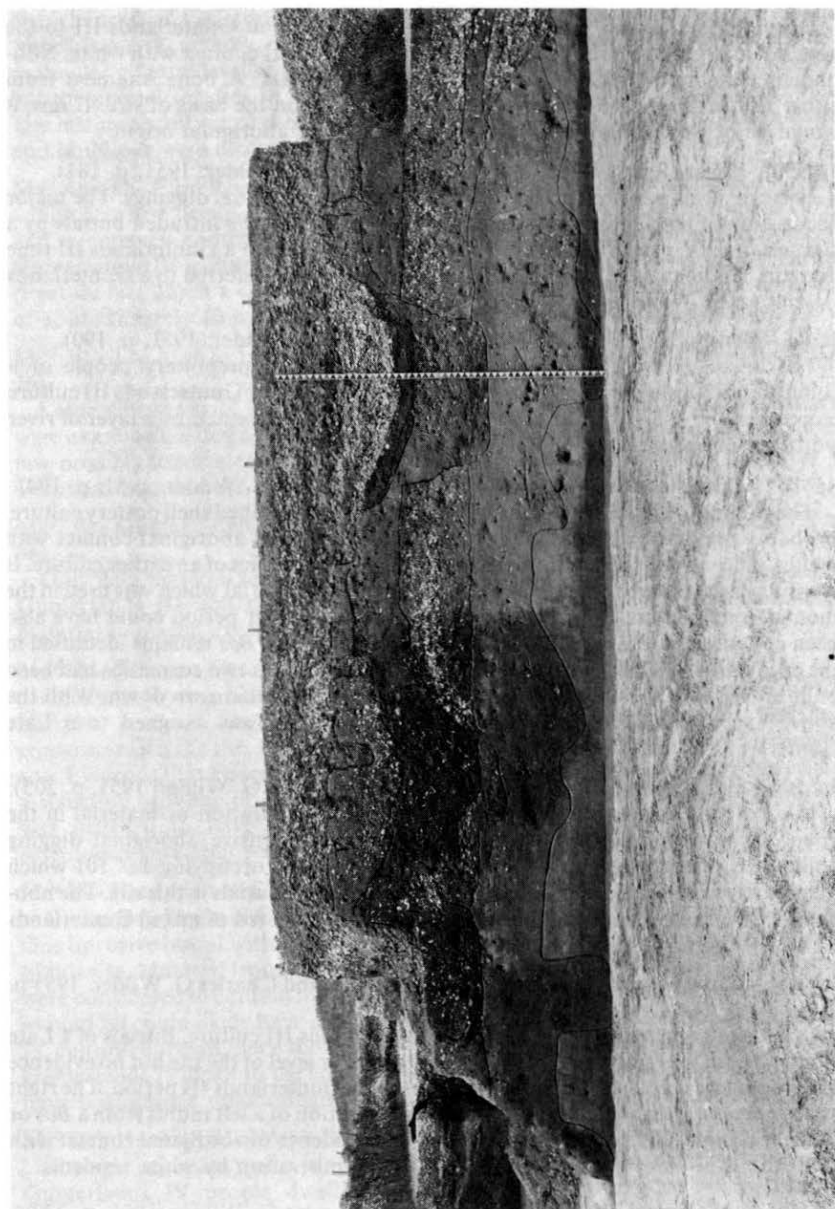


Figure 3

The Flint Ridge Site, Ma° 48 was first occupied in late Archaic III about the time of closure of Ct° 8. Occupancy continued through Gunterlands III with a different people of Gunterland IV culture intruding burials into it. The stratigraphy of many sites was not so clearly delineated (87 Ma° 48, Ala. Mus. Nat. Hist.).

Ja^V 28 - Sauty Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 181).

Occupational period was primarily from the middle of Gunterlands III to the beginning of Gunterlands IV. No evidence of aboriginal contact with white. Non-human vertebrate remains assigned to Gunterlands III. A bone fragment from either *Bos* or *Bison* was tentatively identified as *Bos* on the basis of size. If *Bos*, it would be of white origin but if *Bison* it would be of aboriginal origin.

Ja^o 28A - Riley Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 181).

The site levels were disturbed through extensive aboriginal diggings. The major occupation of the site was in Gunterlands III with extensive intruded burials by a Gunterlands IV people. All animal bones were assigned to a Gunterlands III time horizon. All fiber, sand and limestone pottery sherds are referred to a Gunterlands III culture by Webb and Wilder p. 190.

Ja^V42 - Benson Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 190).

The lowest level, a shell zone was laid down by a prepottery people of a Gunterlands I time horizon; later a second people of Early Gunterlands III culture reoccupied the site. The two occupational levels were separated by a layer of river worn gravel and sterile sand.

Ja^o 101 - Snodgrass Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 194).

The mound was constructed by a single people of a crushed shell pottery culture, probably of a Late Gunterlands IV age. No evidence of aboriginal contact with whites. The mound fill contained a few sherds characteristics of an earlier culture. It is assumed that these sherds were included in the fill material which was used in the mound construction. Some animal bones from an earlier period could have also been contained in the excavated fill material. *Equus* and *Bos* remains identified in the excavation "Refuse" are attributed to a white origin as two corn cribs had been built on the mound one of which had burned and the other torn down. With the above exceptions, all non-human vertebrate material was assigned to a Late Gunterlands IV cultural age.

Ja^V102 - Sublet Ferry Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 205).

Midden was laid down in Gunterlands III. The separation of material in the upper layers by cultures was not practical since extensive aboriginal digging obliterated the stratigraphy of these zones. The people occupying Ja^o 101 which was nearby were probably responsible for the intrusive burials in this site. The non-human vertebrate remains in the upper levels are considered of mixed Gunterlands III and IV cultural horizons.

Ja^V 155 - Crow Creek Island Site. (Webb, Wm. S. and Charles G. Wilder: 1951 p. 213).

Occupancy of the site was of an Early Gunterlands III culture. Burials of a Late Gunterlands IV period were intruded into the upper level of the site but no evidence of occupancy except by a single people of an Early Gunterlands III period. The right upper portion of an acetabulum and the distal portion of a left radius from a *Bos* or *Bison* was identified from the site "debris." No evidence of aboriginal contact with the white man was found. Site had been under cultivation by white residents.

Ja^V 155A - Stearns Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 220).

A single occupancy by an Early Gunterlands III people with a few artifacts and one intruded burial of Late Gunterlands IV culture. All non-human vertebrate material assumed to be of an Early Gunterlands III cultural period.

Ja^o 176 - Cox Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 224).

Occupation of this extensive village site began in Gunterlands I and continued

intermittently through Gunterlands IV almost to historic times. Extensive disturbances of the stratigraphy by succeeding aboriginal occupants, by white "relic" hunters, and by cultivation makes the assignment of animal bones to a particular cultural level of doubtful value. The mound was built in Gunterlands IV but the animal remains in the mound fill could have been from an earlier period. The last upper molar of a *Bos* or *Bison* was probably of white origin since a house and buildings were erected on the mound.

Ma° 48 - The Flint River Site. (Webb, Wm. S. and David L. DeJarnette: 1948 a).

Site was first occupied in late Archaic III about the time of the closure of Ct° 8, and occupancy continued through Gunterlands III with a different people of Gunterlands IV culture intruding burials into the site. Only a single feature, (Feature No. 22) of a Gunterlands III period was examined. The feature consisted of approximately 10 opossum skulls and one left upper canine of a dog.

Ms^V 32 - The McKee Island Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 26).

Large village site of Gunterlands V occupancy. Only material from two features were examined, a dog associated with Burial #42 and Field Specimen #92, a bobcat jaw possibly associated with Burial #44. Beads from this site were primarily of Venetian manufacture, probably made about 1740 A.D.

Ms^V 39 - Gunter's Landing Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 36).

Only deer material received for examination. First occupancy of the site was in Gunterlands III and the next occupancy of a Gunterlands IV horizon. Deer material unplaced except of an age prior to white contact.

Ms^V 43 - Houston Site. (Webb, Wm. S. and Charles Wilder: 1951, p. 51).

Occupancy primarily in Gunterland III with intrusive burials of Gunterlands IV horizon. At least one structure in the vicinity of Gunterlands IV had been constructed on the site. No evidence of aboriginal contact with white man found in site. Evidence that Federal troops had camped on Henry Island was found and also a structure of white origin, possibly a corral was also found. Bone, probably *Bos* was believed to have been of white origin, whereas, the other non-human osteological material was tentatively assigned to a Gunterlands III horizon.

Ms^V 55 - Henry Island Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 57).

Occupancy began in Gunterlands III and continued until late in Gunterlands IV. One intrusive burial with glass beads is not believed to be associated with occupants of this site. Material from village midden assigned to Gunterlands III while mounds were considered to contain material of Gunterlands IV. Some vertebrate material in mound fill could likely have come from a Gunterlands III rather than a Gunterland IV cultural horizon, since the fill came from the village area which was occupied in Gunterlands IV prior to the erection of the mound; most of the fill would probably have contained a predominance of vertebrate remains from this latter period.

Ms° 80 - Harris Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 102).

A single occupancy of a people in Gunterlands III. A few intrusive burials by a Gunterlands IV people dwelling in the vicinity of the sites. All non-human vertebrate material assigned to a Gunterlands III cultural period.

Ms^V 100 - Law's Site. (Webb, Wm. S. and Charles G. Wilder: 1951, p. 136).

This village site showed at least three distinct horizons:

1. A prepottery complex underneath the village. No vertebrate material examined from this level.

2. An extensive village of a limestone-tempered pottery culture.
3. A later village using shell-tempered pottery which continued to the time of white contact.

The only specimen examined which could be assigned with some confidence to a Gunterlands III age was a fragment of black bear skull, FS #1068. Material removed in excavating Burial #52, probably of Gunterlands III culture, had opossum and cotton rat remains in it. The animals are tentatively assigned to a Gunterlands III cultural period although they were not intentional grave intrusions. Material from Zone A, the village layer, contained animal remains from cultures beginning in Gunterlands III and continuing into the historic Gunterlands V, could not be clearly assigned to a single cultural period because of the extensive aboriginal disturbance of the site in all three periods. Burial #41 a Gunterlands V burial of about 1700 A.D. had a portion of a fisher skull as a definite burial inclusion. Some beaver and deer remains were also found with this burial but were probably not intentional grave inclusions.

Ms[√]109 - Cartright Site. (Webb, Wm. S. and C.G. Wilder: 1951, p. 155).

All non-human vertebrate remains were assigned to an Early Gunterlands III culture, the occupying people. Gunterlands IV burials were intruded into the site but no actual occupancy during this time was apparent.

Ms[√]111 - Stephenson Site. (Webb, Wm. S. and C.G. Wilder: 1951, p. 159).

There was evidence of a Gunterlands I, Gunterlands III, and a Gunterlands IV occupancy of this site with the latter period being the most predominate. Material examined was tentatively assigned to a Gunterlands IV occupancy of this site with the latter period being the most predominate. Material examined was tentatively assigned to a Gunterlands IV horizon.

Ms[°]121 and Ms[√]212A - Pine Island Site.

This site located on the upstream end of Pine Island in the Tennessee River was excavated by an eight man crew under the direction of Mr. Charles G. Wilder. The site reports now on file in the Erskine Ramsay Archaeological Research Laboratory at Mound State Monument, Moundville, Alabama is the source of the following information. The site was worked from September 27, 1937 to January 11, 1938. What appeared to be a simple earth mound was revealed, on excavation, to be a more complex structure. Underlying the tumulus at the bottom was a midden layer upon which had been built up a thick pile of shells. These had been leveled off and a layer of sand deposited upon them. On this layer of sand, a structure measuring approximately 20' by 20' had been built. This building was later abandoned and the mound built higher by the addition of earth and sand. Again it was leveled off and used, as indicated by a floor near the top. At a still later period, burials were intruded into the site of the mound, "Ms[°]121, because of its complex nature, was carefully excavated in order to gather information in regard to the sequence of pottery types. At one period in the excavation, eleven levels were carried and the material segregated." (DeJarnette, David L. "Progress Report November 1936 - May 1938"). Tests showed the presence of a stratified village (Ms[√]121A) in the region south of the mound.

The pottery sequence (Heimlich: 1952) and the excavation reports indicate an occupancy beginning about the middle of Gunterlands III and continuing until the beginning of Gunterlands IV. Pottery of a middle to late Gunterlands IV culture is believed to have been associated with the intrusive burials. Since the iron axe FS#3 is not placed, it could and probably is from a later white occupancy. No evidence of aboriginal contact with the white man is mentioned in the field notes. All vertebrate, non-human, material is assigned by the writer to a Gunterlands III cultural period.

