

Cultural Resources Survey of Smithville Lake, Missouri

In memory of Humphrey Smith,
Born in 1774, Died June, 1857.

Like leaves on trees the race of man
is found,
Now green in youth, now withering on
the ground;
So generations in their course decay,
So perish these when those have
passed away.

This patriot came to Missouri in 1816,
from the state of New York; labored to make
the territory into a Free State, for which
he was mobbed by armed slaveholders, scourged,
bruised and dragged at midnight from his
house. His ever faithful wife, coming to his
assistance, received injuries at the hands
of the mob which caused her years of affliction.
He was compelled to leave the state.

His wife and family fled from Howard to
Carroll County; there joining his family,
he moved to Clay County, where for many years
he kept up a struggle against the 'negro
thieves or man stealers.' They denounced
him as an Abolitionist, because he was in
favor of human liberty for all men. His
request was, 'Never let the men stealers
know where I am buried until my state is
free, then write my epitaph.'

Here lies Humphrey Smith, who was in
favor of human rights, universal liberty,
equal and exact justice, no union with
slaveholders, free states, free people, union
of states and one and universal republic.

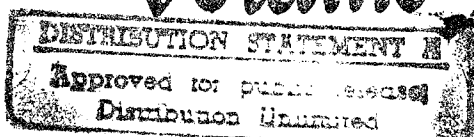
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REPORT DOCUMENTATION PAGE

Form Approved
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1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED		1b. RESTRICTIVE MARKINGS	
2a. SECURITY CLASSIFICATION AUTHORITY		3. DISTRIBUTION/AVAILABILITY OF REPORT APPROVED FOR PUBLIC RELEASE UNLIMITED DISTRIBUTION	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			
4. PERFORMING ORGANIZATION REPORT NUMBER(S)		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
6a. NAME OF PERFORMING ORGANIZATION KANSAS STATE UNIVERSITY DEPT OF SOCIOLOGY, ANTHROPOLOGY & SOCIAL WORK		6b. OFFICE SYMBOL (If applicable)	
7a. NAME OF MONITORING ORGANIZATION		7b. ADDRESS (City, State, and ZIP Code)	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION KC DISTRICT CORPS OF ENGINEERS		8b. OFFICE SYMBOL (If applicable) CEMRK-EP-PR	
9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER DACW41-76-C-0125		10. SOURCE OF FUNDING NUMBERS	
8c. ADDRESS (City, State, and ZIP Code) 700 FEDERAL BUILDING, 601 E. 12TH STREET KANSAS CITY, MISSOURI 64106-2896		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) VOLUME 1: ARCHEOLOGY - CULTURAL RESOURCES SURVEY OF SMITHVILLE LAKE, MISSOURI			
12. PERSONAL AUTHOR(S) PATRICIA J. O'BRIEN			
13a. TYPE OF REPORT FINAL	13b. TIME COVERED FROM 1976 TO 1977	14. DATE OF REPORT (Year, Month, Day) 1977 November	15. PAGE COUNT 253
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
		CULTURAL RESOURCES SURVEY SMITHVILLE LAKE PROJECT ARCHEOLOGICAL PREHISTORIC ARCHAIC WOODLAND STEED-KISKER	
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This is one of three volumes reporting the results of a Cultural Resources Survey of the Smithville Lake Project. Volume 1 deals with archeological resources of the lake. It presents the results of an archeological survey performed in 1976 and interprets the prehistoric settlement of the area by using 1967 and 1975 survey data as well as the new data reported in this volume. Also reported are the results of the excavation of three sites: 23CL109, a multi-component Archaic, Woodland and Steed-Kisker site; 23CL199, a late Kansas City Hopewell site; and 23CL108, a Steed-Kisker burial mound. Recommendations for mitigation of the impact of the lake upon the prehistoric resources are also given. An analysis of human bone recovered from 23CL108 is also presented.			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL		22b. TELEPHONE (Include Area Code) 816-426-3672	22c. OFFICE SYMBOL CEMRK-EP-PR

This work is dedicated

to

MR. HAROLD "SHORTY" HARRIS

...a lifetime resident of the Smithville Area whose interest and support of its archeology extended not only to aiding myself and other archeologists but who also donated his private collection to the project.

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CULTURAL RESOURCES SURVEY OF SMITHVILLE

LAKE, MISSOURI

Volume 1: Archeology

by

Patricia J. O'Brien

Department of Sociology, Anthropology

and Social Work

Kansas State University

Submitted to:

U.S. Army Corps of Engineers

Kansas City District

In Accordance With:

Contract Number DACW41-76-C-0125

November, 1977

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PREFACE

This is one of three volumes reporting the results of a Cultural Resources Survey of the Smithville Lake Project. Volume 1 deals with archeological resources of the lake, volume 2, the history of the lake and volume 3, architectural resources.

Volume 1 presents the results of an archeological survey performed in 1976 and interprets the prehistoric settlement of the area by using 1967 and 1975 survey data as well