Table II
Vertebrate Species by Cultural Levels

Vertebrate Species by Cultural Levels									Remarks
	Gunterlands I (Archaic I II III)			Gunterlands III	Gunterlands IV	Gunterlands V	No Gunterlands II Material Examined		
- Class Mammalia -									
Opposum	X	X	X	X	X				
Cottontail	X	X	X	X	X			* <i>S. floridanus</i> + <i>S. ? transitionalis</i>	
Rabbit									
Swamp Rabbit	X	X		X	X				
Woodchuck	X	X	X	X	X?			? mixed GIII - GIV	
Chipmunk			X						
Gray Squirrel	X	X	X	X	X				
Fox Squirrel	X	X	X	X	X?			? mixed GIII - GIV	
Beaver	X	X	X	X	X	X			
Cotton Rat			X	X?				? near GIII burial	
Muskrat	X	X	X	X					
Porcupine	X	X							

Table II (Con't)

(Archaic I Archaic II Archaic III)			Table II (Con't)					Remarks No Gunterlands II Material Examined
Vertebrate Species by Cultural Levels								
	Gunterlands I	Gunterlands III	Gunterlands IV	Gunterlands V				
Indian Dog	X	X	X	X	X			
Wolf	X						*C. lupus and/or C. niger	
Gray Fox	X	X	X	X				
Black Bear	*	*	X	X	X?		? GIII - GV mixed *Burial assoc. of claws and teeth	
Raccoon	X	X	X	X				
Weasel		X						
Fisher					X		Burial association	
Striped Skunk	X	X	X					
Spotted Skunk	X							
Otter	X	X	X?				? mixed GIII - GIV	
Mountain Lion					X			
Bobcat	X	X	X	X			? G1 strata unspecified	
Horse				X?			? White origin	

Table II (Con't)

Vertebrate Species by Cultural Levels

Remarks
No Gunterlands
II Material
ExaminedGunterlands
I
Gunterlands
III
Gunterlands
IV
Gunterlands
VPig
*Sus scrofa*Elk
*Cervus canadensis*Whitetail Deer
*Odocoileus virginianus*Bison or Cow
Bison bison
or *Bos taurus*Occurrence in some GIII and
GIV sites but cannot eliminate
possibility of intrusions from
GV

-Class Aves-

Common Loon

*Gavia immer*Tricolored Heron
*Egretta tricolor*Hooded Merganser
*Lophodytes cucullatus*Black Vulture
*Coragyps atratus*Red-tailed Hawk
*Buteo jamaicensis*Broad-winged Hawk
Buteo platypterus

Wild Turkey

Meleagris gallopavo

Great Horned Owl

Bubo virginianus

VERTEBRATE REMAINS

? GIII - GIV mixed

? Strata uncertain

Table II (Con't)

Vertebrate Species by Cultural Levels					Remarks
					No Gunterlands II Material Examined
					Gunterlands V
					Gunterlands IV
					Gunterlands III
					Gunterlands I
-Class Pisces-					
Snapping Turtle	<i>Chelydra serpentina</i>	X	X	X?	? mixed GIII - GIV
Mud Turtle	<i>Kinostemon subrubrum</i>	X	X		
Box Turtle	<i>Terrapene carolina</i>	X	X	X	
Painted Turtle	<i>Chrysemys picta</i>	X	X		
Sawback and Cooter Turtles	<i>Graptemys</i> sp. and <i>Pseudemys</i> sp.	X	X	X	? GIII - GV mixed
Softshell Turtle	<i>Trionyx spinifer</i>	X	X	X	
-Class Reptilia-					
Longnose Gar	<i>Lepisosteus osseus</i>		X		
River Redhorse	<i>Moxostoma carinatum</i>	X	X?	X?	? GIII - GIV mixed
Catfish	<i>Ictalurus</i> sp.	X	X	X	
Pike Perch	<i>Stizostedion</i> sp.	X			
Drum	<i>Aplodinotus grunniens</i>	X	X	X	

Table III

Vertebrate Species - Found in 90 Collections from 23 sites

Common Name	Scientific Name	No. of Collections	Percentage frequency of Occurrence
Whitetailed Deer	<i>Odocoileus virginianus</i>	83	92.2
Drum Fish	<i>Aplodinotus grunniens</i>	72	80.0
Wild Turkey	<i>Meleagris gallopavo</i>	68	75.5
Raccoon	<i>Procyon lotor</i>	56	62.2
Opossum	<i>Didelphis virginianus</i>	54	60.0
"Cooter" Turtles	<i>Pseudemys</i> and <i>Graptemys</i>	43	47.8
Box Terrapin	<i>Terrapene carolina</i>	37	41.1
Softshell Turtle	<i>Trionyx spinifer</i>	36	40.0
Beaver	<i>Castor canadensis</i>	34	37.8
Catfish	<i>Ictalurus</i> sp. (and sp. unident)	27	30.0
Indian Dog	<i>Canis familiaris</i>	25	27.8
Black Bear	<i>Ursus americanus</i>	23	25.6
Gray Fox	<i>Urocyon cinereoargenteus</i>	23	25.6
Gray Squirrel	<i>Sciurus carolinensis</i>	22	24.5
Fox Squirrel	<i>Sciurus niger</i>	22	24.5
Swamp Rabbit	<i>Sylvilagus aquaticus</i>	20	22.2
Woodchuck	<i>Marmota monax</i>	16	17.8
Bobcat	<i>Lynx rufus</i>	12	13.3
Striped Skunk	<i>Mephitis mephitis</i>	11	12.2
Cottontail Rabbit	<i>Sylvilagus floridanus</i> and/ or ? <i>transitionalis</i>	10	11.1
Muskrat	<i>Ondatra zibethica</i>	9	10.0
Snapping Turtle	<i>Chelydra serpentina</i>	8	9.9
Bison or Cow, or both	<i>Bison</i> or <i>Bos</i> or both	7	7.8

Table III (Con't)

Vertebrate Species - Found in 90 Collections from 23 sites

Common Name	Scientific Name	No. of Collections	Percentage frequency of Occurrence
Otter	<i>Lutra canadensis</i>	6	6.7
Elk	<i>Cervus canadensis</i>	5	5.6
River Redhorse Sucker	<i>Moxostoma carinatum</i>	4	4.4
Wolf	<i>Canis (lupus and/or niger)</i>	3	3.3
Porcupine	<i>Erethizon dorsatum</i>	3	3.3
Cotton Rat	<i>Sigmodon hispidus</i>	2	2.2
Pig	<i>Sus scrofa</i>	2	2.2
Mud Turtle	<i>Kinosternon subrubrum</i>	2	2.2
Painted Turtle	<i>Chrysemys picta</i>	2	2.2
Fisher	<i>Martes pennanti</i>	1	1.1
Weasel	<i>Mustela frenata</i>	1	1.1
Spotted Skunk	<i>Spilogale putorius</i>	1	1.1
Cougar	<i>Felis concolor</i>	1	1.1
Chipmunk	<i>Tamias striatus</i>	1	1.1
Horse	<i>Equus caballus</i>	1	1.1
Common Loon	<i>Gavia immer</i>	1	1.1
Hooded Merganser	<i>Lophodytes cucullatus</i>	1	1.1
Tricolor Heron	<i>Hydranassa tricolor</i>	1	1.1
Great Horned Owl	<i>Bubo virginianus</i>	1	1.1
Red-tailed Hawk	<i>Buteo jamaicensis</i>	1	1.1
Broad-winged Hawk	<i>Buteo platypterus</i>	1	1.1
Black Vulture	<i>Coragyps atratus</i>	1	1.1
Walleye Pike	<i>Stizostedion</i> sp.	1	1.1
Gar Pike	<i>Lepisosteus osseus</i>	1	1.1

Annotations of Vertebrate Remains Examined

In the discussion of each of the following species it was necessary to make certain assumptions since no vertebrate material was recovered from strata of Gunterlands II culture and only a limited amount was obtained from Gunterlands V occupancy (Tables I, II). In the species treatment below the following two assumptions were made:

1. A species represented in Gunterlands I (Archaic) and in Gunterlands III was assumed to have been present in Gunterlands II also.
2. A species represented in Gunterlands IV and which was also present at the time of white occupancy of Northern Alabama is considered to have been present through the early portion of Gunterlands V.

In addition to the two conditions above which apply to all species, certain other assumptions are made which are discussed in the appropriate species treatment.

Class - Mammalia
Order - Marsupialia

Opossum - Didelphis virginianus

Opossum remains were found in fifty-four of the ninety collections examined. The species were well represented throughout the Archaic, in Gunterlands III, and Gunterlands IV. Its absence from collections of Gunterlands V is believed to be fortuitous rather than an indication of a hiatus in its distribution during this period. This species would appear, from our data, to have been a continuous and abundant resident of the Tennessee Valley region since the early Archaic.

The high frequency of occurrence of opossum remains in these sites can be considered a clear indication of its importance as a staple item of diet of the primitive residents. Its ease of capture would certainly have made it a prime target for the hunting and gathering peoples. It is quite likely that the poor preservation qualities of the opossum skeleton account for its absence from thirty-six of the ninety collections.

In all but one of the collections, opossum remains consisted of numerous disassociated bone fragments which were usually mixed with those of other species; however, in Ja^V155 a complete skeleton of a huge specimen was exhumed intact. The condition of the specimen and its size plus the fact that it had been mistakenly labeled "Dog#3" during the press of the excavation, raises the question of its having been interred intentionally. Although there is no mention in the excavation notes of a puddled clay substrate or similar evidence of a ceremonial burial this possibility cannot be ruled out entirely. It is also conceivable that the animal had not been killed by the Indians but had died in its underground burrow. It would seem likely that at least some indication of a burrow would have been detected by the excavators; if such was the case no mention was made of it in the field notes and no pictures were taken of the specimen *in situ*.

Children of all cultures and races mimic the occupations and activities of the adults. This trait suggest the possibility that the aborigine's children held a "ceremonial burial" substituting the opossum for a dog which would have been used by their elders. The chronic shortage of food in the Indian villages tends to discount this hypothesis. It appears unlikely that a ten to twelve pound opossum would have been permitted "to go into the ground" rather than into the cooking pot.

Feature 22 in site Ma^o 48 consisted of approximately ten unburned but broken crania, jaws, and first cervical vertebra - mute testimony of an early tanning operation or a long forgotten meal of stewed opossum heads.

Order - Lagomorpha

Cottontail Rabbit - *Sylvilagus floridanus* and *Sylvilagus (?) transitionalis*

Cottontail rabbit (*Sylvilagus*) remains were found in ten collections from six different sites of cultural ages beginning in Archaic I and extending well into the Gunterlands V period. In only one specimen could a separation between *Sylvilagus floridanus* and *Sylvilagus transitionalis* be made with certainty, and that was in the case of a skull of the Eastern Cottontail (*Sylvilagus floridanus*) which occurred in the "Refuse collection" from MsV55, a Gunterlands III and Gunterlands IV occupancy. The Eastern Cottontail is by far the most abundant rabbit in North Alabama today. The clearing of the woods and swamps by white man has created a far more suitable habitat for the Eastern Cottontail than existed in pristine times; conversely the habitat available to the Swamp Rabbit (*Sylvilagus aquaticus*) and the New England cottontail (*Sylvilagus transitionalis*) has been drastically reduced. *Sylvilagus transitionalis* is known from only two recent specimens in Alabama, one from Clay County and one from Cullman County (Howell, 1921; Barkalow, 1949) although it was conceivably more abundant in pre-Columbian times. It is quite probable that some of the *Sylvilagus* material in these ten collections was from the New England Cottontail, *Sylvilagus transitionalis*.

Swamp Rabbit - *Sylvilagus aquaticus*

The preference of the large swamp rabbit for the lowlands habitats undoubtedly made it the most available rabbit to the aborigines of the Tennessee Valley whose villages were often on the higher ridges in close proximity to the streams and the preferred habitat of *Sylvilagus aquaticus*. Whenever high water concentrates these animals on the ridges they can be captured without difficulty. The remains of the swamp rabbit or cane-cutter, as it is called throughout much of its range, were identified in twenty collections representing Archaic I and II as well as Gunterlands III and IV cultures. The fact that its frequency of occurrence was twice that of the cottontail *Sylvilagus floridanus* and *S. (?) transitionalis* is thought to be more of a reflection of its greater availability than an indication of the relative abundance of each species. It is believed that this animal has been continuous and probably abundant resident of the valley at least since early Archaic times. It is abundant today in many parts of the Tennessee Valley of Alabama.

Order - Rodentia

Gray squirrel - *Sciurus carolinensis*

The gray squirrel like the fox squirrel, occurred in all cultural periods from Archaic I through Gunterlands IV and is today one of the most abundant game mammals in the Tennessee Valley. Remains of this species were identified in twenty-two collections from six sites, three sites less than in the case of the fox squirrel. The smaller bones of the gray squirrel would be slightly less durable than those of the fox squirrel which might be a factor affecting the validity of the assumption that there is a correlation between relative abundance of the two species and the equal frequency of occurrence of the two species in the collections. That the aborigines utilized both the gray and fox squirrel for food there can be no doubt and it is quite probable that their small dogs were a big factor in their successful capture of these animals.

Fox squirrel - *Sciurus niger*

Occurring in all strata from Archaic I thru Gunterlands IV and being a resident of the valley today, the fox squirrel has had a long continuous occupancy in North Alabama. It is probably much less abundant in the valley today than in precontact times due to the changes in its habitat. Its remains were found in twenty-two collections from nine sites indicating that it played a significant role in the diet of the Alabama aborigines. Its placement in the Gunterlands IV period was made for the same reason as given in the case of the woodchuck. The frequency of occurrence of the fox squirrel being the same as that for the gray squirrel would seem to indicate that the two species in pre-Columbian times were about equally abundant, although the gray squirrel is by far the more numerous species in the area today.

Woodchuck - *Marmota monax*

The woodchuck was represented in all cultural periods except Gunterlands V which is explained by the small amount of material from this period rather than by the absence of the species from the area. *Marmota monax* is a relatively abundant species throughout North Alabama today and it has undoubtedly been a common resident of the valley at least from Archaic times. Were it not for its hibernating habit, it would have probably been found with as great a frequency as was the raccoon or opossum for it unquestionably provided the aborigines with a supply of food and skins during the warmer months of the year. It was probably less abundant in pre-contact times than it is today since the agricultural activities of the white man have greatly increased its food supply in many localities.

The fossorial habits of the woodchuck could result in its remains being found in a stratum of a different age from that in which it actually occurred. Under such conditions it is quite probable that all or most of its skeleton would have been found together and the situation recognized when the remains are exhumed. The fragmentary nature of our *Marmota* material and the absence of any mention in the excavation notes of entire woodchuck skeletons being uncovered leads us to assume that our material was contemporaneous with the strata in which it was found. Two sites from which woodchuck remains were recovered had both been disturbed thus casting some question as to the age of the *Marmota* material but because of the predominance of Gunterlands IV material in the strata, the woodchuck remains were tentatively assigned to this cultural period in these two sites. There was no question of the occurrence of this species in the Archaic and Gunterlands III strata.

Chipmunk - *Tamias striatus*

Only a single occurrence of the chipmunk was recorded and that from the 0.5' level of the Little Bear Creek Site, Ct°8. The almost complete absence of the remains of this diminutive sciuroid is attributed to the relatively unfavorable preservation conditions in the river bank sites plus the small size of the bones themselves which might cause them to be overlooked. Despite the failure to find chipmunk remains in our collections there is no doubt that this little animal was present and utilized by the aborigines, for the climatic and environmental conditions suitable for its survival existed prior to the earliest occupancy of our sites. The strata from which the single bone was recovered was of an Archaic III culture but the proximity to the surface, the fossorial habits of *Tamias*, and its failure to appear in more recent cultural strata casts some doubt upon the antiquity of this specimen. It was similar in appearance to all other bone fragments examined in the same collection and is assigned to the Archaic III period on this basis.

Beaver - Castor canadensis

As was to be expected, the beaver was found in all cultural levels from Archaic I thru Gunterlands V. Its remains were identified in thirty-four collections from twelve different sites. The beaver was probably an important source of food and clothing for the early aborigines who, like the white trappers, discovered that it could be frequently taken by hand when its dam was broken. Beaver incisors were used not only for ornamentation but also for tools by the Indians. The species was extirpated from the valley in the late 1890's but was subsequently reintroduced in the late 1930's.

Cotton rat - Sigmodon hispidus

Remains of this species were found in two collections from different sites. One specimen was recovered at the 2.5' level of Ct° 8 an Archaic III level and the other was found in the Law's Site, Ms° 100 in the proximity of a Gunterlands III burial. The cotton rat frequently uses underground burrows which casts some doubt as to the validity of the apparent age of the remains. In both collections the cotton rat material did not seem to differ in looks and degree of preservation from the associated bone fragments so that they are both assigned to the same period as indicated by the respective stratum. The cotton rat may not have been present in North Alabama until late in the post-Pleistocene period since it is an animal with southern affinities and since it appears to be intolerant to icing conditions followed by snow. In view of the rather clearly delineated northward extension of the cotton rat's range today, its presence in or absence from the early Archaic sites could contribute some significant information about the climatic conditions which existed at the time of their death. To be meaningful the conditions for bone preservation in the sites would have to be far more favorable than existed in most of our sites. The techniques employed for the recovery of the skeletal material would also have to be refined since the screens used would allow the majority of its small bones to pass through undetected.

Muskrat - Ondatra zibethica

The muskrat was found in nine collections from only three sites representing cultures from Archaic I through Gunterlands III. The absence of its remains in the later periods as well as its relative scarcity from other collections may be reflection of its difficulty of capture by the aborigines. It is suspected that the muskrat was taken more often accidentally when it swam into a fish weir than being captured in a snare or by hunting. Its frequency of occurrence is sufficient to indicate its continual presence at least to Gunterlands IV. Its abundance in the preimpoundment portion of the river a few years ago would suggest its continued residence through Gunterlands IV and V also.

Porcupine - Erethizon dorsatum

The archaeological evidence from two sites in Colbert County, Alabama indicates that the porcupine was a resident of the area as late as the Archaic III period. Three collections from the Little Bear Creek Site, Ct° 8, contained porcupine remains. In each case only the left ramus of the lower jaw was present. The Archaic I (ca. 3000 B.C.) cultural level contained one specimen and the other two were from collections of Archaic II age (ca. 2000 B.C.). The rami were not associated with human burials and each was from a different collection (Barkalow, 1961).

Porcupine remains were found in the Stanfield-Worley Bluff Shelter (Ct° 125) which is approximately 8½ miles southwest of the Little Bear Creek Site, Ct° 8

(DeJarnette, D.L., E.B. Kurjak and J.W. Cambron, 1962 and Parmalee, P.W. 1963). A section of a right maxillary and premaxillary (2 elements) from a porcupine(s) came from the early Dalton Zone. The Dalton Zone being dated at B.P. and $8,920 \pm 400$ years B.P. (U. MichC¹⁴ test). Four other porcupine elements probably of Late Archaic Age, were recovered from the lower portion of Zone A. It is quite unlikely that the porcupine occurred in Alabama during the Gunterlands III and later periods for evidence of its presence would have been found in the collections from the twenty-two sites containing Gunterlands III and later cultures. Lewis and Kneberg (1946) did not report the presence of *Erethizon* in the Hiwassee Island site which was occupied from Gunterlands IV into the Gunterlands V period. The Hiwassee Island site is approximately 40 miles air line from Big Bone Cave (Mercer, 1897). All recent records on the occurrence of species in the eastern United States are north of Latitude 38°. Gilmore (1946) commented on its absence from three archaeological sites in southwestern Pennsylvania which are temporally comparable to those of the Gunterlands IV period in Alabama. Kellogg (1939) reported a left mandible from an immature porcupine in the National Museum with the notation that it came from a "Tennessee cave". While the mandible might have come from a porcupine which lived within the past century, all the archaeological evidence indicates that the species has not lived in Tennessee for many centuries. Mercer (1897) found porcupine remains in Big Bone Cave, Van Buren Co., Tennessee, which were contemporaneous with the fossil sloth, *Megalonyx* and also porcupine quills and droppings of a more recent period. The *Megalonyx* material was believed to be so recent that Mercer hypothesized that giant sloths witnessed the coming of the Indian hunter to Tennessee. The strata in the cave had been so disturbed by burrowing rodents and by man that he was unable to positively establish the contemporaneity of the aborigines and *Megalonyx* in the site.

Mercer's work indicates that the porcupine was a resident of the Big Bone Cave area of Van Buren Co., Tennessee, probably as late as the Archaic period. The absence of the species from all Alabama collections of Gunterlands III and later is interpreted to mean that following the Archaic and prior to the Gunterlands III period there was a recession northward of the porcupine's range. Gilmore (1947) suggests a progressive southern extinction of the porcupine in Coahuila, Mexico. The absence of the species from the Hiwassee Island, Tennessee and Pennsylvania sites (Gilmore, 1946; Guilday, 1956) would indicate that the contraction was of some magnitude.

Order - Carnivora

Indian Dog - *Canis familiaris*

Prior to receipt of the collections, the dog material had been screened and much of it removed for special studies (Haag: 1948; and others) although its presence was established in all periods from Archaic I through Gunterlands V. From the material examined there was no evidence that the species was used for food by any of the people in the TVA area. The shell mound people apparently held the dog in particularly high esteem. Dogs seem to have been accorded the same care when buried by the aborigines as that given to their fellow aborigines (Fig. 4).

Wold - *Canis* sp. (*lupus* or *niger*)

Both the gray wolf, *Canis lupus* and the red wolf, *Canis niger* originally ranged throughout the Tennessee Valley of Alabama (Young and Goldman: 1944) and both species would be expected to occur in the Indian middens of the area. It was not possible to identify the species of wolf represented from the material examined. The separation of wolf remains from the Indian dog was relatively simple in most

instances because of the larger size and more massive proportions of the wolf bones. Wolf remains were positively identified in three collections, each from a different site. One collection was from a midden of Archaic II culture and two collections were from sites of a Gunterlands III age. One canid fragment could be identified only to genus with certainty since it was intermediate in size between the large Indian dog and wolf. Diagnostic coyote, *Canis latrans* remains were absent from all canid material and neither would their presence be expected since the coyote's original range did not include Alabama.

Red Fox - *Vulpes vulpes*

The absence of red fox remains from all sites was not surprising since this species was unknown in the southeast from late Pleistocene until the seventeenth hundreds. Guilday (1971) reported the red fox to be a member of the late Wisconsin found at Natural Chimneys, Virginia. He hypothesized that, "With the onset of warm conditions in early Recent time, —, its range apparently shrank toward the north." He attributes the present occurrence of the species in the central and southern Appalachian to be the result of ecological changes brought about by modern land-use practices. He points out "that the present southeastern population more closely resembles other North American populations than European races, eliminating the possibility of introduction by fox-hunting colonists." It is not surprising that southeastern red fox populations resemble other North American populations because fox hunters for over a century have been releasing the species by the hundreds throughout the Southeast. These hunters have purchased animals from Canadian trappers, fur farmers and other available sources. European introductions by the fox hunting colonists would have lost their identity through hybridization long ago so that we cannot assume that the European red foxes introduced into New York, Pennsylvania and Virginia between 1650 and 1750 did not survive although this is a possibility. Audubon and Bachman (1854: vol. 2: p. 270) reported its absence south of Pennsylvania prior to the Revolutionary War and gave the year 1840 for its first appearance in Lincoln Co., Georgia. Dr. Spencer F. Baird (1857: 130) commented on its absence from the Carlisle and other bone caves in the eastern part of the United States. Samuel N. Rhoads (1903: p. 145-47) discussed the appearance of the red fox in Pennsylvania and New Jersey and the probability of their being con-specific with the European red fox (*Vulpes vulpes*). Gilmore (1946) found a complete lack of red fox remains in southeastern Pennsylvania and added this word of caution, "Any alleged remains of red fox in archaeological sites in the eastern United States should be scrutinized carefully." Guilday (1956) reported the absence of *Vulpes vulpes* remains from the Johnston Site near Blairsville, Indiana Co., Pa. which was occupied ca. 1500 - 1600 A.D. Haag (1956) in his report on "The Archeology of Coastal North Carolina" states, "Red fox simply has not been shown to be present in eastern North America in pre-European times." This statement is based on personal efforts to check every reference to the red fox in archaeological sites; each has proven to be a guess." Haag (1937) also found no red fox material in a collection of vertebrate remains from the TVA of Alabama.

Lewis and Kneberg (1946) in their report in Hiwassee Island list among the animals found in the middens of the Mississippi Community the "Fox, *Vulpes fulva* (now *Vulpes vulpes*), the scientific name of the red fox, to the "Fox" material is probably an editorial error since no gray fox, *Urocyon cinereoargenteus* remains were listed. It is highly improbable that the gray fox would not have been represented in the large collection of midden material from the Mississippi Community. The records and materials pertinent to this report were stored a number of years ago and are virtually inaccessible; it is probable that an error may

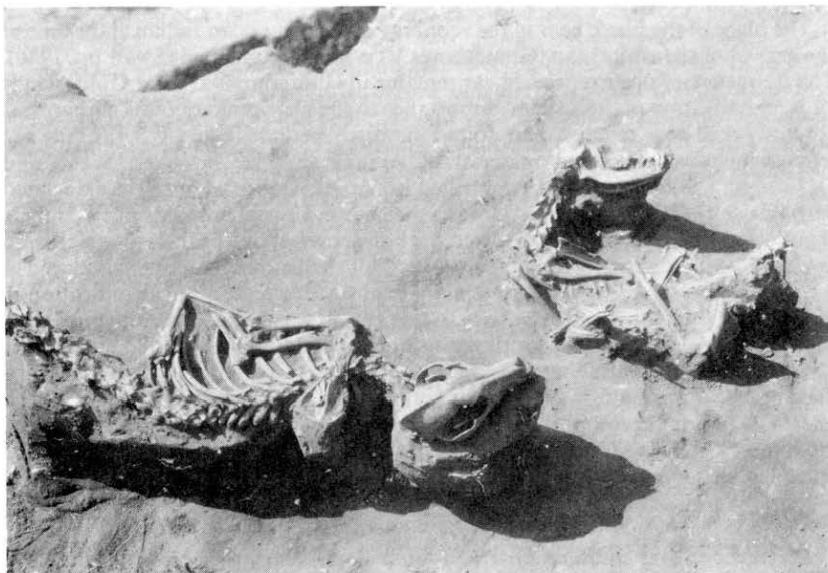


Figure 4

Dog burials in the Flint River Site (50 Ma ° 48 Ala. Mus. Nat. Hist.).

have been made in this particular identification (T.M.H. Lewis, personal communication).

Dr. William A. Ritchie (personal communication) writes, "I have found numerous bones, identified as both gray and red fox remains in the New York area, and a fair number of artifacts made from long bones and mandibles said to represent these two species. —More recently I discovered in an ancient grave in Ontario the left mandible of a red fox with perforated transverse ramus (Rochester Museum of Arts and Sciences, Catalog No. AR41903)." The estimated date of the Ontario site was ca. 2500 B.C.

The circumpolar distribution of the red fox in post-pleistocene times is well documented so that the occurrence of this species in northern sites prior to the white occupation of North America is to be expected. The absence of this species from the pre-Columbian fauna of the eastern United States seems to be indicated by the failure to find the remains of this species south of New York state in pre-historic sites. The reason for this hiatus in the distribution of *Vulpes vulpes* remains a mystery. The presence of red fox remains in the sites of the Tennessee Valley should be considered evidence of either a late intrusion of post-Columbian occupancy.

Gray Fox - *Urocyon cinereoagenteus*

Skeletal material from this species was found in twenty-three of the ninety collections. The eight different sites which contained gray fox remains represented cultures from Archaic I through Gunterlands IV. There is little doubt that the gray fox has been a continuous and perhaps abundant occupant of the Tennessee Valley from earliest Archaic times to the present.

Black Bear - Ursus americanus

The place of the black bear in the economy of the American Indian at the time of the arrival of the white man (Gunterlands V) is well documented (Swanton, 1946). The frequency of occurrence of bear remains in Gunterlands III and Gunterlands IV is an indication of the species' importance to the aborigines of these earlier eras. No unworked bear remains were found in our collections from Ct° 8, the only site from which we examined material of Archaic culture; however, Webb and DeJarnette (1948 c) reported two drilled bear canine teeth which were associated with Burial #24 in Ct° 8. Burial #23 was a shell mound burial probably of an Archaic II culture. These authors also depicted the bone cores of two bear claws which were associated with Burial No. 6 in the same site. This shell mound interment is placed in the Archaic I. The scarcity of bear remains in our Archaic site is not an indication of the relative abundance of the species in this period for the black bear would have been a formidable adversary for the spear or club wielding shell mound hunter. It is not surprising to find the teeth and claws of this carnivore in the grave effects of these people, for subduing a large bear with their primitive weapons was, to say the least, a hazardous accomplishment to be commemorated with tangible evidences of the hunter's victory. *Ursus* remains were found in a total of twenty-three of the ninety collections.

Raccoon - Procyon lotor

The raccoon was undoubtedly an abundant resident of the valley from early Archaic times. Its occurrence in fifty-four out of the ninety collections indicates its popularity as an item of diet and its availability to the Alabama aborigines. The greater frequency (56 against 54) of its remains than those of the less agile opossum is believed due to the better preservation qualities of the raccoon skeleton rather than an equal or higher population of the raccoon.

Weasel - Mustela frenata

This diminutive mustelid was found in only one site, Ct° 8, in strata of an Archaic III culture. It was surprising to find evidence of this species in a culture of this antiquity when the fragile nature of its skeleton is considered. Preservation conditions were undoubtedly better in this site than in most since cotton-rat (*Sigmodon*) bone were also found in the same collection and chipmunk (*Tamias*) material was also recovered from the same site. A more thorough collecting team could also account for the recovery of these small mammal remains.

Mink - Mustela vison

The absence of the mink (*Mustela vison*) from all sites may be explained more logically on the basis of its difficulty of capture than the absence of this species until historic times. While it is possible that the mink was rare or absent in the Tennessee Valley at the time of our sites' occupancy, it is highly unlikely.

Fisher - Martes pennanti

Associated with Burial #41 site Ms 100 was a fragment of a fisher maxillary bone (FS609) with several posterior molars attached (Barkalow, 1961). A number of brass arm and wrist bands as well as several iron bar bracelets and a glass mirror accompanied this Gunterlands V burial. In a personal communication to the author, Dr. William S. Webb placed a "guess date" of ca. 1700 A.D. as the time of burial of B. #41. The occurrence of the fisher as a burial association cannot be considered as evidence of its presence in Alabama; however, Audubon and Bachman (1854) examined a specimen which was taken near Asheville, Buncombe

Co., North Carolina. They examined several skins from "East Tennessee" and reported hearing of a specimen "— that was captured near Flat-Rock, in that State, latitude 35°."

The "Flat-Rock" to which Audubon and Bachman referred is believed to have been located at or near the present town site of Hohenwald in Lewis County, Tennessee, at Latitude 35° 7'. The locality in "East Tennessee" was not designated; however, there is a "Black Fox" in Bradley County. The origin of the name for this location is not clear, but the fisher is known as "the black fox" throughout much of its range. The southern distribution of the fisher as indicated by Audubon and Bachman would have placed this animal well within the reach of hunting parties from Ms^V100. Parmalee (1961) reported the recovery of a right mandible of the fisher from the Etowah Site, Bartow County, in northwestern Georgia. The Etowah Site was believed to have been occupied from ca. 1100 to 1500 A.D. The finding of these two specimens suggests the probability of the former occurrence of this species in both Georgia and Alabama. If the fisher did occur in northern Alabama and Georgia, it would undoubtedly have also occurred in the mountainous parts of South Carolina. There appear to be no historical or archaeological records from South Carolina.

Striped skunk - *Mephitis mephitis*

Remains of this large skunk were found in eleven collections recovered from five different sites. Its ease of capture would make it quite vulnerable to the Indians who used it for both food and fur. Its frequency of occurrence would indicate that it was caught about as often as the cottontail rabbit and the muskrat. Its fat carcass and striking fur pattern undoubtedly made it particularly attractive to the primitive aborigines. It was present in all three periods of the Archaic and it also appears in Gunterlands III cultures. Its absence from the Gunterlands IV and later collections may partially reflect its relative abundance at these times.

Spotted skunk - *Spilogale putoris*

The little "pole cat" occurred in only one collection, Ct°8 from an Archaic I cultural level. The fragile nature of this species' bones probably accounts for its apparent absence from all other sites. The species is a common resident of the Tennessee Valley today.

Otter - *Lutra canadensis*

The difficulty of capture of the otter is believed to be responsible for its occurrence in a total of only six collections from three different sites. Evidence was found of its presence in Archaic I and Archaic II as well as in Gunterlands III and possibly Gunterlands IV sites. It was a common species in the Tennessee Valley at the time of its settlement. The otter has undoubtedly been a continuous resident of this area since the early Archaic times.

Bobcat - *Lynx rufus*

The bobcat was a continuous and probably a relatively abundant resident of the Tennessee Valley from Archaic I to Gunterlands V and it is a common resident of the Valley today. *Lynx* remains were found in twelve collections from seven different sites. All material examined was assigned to the species *Lynx rufus* on the basis of size and the fact that all diagnostic remains proved to be from this species. The presence of *Lynx canadensis* in Alabama in late post-pleistocene time is yet to be demonstrated.

Mountain Lion - Felis concolor

The mountain lion or cougar was found in only one collection of a Gunterlands III culture. The paucity of remains of this species is not surprising when its size and wariness is considered. Hunting these large cats with the primitive weapons available to the aborigines would be a hazardous venture to say the least. The lack of cougar remains is believed due to their not being hunted rather than a reflection of their relative abundance in the area.

Order - Perissodactyla*Horse - Equus caballus*

Horse remains were found in only one site, Ja^o 101, which closed prior to the contact period. The remains which occurred in the "Refuse" collection from the Snodgrass Site, therefore, are of white rather than aboriginal origin. In neither of the two post-contact sites were *Equus* remains recovered.

Order - Artiodactyla*Pig - Sus scrofa*

Only two of the twenty-three sites were occupied at the time of white contact and it is only from the middens in these two sites (Ms^v32 and Ms^v100) that pig remains resulting from aboriginal use would be expected to occur. In one of the post-contact sites, Ms^v32 only a small amount of material was exhumed and *Sus* remains were not among the skeletal elements recovered. In a collection from Ms^v100 which is now under study, pig remains from an aboriginal midden were found, although this species was absent from the original collections examined from this site. The surprising fact about the occurrence of *Sus* remains is their almost complete absence from the other site locations since almost every site had a history of white occupancy and intrusive material of this species would certainly be expected to occur in them. In only two collections, both from the same site, Ja^o9A, did pig appear as an intrusive element resulting from a white occupancy.

Elk - Cervus canadensis

Elk remains were identified in five collections from four different sites. No elk material occurred in a time horizon earlier than Gunterlands III, ca. 900 A.D. - 1200 A.D. One collection was from the Gunterlands IV horizon, ca. 1200 A.D. - 1450 A.D. Lewis and Kneberg (1946) reported 15 examples of elk bones from the top midden and upper two phases of the substructure mound on Hiwassee Island in the Tennessee River some 90 miles air line to the northeast of our sites. The time of occupation of this site was around 1450 A.D. These authors reported "plenty" of elk remains in the Cherokee village of Chote on the Little Tennessee River approximately 150 miles northeast of the Jackson County, Alabama sites. Chote was founded in 1740. Lewis and Kneberg also reported finding elk remains in a number of sites of an early date in Western Tennessee. Based on the chronological sequence of the appearance of elk remains in the Alabama and Tennessee sites it would appear that this species moved into Alabama from the north-west, probably along the Tennessee River rather than from the northeast as it generally supposed. It seems highly improbable that the earliest elk remains from the Alabama sites are older than 900 A.D. and it is more likely that the strata from which the oldest elk material was recovered was deposited around 1200 A.D. From the archaeological evidence and the reports of the early explorers, it is believed that the elk reached the

maximum post-pleistocene extension of its range in the Southeast around the latter part of the Seventeenth or first part of the Eighteenth Century. While the elk was once a part of the fauna of North Alabama, it was probably never abundant, otherwise its remains would have been found in a much greater abundance in the Indian middens of the Thirteenth through the Eighteenth Centuries.

Whitetail Deer - *Odocoileus virginianus*

The whitetailed deer was to the southeastern Indian what the bison was to the plains aborigines and the caribou was to the Esquimox. *Odocoileus* remains occurred in twenty-two of the twenty-three sites and in eighty-three of the ninety collections examined. The deer could easily be considered "the staff of life" to the early Tennessee Valley residents for it furnished him food, clothing, tools, and weapons. The species was found in all cultural levels and constituted the bulk of skeletal material in almost every collection. The high frequency of occurrence can be partially explained on the basis of the nature of the deer's skeletal structures whose density and size would insure their preservation and recovery. Recognizing the bias introduced by the differential preservation and size characteristics of deer remains, it is still obvious that this animal was extremely important to these peoples from the earliest Archaic. Specimens of all sizes, ages, and of both sexes were represented in the collections. The writer has the impression that the mature deer was decidedly larger than those found in the area today. The assumed larger size of the deer in aboriginal times may be more apparent than real since the differential preservation characteristics of the larger specimens would insure a high frequency of occurrence in this size group in the sample than would be present in the actual population. It is quite probable that the mature animals in the aboriginal herds were actually larger than their present day counterparts. This could be explained on the basis of better range conditions and a healthier herd, a condition which does not exist today throughout most of the southeastern deer ranges thanks to the overzealous protection of the does. It is unlikely that the early deer herds could ever have exceeded the carrying capacity of their ranges in the presence of wolves, cougars, and the "fire-lighting" aborigines who took both sexes.

Although there were a number of whitetail deer antler fragments recovered which were of massive proportions, in only three instances were they sufficiently well preserved to make comparative measurements with present day white-tails. One fragment from site Ja° 28, a Gunterlands III culture, measured 40 x 47 mm two inches above the burr. In a collection from a Gunterlands V strata of Ms^v100, an antler fragment (FS609) with a burr measurement of 49.3 x 54.1 mm and a beam diameter of 33.9 x 42.7 mm was recovered in a possible association with burial #41 (ca. 1700 A.D.). A fragment with a burr measurement of 47.9 x 57.6 mm and a beam diameter of 30.1 x 39.6 mm was exhumed from an Archaic II cultural level of Ct° 8. An antler section between the 2nd and 3rd tines was obtained from a probable Gunterlands IV strata of site Ja° 176. This whitetail antler fragment was more massive than any comparable antler section in the University of Michigan mammal collection.

Bison - *Bison bison* and Cow - *Bos taurus*

Evidence for the presence of the bison in North Alabama is inconclusive, although its occurrence in South Alabama in the Seventeenth and Eighteenth Centuries has been well documented by Boyd (1936), Roe (1970), Rostlund (1960), Schorger (1945), Swanton (1938 and 1941), and others. Remains which were either *Bison* or *Bos*, or a mixture of *Bison* and *Bos* were found in seven sites. Unfortunately, no diagnostic parts which would separate the two species were recovered. The picture is complicated in the Southeast by the fact that the *Bison*,

like the elk, appears to have reached the maximum post-pleistocene extension of its range in this area about the middle of the Seventeenth or the beginning of the Eighteenth Centuries (Allen: 1876, Hornaday: 1889); the same time that cows and other domestic animals were becoming available to the Indians. Occupancy and cultivation of the village and mound sites by whites further complicates the picture.

Two molar teeth and the distal end of a humerus of *Bison* or *Bos* were found in MsV43 Unit I which is mostly a Gunterlands III occupancy with intrusive burials of Gunterlands IV. Although the site is completely prehistoric, evidence was found that it had been used as a Civil War campsite, that stock had been kept on the island, and that live-stock sheds were thought to have been constructed on the mound itself by the resident farmers. Site MsV100 showed evidence of an occupancy in Gunterlands I and Gunterlands III through Gunterlands V with the occupancy being most extensive in the last period. In the collection of material from Zone A (top zone) was an incisor, distal end of a large metapodial, a large toe bone, and the distal ends of a humerus which from their size appeared to be bison. The material recovered seemed to be from more than one animal. An examination of additional skeletal material which was not included in the original collections revealed the presence of pig and elk plus an abundance of bone fragments from *Bos*, or *Bison*, or both. None of the *Bos* or *Bison* bone fragments were diagnostic for either genus (Fig. 5).

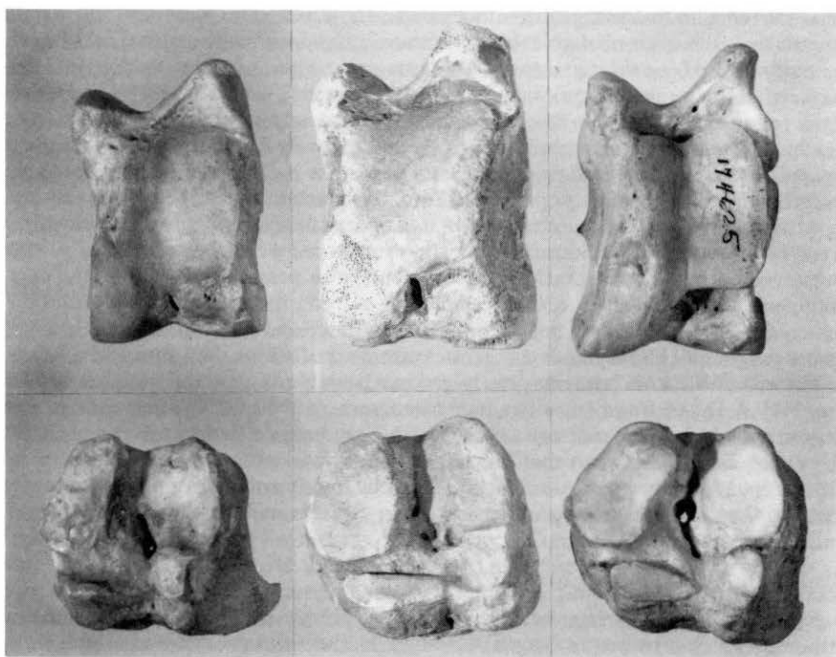


Figure 5

Right astragalus (upper) and right cuboid (lower) of (left to right) a Jersey Cow, *Bos* or *Bison* from MsV100, and *Bison* cow.

A rib found in association with pig in site Ja°9A in a late Gunterlands IV level was thought to be *Bos* based upon its size and association with *Sus*. In the 1880's a house which subsequently burned had been constructed on the mound. The area was in pasture at the time of the excavation.

Bison or *Bos* fragments were found in the "Refuse" cut from site Ja°101. The most recent Indian occupancy of the site was in the Gunterlands IV period. A corn crib and storm cellar had been constructed on the mound by white settlers and the material was identified as cow since it was associated with a horse's toe bone. The Sauty Site Ja°28, a Gunterlands III culture with intrusive Gunterlands IV burials which was thought to have been occupied around 800 A.D., was covered with trees and a dense cane break. If it had been cultivated by whites no trace remained. Bone fragments from the site were identified as "*Bos* or *Bison*, probably *Bos*" on the basis of size; however, there was no evidence of a white intrusive cow burial or other domestic animal remains recovered from the site.

The Crow Creek Island Site Ja°155, an early Gunterlands III and late Gunterlands IV site, provided part of a right acetabulum and the distal portion of a left radius probably from different animals. The head of a *Bison* femur fitted the acetabular socket but that of the cow did not provide nearly so satisfactory a joint. Unfortunately, this material was recovered from the control trench and no levels recorded. Since the site had long been under cultivation by white man, the remains can be identified only as *Bison* or *Bos*.

The last upper molar of a cow or bison was taken from Ja°176, a site which was occupied intermittently from Gunterlands I almost to historic times. Its stratigraphy had been so upset by both aboriginal and white excavations that no skeletal material could be dated with certainty. Other domestic animal remains, characteristic of white cultures were missing but buildings had been constructed by the white occupants at various times.

In view of the fact that not one prehistoric specimen of *Bison* has been found in an archaeological site in the United States east of the Mississippi River (Haag, 1942 and 1956), we feel that our evidence is insufficient to establish the presence of this species in North Alabama prior to the coming of the white settlers. Rostlund's (1960) paper contains a comprehensive discussion of the southeastern distribution of the bison in historic times.

Class - Aves

The lack of a complete avian osteological comparative collection precluded the identification of all the bird material. Where entire bones from major skeletal elements, particularly the tarso-metatarsus, were present, it was possible to make an identification but where only fragmentary material was recovered it was not possible to make a species assignment in some instances. The characteristic nature of the wild turkey (*Meleagris gallopavo*) skeleton facilitated its identification. There was a paucity of even fragmentary bird remains, except the wild turkey, in all collections. Poor conditions for the preservation of bird skeletal elements is partly responsible; but what appears more likely, is that species of birds other than turkeys were not as heavily utilized. The abundance of whole and fragmentary turkey remains and the almost complete lack of species whose bones are equally durable lends support to this hypothesis. The hunting and trapping techniques of the Tennessee Valley inhabitants may have been highly selective for turkeys, a fortuitous rather than an intentional situation. Quite in contrast to our findings, Parmalee (1958) found a heavy utilization of birds, particularly waterfowl, in Illinois sites.

Order - GaviiformesCommon Loon - *Gavia immer*

Loon remains were positively identified in the Harris Site, Ms° 80, a Gunterlands III period.

Order - CiconiiformesTricolored Heron - *Egretta tricolor*

A single occurrence of this medium sized heron was recorded from the Stephenson Site, Ms 111 which is largely a Gunterland IV occupancy. This species is tentatively assigned to the Gunterlands IV cultural period since the majority of midden material accumulated during this time. There were occupancies in the Gunterland I and Gunterland III periods also with a rather indistinct separation of the midden strata from the three periods.

Order - AnseriformesHooded Merganser - *Lophodytes cucullatus*

Hooded merganser remains were found in an Archaic I cultural strata at the 6.5' level, Block I of the Little Bear Creek Site, Ct° 8. The absence of other members of the Anatidae can be attributed to their lack of preservation and not to either an absence from the region or a lack of use by the aborigines.

Order - FalconiformesBlack Vulture - *Coragyps atratus*

Evidence of the presence of this species was obtained from the Harris Site, Ms° 80 where its remains were identified in one collection of a Gunterlands III period.

Red-tailed Hawk - *Buteo jamaicensis*

This large soaring hawk was found in a collection from the Henry Island Site, Ms° 55. The collection was from a Gunterlands IV strata.

Broad-winged Hawk - *Buteo platypterus*

This species was found in the "Refuse" collection of the Snodgrass Site, Ja° 101 and is tentatively assigned to a Gunterland IV culture. The bird material is believed to have been from an aboriginal source although both *Bos* and *Equus* of intrusive white origin was found in the same collection. The mound fill contained evidence of material characteristic of earlier cultures than the Gunterland IV period and the hawk bones could have originally been deposited in the nearby area from which the fill material was obtained.

Order - GalliformesWild Turkey - *Meleagris gallopavo*

Occurring in sixty-eight of the ninety collections, the wild turkey is represented in abundance in all cultural levels from Archaic I through Gunterlands V. Even when allowances are made for the durable nature of the turkey skeletal remains which would influence its frequency of occurrence, it is clear that this species furnished an important item of food in the diet of the Tennessee Valley aborigines. This species

apparently occurred in abundance plus the fact that the Indians had undoubtedly developed a very effective method for capturing this wary bird. Eighteen of the twenty-three sites contained turkey bones. In addition to being an important item of food, the turkey furnished the aborigines with bone needles and awls, projectile points were made from the large gobbler spurs, and the feathers were used for personal adornment, capes and for fletching arrows. At the time the collections were examined, the age of the sites were unknown to the author, so that the possibility of the occurrence of domestic species both bird and mammal was recognized. In none of the collections was there any evidence of domestic birds in the two post-contact sites. In the absence of all species of domestic birds, the turkey remains in the post-Columbian sites were believed to have been from wild rather than domestic turkeys.

Order - Strigiformes

Great Horned Owl - *Bubo virginianus*

Remains of this large owl occurred in one collection from the Little Bear Creek Site, Ct° 8 in a strata of the Archaic II period.

Classes - Amphibia and Reptilia

The absence of all amphibians and the presence of only one order of reptiles, the Order Chelonia, was believed to be entirely due to the poor conditions for preservation which existed in all sites examined. Even in the case of the turtles, practically the only skeletal elements which remained were segments of the plastron and carapace. Of the seven genera of turtles identified, all are found in the Tennessee Valley of Alabama today and six occur in abundance. The painted turtle *Chrysemys* is rare.

Order - Chelonia

Snapping Turtle - *Chelydra serpentina*

The snapping turtle occurred in eight collections from six sites. The earliest cultural level from which it was recovered was in the Archaic III strata of site Ct° 8. Its remains were found in abundance in the Gunterlands III period and in the site Ja° 102, some of the material was probably of a Gunterlands IV age. The disturbance of the site strata by aboriginal and white digging makes a positive cultural assignment impossible. Since the species is present in abundance in the valley today, it can be assumed that it was a continuous resident of the valley since the Archaic III period. It undoubtedly was a significant item in the food supply of the aborigines. It was undoubtedly a significant item in the diet of these river bank residents. None of the remains were identified as being from the alligator snapping turtle *Macrochelys temminckii*.

Mud Turtle - *Kinosternon subrubrum*

Remains of the little mud turtles were found in two collections each from a different site. The first occurrence was in the Archaic II strata of Ct° 8 and the second was in a Gunterland III culture in site Ja° 27.

Box Turtle - *Terrapene carolina*

The box turtle was a thoroughly exploited little animal for it was easy to capture, has some food value and, unfortunately for the turtle, has a shell suitable for a drinking cup, a bowl, or a rattle! Its remains were found in twelve of the twenty-

three sites; however, it is known to have occurred in most of the other sites for all worked shell had been removed from our collections prior to our examination. Its occurrence in thirty-seven of the ninety collections, even with the collection and preservation bias, gives some indication of its use and importance to these primitive peoples. It was found in sites representing cultures beginning with the Archaic I through Gunterlands IV. It is abundant in the Tennessee Valley today.

Painted Turtle - *Chrysemys picta*

The painted turtle is a rare species in the Tennessee Valley of Alabama today. Its remains were found in only two collections from the Little Bear Creek Site, Ct° 8. It was found at the 8.0' level, an Archaic I culture and at the 1.5' level, an Archaic III strata.

Sawback and Cooter Turtles - *Gratemys* sp. and *Pseudemys* sp.

These two genera were represented in 43 of the 90 collections. Remains of these genera were identified as *Gratemys* or *Pseudemys* during the study after it was ascertained that both genera were represented in the collection with about equal frequency. Both genera undoubtedly contributed to many an Indian meal for their large size and relative ease of capture would have made them attractive prey for the hunting and gathering aborigines. Twelve sites contained the remains of one or both genera. All cultural stages from Archaic I through Gunterlands V contained skeletal elements from these genera.

Softshell Turtle - *Trionyx spinifer*

The softshell turtle undoubtedly constituted a major item in the diet of the valley peoples for *Trionyx* remains were found in thirty-six collections from twelve sites. All cultural levels from Archaic I through Gunterlands IV were found to contain softshell turtle remains. The species is a common resident of the area today.

Pisces

All of the five genera of fish identified in the collections are found in the Tennessee River of Alabama today, most of them in abundance. The Tennessee River undoubtedly furnished a dependable source of fish for food and it is quite probable that had conditions for preservation of the skeletal structures been more favorable, a wider representation of species would have been found. Weirs and other traps were undoubtedly employed by the more recent cultures, but the earlier cultures probably caught many fish by spearing or by driving them into shallow water and catching them by hand. Practically all skeletal elements recovered were from the larger individuals of each species which could be accounted for by the greater durability of the larger forms and a selective harvesting technique such as spearing. Bone fish hooks of presumed shell mound people manufacture, were found in Ct° 8 so that the "arte of fyshyng with ye angle" was known and practiced even in prepottery times.

Order - Lepisosteiformes

Longnose Gar - *Lepisosteus osseus*

This species occurred in only one collection from a Gunterland III site. The paucity of remains of this species is puzzling since its scales are extremely durable as well as many of its skeletal structures. There is reason to believe that this species occurred in abundance in the river at the time the sites were occupied.

Order - Cypriniformes**River Redhorse - *Moxostoma carinatum***

The river redhorse was found in four collections from two sites. In the Little Bear Creek Site, Ct° 8, it occurred in cultural levels from Archaic I through III and in the Pine Island Site, Ms° 121, it was found in a strata of mixed Gunterlands III and Gunterlands IV cultures. The nocturnal spawning runs of this species into small creeks would have made this sucker vulnerable to capture by the early aborigines who could have caught them by hand, with spears, or in crude weirs.

Catfish - *Ictalurus* sp.

Remains, mostly spines, of the catfish, *Ictalurus*, were found in twenty-two collections from five sites and an additional five collections from five sites could not be positively identified to genus. Catfish remains of all species occurred in a total of twenty-seven collections from ten sites representing all cultures from Archaic I through Gunterlands IV.

Order - Perciformes**Pike perch - *Stizostedion* sp.**

A single bone from the skull of one of the pike perches, probably a walleye, was recovered from an Archaic II cultural level of the Little Bear Creek Site, Ct° 8. The size of the jaw fragment was of a proportion which greatly exceeded that of a 15 pound walleye with which it was compared.

Drum - *Aplodinotus grunniens*

Pharyngeal plates from this species occurred in 72 collections from nineteen sites. All cultural periods from Archaic I through Gunterlands IV. The species was extremely abundant prior to the construction of the numerous dams of the TVA system. Otoliths and pharyngeal plates from drum of enormous size, possibly approaching 100 pounds, were found in a number of collections. The resistant nature of the otoliths and pharyngeal plates would insure their preservation long after the remains of most species of fish had disintegrated. The high frequency of occurrence of this species certainly indicates that it was taken on many occasions and it points to the possibility that other species of fish with less resistant parts were probably taken.

Fish was obtained in some quantities by the shell mound occupants of the Little Bear Creek Site, Ct° 8, for not only were all five genera of fish found in the middens of this site, but drum remains occurred in thirty-two of the thirty-four collections from Ct° 8.

Summary

Approximately 8,000 unworked bone fragments were identified from 23 mound and village sites in Colbert, Jackson, Madison, and Marshall counties of Alabama (Table I). The time interval represented by these materials is from Gunterlands I (ca. 4764 \pm 250 B.P.) to Gunterlands V (up to ca. 1800 A.D.).

The species composition of the vertebrate material (Tables II, III) indicates little if any change in the environmental conditions during the period from the time of the earliest site occupancy (Archaic I, Ct° 8) through the close of the latest post-contact sites around 1800 A.D. (Gunterlands V, Ma^v32 and Ms^v100). Two species with northern affinities were found, the porcupine, *Erethizon dorsatum* and the fisher, *Martes pennanti*. The porcupine probably survived in Alabama until the end of the Archaic. The fragmented maxillary of a fisher, *Martes pennanti*, was found in association with a post-contact burial (ca. 1700 A.D.). The species was probably a resident of Alabama until late in the post contact period since its presence in Tennessee, some 35 miles from the Alabama line, was reported by Audubon and Bachman. Other boreal species whose ranges approach Alabama but whose remains were absent from the collections were: the snowshoe hare, *Lepus americanus*, and the red squirrel, *Tamiascirus hudsonicus*. The red fox, *Vulpes vulpes*, a recent introduction in the Southeast, was absent from all sites.

Remains of either *Bison*, *Bos* or a combination of the two species were found in seven sites but no diagnostic fragments that would permit the positive identification of either species were found. Although most of the sites studied were not occupied until historic times, the subsequent use of these prehistoric sites by white residents eliminated the possibility of identifying the material on a time basis. *Bison* were probably never abundant in Alabama and the historical references as well as our meagre site evidence would indicate that if they did occur in North Alabama, they appeared after DeSoto's trip in 1540 A.D., perhaps as late as 1700 A.D.

The presence of elk, *Cervus canadensis*, was clearly established in several later sites. It is hypothesized that elk entered Alabama from the west or northwest, possibly along the Tennessee River, rather than from the north or northeast along the western slopes of the Appalachian foothills.

There was at least one occurrence of each of the native mammalian species larger than the mink which were known to have been present in Alabama during the 16th century, with the possible exception of the *Bison*. Mink, *Mustela vison*, remains were absent as were all other similar species except the grey squirrel, *Sciurus carolinensis*; the weasel, *Mustela frenata*; the chipmunk, *Tamias striatus*; and the cotton-rat, *Sigmodon hispidus*. Of the mammals found in the prehistoric sites and believed to have been resident species, only the porcupine, wolf, elk and bison are absent from the Tennessee Valley of Alabama today.

All species of fish, reptiles, and birds identified in the collections are presently found in the Tennessee Valley and all but the painted turtle, *Chrysemys picta*, are either common or abundant.

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CONTACT ZONES AND EASTERN UNITED STATES PREHISTORY: EVIDENCE FROM A PIEDMONT ROCK SHELTER

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ABSTRACT

The Bottoms Site is a small rock shelter on the Yadkin River in northwestern Forsyth County, North Carolina. Radiocarbon analysis performed on a charcoal specimen from the lowest level of the site suggest a long history of occupation of the rock shelter dating as far back as 6600 B.C. This conclusion is supported by artifactual evidence from the site, for a comparison of the stone projectile points recovered from the shelter indicates that the entire sequence known for the Carolina Piedmont is represented. On the basis of the kinds of artifacts found at the rock shelter, it is hypothesized that this shelter served for several millennia as a temporary camp for small roving bands of people, perhaps small families or hunting parties. Ceramic evidence recovered from the rock shelter suggested that a certain pattern of cultural interaction best described as a "contact network" obtained throughout the Piedmont region of the Middle Atlantic states.

INTRODUCTION

A continuing goal of archaeological research has been to understand the nature and direction of cultural contacts as they are reflected by similarities in artifact assemblages, often over a considerable geographical area. Caldwell's (1958) "interaction sphere" and more recently Michels' (1968) "contact network" have been two explanatory devices used in this way, to describe the "contact situations between groups that account for culture elements resemblances between close or widely separated local populations" (Michels 1968:66). Analysis of the cultural material from the Bottoms site (31FS3), a small rock shelter located on the Yadkin River in northwestern Forsyth County, North Carolina, suggested that such a concept might profitably be applied to this area of the Southeast for an understanding of the prehistory and cultural dynamics of the Middle and Southeast Atlantic cultural regions.¹

Under the direction of E.P. Banks and R.E. Pace, the shelter was excavated by trenching through a cross-section of the deposit and then partially cross-trenching through the richest portion as revealed in the earlier trench. Most of the artifactual material obtained comes from a single 5 by 5 foot square which could not be

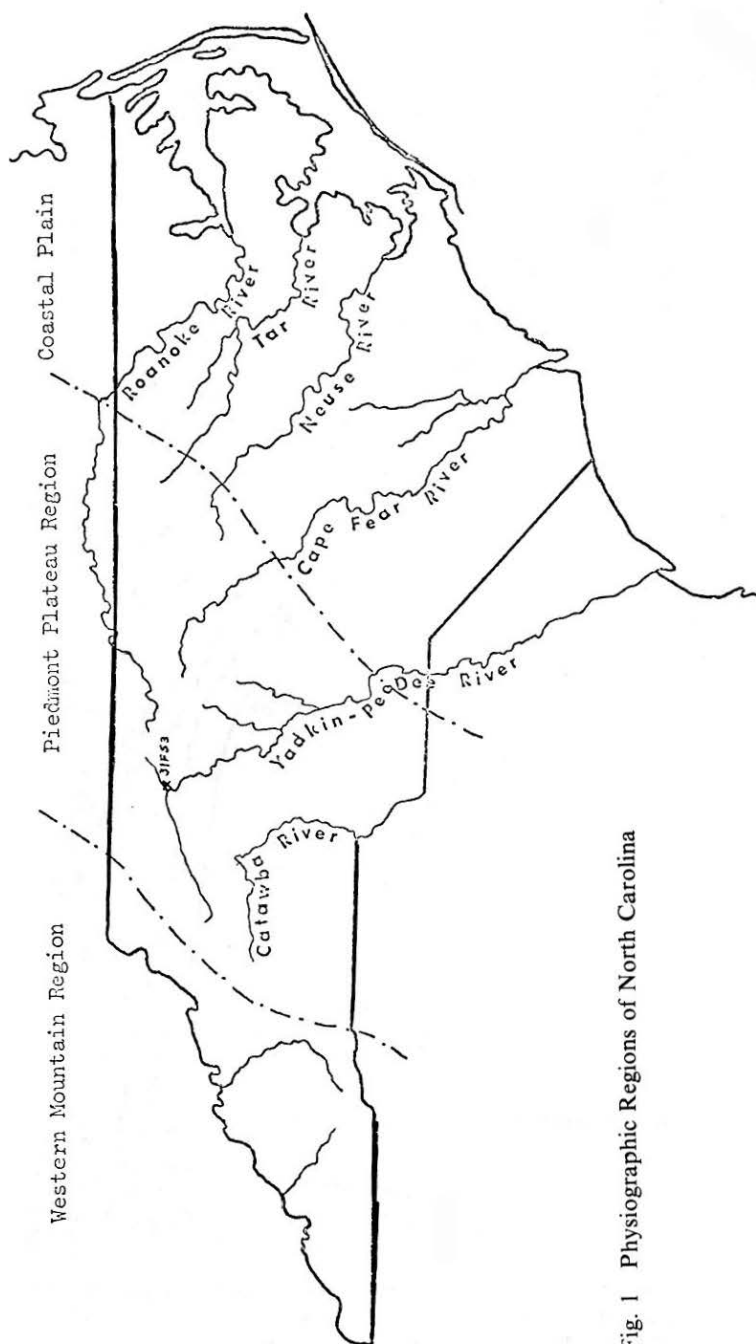


Fig. 1 Physiographic Regions of North Carolina

The Bottoms rock shelter (site 31FS3) is located at the big bend of the Yadkin River, 13 miles northwest of Winston-Salem, at the confluence of the Yadkin River with the Little Yadkin.

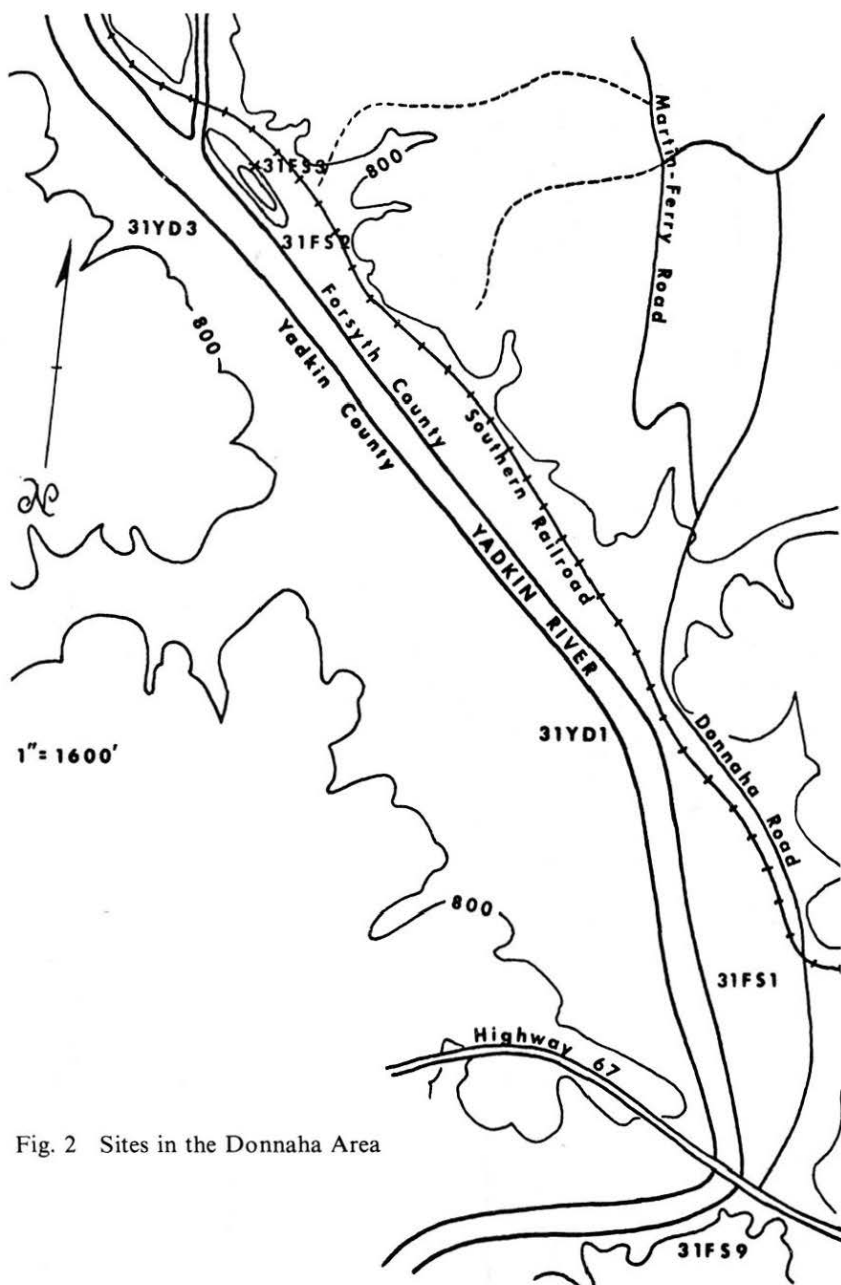


Fig. 2 Sites in the Donnaha Area

The Bottoms rock shelter (site 31FS3) is situated on the northeast face of a long, low hill formed by a granite outcrop in the river valley. A number of other sites are located near the shelter, across the river and farther downstream.

extended owing to water seepage. The shelter shows a long projectile point sequence, and the lowest excavation level was radiocarbon dated to 8600 ± 300 years before present (Y-1788). Despite this great antiquity, the ceramic and lithic artifact yield of the site was low, suggesting that occupation of the shelter was short and intermittent, and the site may have been revisited periodically. Analysis of the cultural material from site 31FS3 (Rice 1971) indicated that the peculiar configuration of lithic similarities and ceramic dissimilarities with other complexes in the region might be the result of a certain pattern of cultural interaction best described as a "contact network" or "interaction sphere" in this area.

The Natural Setting

The rock shelter is located in the valley of Yadkin River, which flows through the rolling hills of the Piedmont section of North Carolina (Fig. 1). Formed by an outcrop of granite in the middle of a long, low hill about 1200 feet long and 40 feet high, which parallels the Yadkin about 300 feet from its east bank, the shelter mouth opens toward the northeast away from the river. The shelter is 13 miles northwest of Winston-Salem situated at the confluence of the Yadkin River with the Little Yadkin, a small stream flowing from a source to the northeast. Judging from an old stream bed in front of the shelter mouth, the Little Yadkin at one time flowed east of the hill, entering the Yadkin several hundred yards downstream of the southern extremity of the hill.

The sandy river bottomlands in the vicinity of the shelter have been heavily farmed, and the old stream bed and field to the south of the hill have been planted yearly in corn or tobacco. Natural vegetation in the immediate area of the rock shelter, the hill, and stream bed includes white pine, sycamore, beech, cottonwood, tulip poplar, shaggy birch, sassafras, wild cherry, basswood, and several species of oak. Persimmon trees and blackberry bushes abound in the stream bed, and many wildflowers and vines are scattered over the entire area. Wildlife in the area includes many species of birds, songbirds as well as game birds such as quail and pheasant; rodents and small mammals, such as squirrels, rabbits, foxes, and badgers; larger mammals such as deer; and various species of snakes, toads, and frogs.

Several other sites are located near the rock shelter along the Yadkin bottomlands and in the low hills on either side of the river course (Fig. 2). A large village site, the Donnaha Village (31YD1), is situated on a broad flat floodplain downstream from the rock shelter and on the opposite bank of the river. Believed to be protohistoric, this village has been known to archaeologists for many years. A fish weir spans the river between this site and the field below the rock shelter. Other cultural material was found upstream of the village directly across the river from the rock shelter (31YD3), as well as in the flat field immediately to the south of the rock shelter (31FS2).

Excavation of the Bottoms rock shelter in 1962 through 1964 revealed three distinct soil zones marked by different soil colors and cultural contents (Fig. 3). The upper zone of tan or buff fine silt, which contained no cultural material, sealed off lower strata at its base with a large rock slab, fallen from the rock shelter roof. Below this slab was a zone of very dark, almost black, soil which contained all the pottery from the site, as well as numerous projectile points and fragments. Unfortunately, however, there was no clear stratification visible within the zone. Probably there were aboriginal pits dug into the zone which confused the stratigraphy and led to intermingling of the artifacts, but if such pits did exist no clear outline of them was found during the excavations. Below the humus stratum was a zone of reddish tan clay-loam soil which increased in clay content at increasing depths. This zone contained little cultural material except a heavy

discoidal scraper and some projectile points. No pottery at all was found in this zone. Charcoal from the bottom of this zone, at a depth of 140 inches below datum, was radiocarbon dated to 8600 ± 300 years before present (Y-1788).

Artifact Analysis

Artifacts recovered from the excavation included 700 sherds, 29 projectile points, and 110 other lithic artifacts (scrapers, drills, graters, millstones, etc.). No bone or wood artifacts were found, owing most likely to poor preservation in acidic soil.

The ceramics, when compared to published collections from Virginia and North Carolina, showed greater ties with northeastern rather than southeastern ceramic

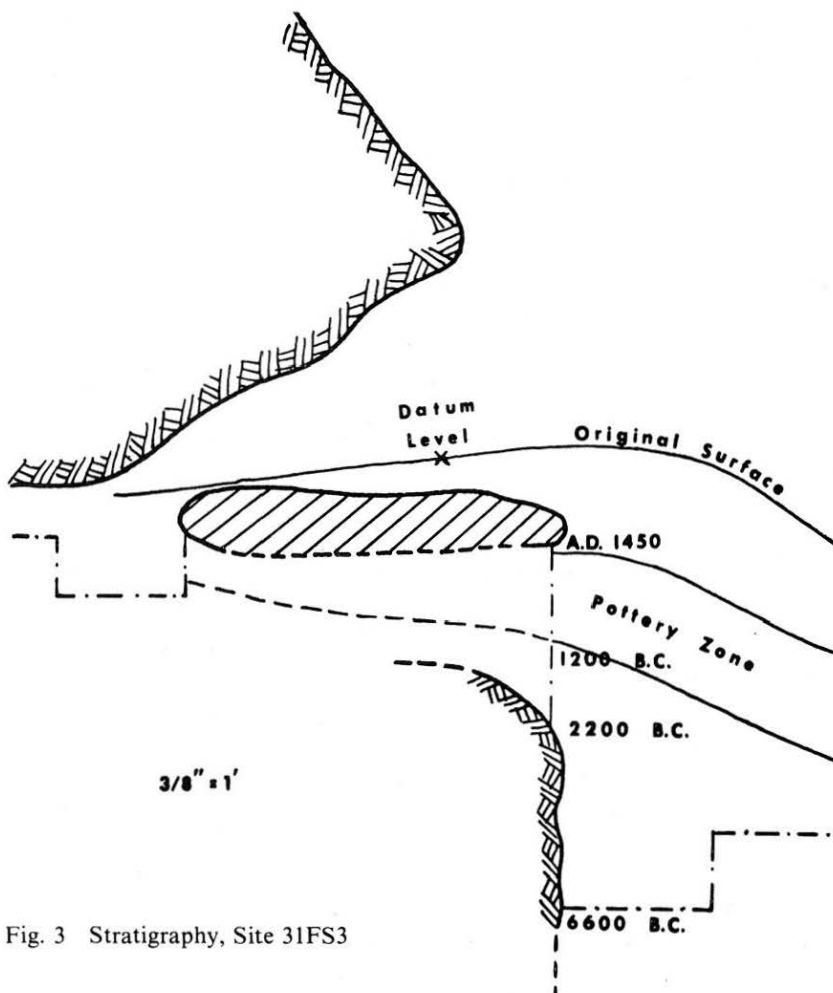


Fig. 3 Stratigraphy, Site 31FS3

Three distinct strata, differentiated by soil color and texture, as well as by cultural content, were discerned in excavation of the shelter. All dates refer to radiocarbon-dated charcoal specimens.

traditions. Like northeastern ceramics, the majority of the sherds had grit (coarse crushed quartz, mica, and quartz sand) temper and cord, fabric, or net-impressed surfaces. Southern ceramic affiliations are contraindicated by the absence of shell tempering and of forms and decorative treatments common to southeastern ceramics. That some sort of contact may have occurred, however, might be indicated on the basis of a few linear checked stamped sherds.

Five ceramic series were identified for the site, differentiated on the basis of color and texture range, and kind and quantity of aplastics. Most of the sherds were in the light tan-orange to bright red-orange color range, and were fired to more or less complete oxidation, as seen by the absence of black-coring in almost all the sherds. Only two of the series, those containing smaller numbers of sherds, were in the predominantly gray-brown to gray-black color range, indicating either a different firing atmosphere or a different clay source. Almost all the sherds had interior surfaces that were significantly darker than the exteriors. Tempering material, i.e., aplastics, included coarsely crushed white quartz, mica, and sand in variable quantities; in one series small black and red particles occurred, probably crushed gneiss and sherd.

An attempt was made to order these series chronologically, by seriation, but this effort was largely unsuccessful, owing to the problem of unclear stratigraphy and aboriginal pits noted in the dark soil zone which contained all the ceramic remains. Efforts to cross-date the ceramics by identification with other ceramic types in the literature gave ambiguous results. In terms of the attributes on which the classification of Bottoms site ceramics was based, certain gross resemblances exist between the two largest Bottoms site series and series identified for Maryland, Virginia, and Piedmont North Carolina, but the relationship is general rather than specific. These series are: Shepard Cordmarked in Maryland (Evans 1955); Albemarle, Unclassified (Evans 1955), and Grayson (Holland 1970) series in Virginia; and the Yadkin and Uwharries series in the North Carolina Piedmont (Coe 1964), representing a time span from A.D. 500 to 1450. It is possible that the ceramics from the Bottoms site come from essentially one ceramic-making occupation, confused by refuse pits in the occupation zone, rather than from several such occupations. This might account for the lack of definite time seriation.

Stronger type identification and a gross time range can be obtained through the projectile point sequence recovered from the Bottoms site, which includes all points except one in the series defined by Coe (1964) for the Hardaway and Doerschuk sites, farther downstream on the Yadkin River. These points, Hardaway Side-notched through Randolph Stemmed, cover a time range of from roughly 7000 B.C. to A.D. 1700-1800, and their occurrences at the Bottoms site indicates that the rock shelter was visited by peoples from the Paleo-Indian period up through historic times. Because of the intermixing of the deposits and the small sample, however, these points cannot be used as a basis for any sort of stratigraphic dating of the ceramics.

Interpretation

The small quantities of lithic artifacts recovered from the site suggest that while the site was known to aboriginal occupants of the area for a long time, it was probably not occupied for any length of time nor by many people at once. This suggestion is supported by the size of the shelter, for the shelter has an area suitable for occupation of only 7 to 10 square meters under the steeply sloping roof. Although this area was probably considerably larger in aboriginal times, before the buildup of detritus and the fall of the rock slab, the site could not have comfortably sheltered groups much larger than a nuclear family or a small hunting party.

In addition, it is assumed that for much of the early period of occupation of the shelter, the population density was below the supporting capacity of the resources of the region, as was true for much of the East at that time. With a lower population density, there is less likelihood that the territories of hunting and gathering bands would overlap, which would cause more continuous occupation of the shelter. In terms of a "contact network", Early and Middle Archaic projectile points identical to those found at the Bottoms shelter have been found as far north as central Pennsylvania, suggesting a highly nomadic settlement pattern with wide-ranging contacts over the middle East coast (Michels 1968: 70).

The paucity of artifacts recovered from the Bottoms shelter raises the question of what activities were carried out at the site and who occupied the shelter for what reasons. We may turn to the lithic artifacts other than projectile points recovered from the site for an answer to these questions. From the kinds and numbers of these artifacts certain functions can be inferred to have taken place at the site and certain other activities eliminated. For example, the absence of chert cores and the low ratio of waste flakes to tools suggests that tool manufacture was not a primary activity carried out here. Likewise, absence of shredding tools, such as steeply retouched scrapers, and the relative infrequency of grinding stones and mortars indicates that plant processing was not a major activity either. The only major activity that appears to have been carried out on the basis of the artifact assemblage is butchering operations. The scrapers from the site are thin and sharp, suitable for cutting and skinning game, and the hides may then have been processed at the site. The hammerstones could have been used to spilt the animal bones to get marrow, and the large percentage of basal fragments of projectile points indicates that points were reworked after the hunts. This hypothesis accords well with the logistics of the shelter itself, for being small it was suitable for temporary, perhaps seasonal, occupation by small groups such as hunting parties who visited the shelter briefly in the course of pursuing certain subsistence activities.

One possible objection to this hypothesis is the presence of ceramics at the site, for heavy, bulky, and breakable pottery vessels are not commonly associated with mobile hunting groups. The presence of ceramics at the shelter may indicate its use by individuals or groups from nearby village sites in the Yadkin floodplain during the late prehistoric period. They, like the preceramic occupants may have camped temporarily in the shelter while hunting in the hills or collecting fruits, nuts, or berries from the numerous species growing wild around the area of the shelter, using ceramic vessels for the storage of these items or for cooking. Or, after the establishment of maize horticulture in the area (ca. A.D. 1000), the shelter may have been used as a temporary camp for farmers coming across the river to farm the broad flat area below the shelter and hill with maize crops. The shelter would have been convenient during especially busy times of the year, such as planting or harvest.

Yet another possible reason for the continuing occupation of the rock shelter during its long history, from 6600 B.C. to A.D. 1700, may be its favorable location along travel arteries. Situated at the "big bend" area of the Yadkin River, where the river turns from a northeastward to a southeastward flow, and joins with the Little Yadkin River, this rock shelter marks the coming together of arteries of travel out the northeast, southeast, and southwest. For example, the Little Yadkin River flows into the Yadkin from the northeast, and its headwaters lie not far from the Dan River where it dips into North Carolina. Canoe navigation has been suggested as a likely adaptation of hunting groups in the Northeast around 1500 to 1000 B.C. (Ritchie 1965; Michels 1968), permitting band segmentation for greater exploitation and mobility in hunting along water courses. Whether such a pattern obtained in the Southeast is unknown, but the location of the rock shelter would certainly be

favorable to band segments practicing such an exploitive system, and could have been a link in a larger system of regional contact.

Additionally, it is possible that in its later history, the rock shelter may have been a convenient stopping place at the end of a day's journey from one camp or village to a quarry, trading center, or another village in the area. One such village may have been the "Trading Ford", located near present day Salisbury, North Carolina, where the Trading Path, a trail covering the distance from coastal Virginia to Georgia along the approximate route of modern Interstate Highway 85, crossed the Yadkin River. The fact that the Bottoms shelter yielded no artifacts that seemed clearly to be trade or exotic items casts some doubt on the possibility of this function, however.

Conclusions

Although both the lithic and the ceramic remains recovered from the Bottom site suggest a number of possible interpretations as to how the shelter itself may have been used, interpretations of the shelter's occupation in a larger cultural context is more tenuous, in part because of the lack of artifacts suggesting definite culture contacts. Some conclusions may be reached, however, by consideration of the ceramic series represented at the site and their affiliations with other areas. It appears that there existed in aboriginal times from what is now Maryland southward to North Carolina, and perhaps beyond, a ceramic tradition characterized by certain stylistic and technological attributes that persisted over a wide area for a long time. This tradition was limited largely to the Piedmont region of these states, and by its predominance of crushed quartz and quartz sand inclusions it is set apart from the shell-tempered wares to the east and the shell- and limestone-tempered wares to the west, appearing to have received little stylistic or technological influence from these areas.

A number of reasons for the persistence of these attributes over such a wide area for around 1500 years may be suggested. A "ceramic ecological" approach (Matson 1965) would explain in part the spatial extent of the homogeneity, for the potters were merely utilizing the resources that were close at hand, namely the red or orange leached soils and clays of the Piedmont region, and the abundant quartz and quartz sand which make up the geological strata underlying the Piedmont. The clays of the region, especially the residual clays, often contained mica and fine sand naturally as a result of the parent rock strata from which they were formed.

More difficult to explain, however, is the stylistic and technological conservatism of this tradition through time. Why were the Piedmont ceramics relatively untouched by the shell-tempered and limestone-tempered ceramics of the western river valleys of Ohio, West Virginia, Kentucky, and Tennessee? It is helpful here to consider the summary given by Evans (1955: 142-143). Evans notes that the earliest ceramic influences on Virginia came from the north and he argues that Virginia had its ceramic development in common with that of Maryland, New Jersey, and Pennsylvania. This common tradition gave a similar basis for ceramic development a wide area which lasted perhaps through the Early Woodland period, up to 300 B.C. Then, perhaps as a result of diffusion or migrations from external regions, a number of local and regional variations on this common base, developed, leading to the differentiation of various ceramic regions within Virginia and the other states participating in the common tradition. This period of internal change probably coincided with the Middle Woodland period. Beyond such internal development, little in the way of outside traits, such as shell-tempering or carved paddle stamping,

penetrated or affected the course of ceramic development in the various regions. Virginia's ceramic development thus shows a

... remarkable stability and little change from earliest to latest periods in some of the ceramic areas, compared with other areas of the east. This is not to say that the ceramic areas of Virginia are without change. ... (but) the ceramic changes that occur in Virginia occur at a much slower rate. This would possibly argue for lack of external influences, a removal from major routes of diffusion, or internal stability. ... (Evans 1955: 143).

The same situation appears to obtain in North Carolina, although influences from farther south, particularly in such decorative techniques as check and curvilinear stamping, occur with greater frequency, and the architecture and stylistic modes characteristic of the Mississippian period are also found in greater numbers in North Carolina. Nonetheless, North Carolina seems to be the southernmost participant in the common early ceramic tradition shared by Virginia, Maryland, and Pennsylvania to the north. A northern affiliation for North Carolina ceramics has been suggested earlier by Coe (1952). This area may be considered a large interaction sphere or contact network within frequent contacts gave rise to a gross stylistic similarity in pottery over the area, and at the same time fostered a conservatism that did not yield to the styles of peripheral areas.

Evans, as quoted above suggested three possible reasons for this conservatism: lack of external influence, removal from major routes of diffusion or internal stability. Probably all three of these reasons are significant to some degree, but we would suggest that internal stability is the most important and far-reaching of the three. Joseph Caldwell (1958) has set forth the idea of "forest efficiency", a concept which postulates that the various aboriginal occupants of the Eastern forests had developed during the Archaic period an increasingly stable economic system based on the exploitation of a forest environment. This exploitation was so efficient that it not only insured a sufficient amount of food for the various populations, but it was considered to be more reliable a subsistence base than horticulture, which was not practiced in the Piedmont of North Carolina and Virginia until after A.D. 1000 (Coe 1964: 51; Holland 1970: 27, 81). If this forest efficiency, based on hunting, fishing, and gathering nuts and wild plant foods, were so successful in the Piedmont as to forestall the adoption of maize horticulture until several hundred years after it was adopted elsewhere in the East, it would imply a high degree of internal stability (primarily economic, but also social), with local variations according to specific niche requirements.

It would also suggest that were a culture with another type of subsistence strategy and/ or social organization to intrude into this area of hunting and collecting, the hunters and collectors would accept neither the new subsistence nor the associated technology and social organization (unless forcibly imposed upon them). For a new style or technology or social organization to be accepted into a forest efficiency culture, the new elements would have to "fit" or integrate into the already existing technological, stylistic, or social elements of the culture. This is basic to any understanding of the processes of culture change. In addition, the introduced items would have to represent some sort of technological or functional advantage over the existing elements, or else there would be little inducement to adopt them. For example, the technique of shell tempering in ceramics would not represent any sort of technological advancement: shell-tempered vessels would be no more useful in cooking and storage than stone-tempered vessels, and besides, stone was more abundant for use as a tempering agent than was shell. So there would be little stimulus to accept this innovation from contact with a group that manufactured shell-tempered ceramics.

The internal stability and integration may have been emphasized by a lack of external influence and removal from the major routes of diffusion, too, as Evans suggested. As an illustration, we may consider the Adena-Hopewell, who had built up a sedentary, stratified society, burial and ceremonial complex, and associated technology on, as far as is known, a type of hunting and gathering efficiency. This economy was adapted to riverine and lacustrine econiches and was supplemented by the small-scale cultivation of certain plant foods. Adena-Hopewell spread its influences into the Appalachian Mountains and across the northeast in West Virginia and Maryland. Why, then, did they not penetrate into the Piedmont, and why did their burial ceremonialism not take hold there, in another hunting and collecting specialized efficiency? Two reasons may be suggested. First, perhaps there were no resources in the Piedmont region that were sufficiently attractive to draw them, or that were not to be found in their own econiches. Although Hopewell penetration into the Appalachian area of Virginia and North Carolina for crystal quartz, mica, and steatite is likely, further eastward movement into the Piedmont or coastal region does not seem to be indicated except possibly for alligator (Struever and Houart 1972). Second, the Adena-Hopewell peoples are associated generally with the Western Mesophytic Forest in the Ohio-Illinois area. This same type of mesophytic forest extends across the northeast, north of Virginia, with a different type of forest, the Oak-Pine and associated soil complex, found in the Piedmont to the south (Braun 1964). To the Adena-Hopewell, then, this forest type may have represented a different environment, one which they could not exploit as efficiently as their own, and they may have preferred to follow the northeastward spread of the mesophytic forests.

A somewhat different effect of the internal stability may be seen during the Mississippian period, when horticulture was the subsistence base for societies with elaborate social stratification, pyramid architecture, and ceremonialism with associated artifacts having social or ideological meaning. Contact on the part of Piedmont peoples living at the level of forest efficiency with groups having horticulture did not, as mentioned before, lead to the acceptance of a horticultural base because of the perceived superior efficiency of their present subsistence strategy. Why did it not lead, then, to the acceptance of ceramic or other artifact types? The reasons are probably much the same as those suggested for the rejection of shell-tempering. Because the Mississippian ceramic and stone technology was associated with a different type of economic adaptation, social organization, and ideology, it was probably meaningless in terms of the socio-cultural patterns of the forest-adapted hunting and collecting groups in the Piedmont and did not "fit" their needs and uses. Moreover, the function of these new ceramic styles and stone tools was adequately met and filled by the pre-existing ceramic vessels and stone tools, and a change would have no adaptive value toward increased techno-environmental efficiency. Whatever the reason, Mississippian culture did not intrude into North Carolina until the late prehistoric period, most notably at Town Creek Mound in the Piedmont near Salisbury and at the Peachtree Mound in western North Carolina.

Therefore, while the Piedmont cultures with their efficient exploitation of the forest econiches rejected horticulture as a less efficient subsistence base, they simultaneously rejected the associated artifacts which had a social, technological, ideological, and functional meaning that did not integrate into their own society. Thus, it may be suggested that there was in Piedmont of North Carolina and Virginia a contact network which resulted in a long tradition of internal stability, and probably regional specialization, built around an efficient economic system of exploiting the various econiches of the forest. The success and efficiency of the forest adaptation led to conservatism in subsistence and technology, which

precluded the introduction of other, seemingly more advanced systems such as maize horticulture and its associated technology.

In addition, this economic adaptation may have functioned as a check on population growth, allowing the population to grow to the maximum supporting capacity of the ecosystem and then maintaining itself at this level. The rise in population density that is associated with the advent of maize horticulture probably was not felt until sometime after A.D. 1000. If so, a band type of social organization may have persisted until very late in the area, with semi-nomadic hunting and collecting bands interacting over a wide area in the Piedmont region, forming the basis of the contact network. With the introduction of maize horticulture, the change to sedentary life and the population growth that would have accompanied this subsistence shift may have broken down this contact network in the late prehistoric period.

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NOTES

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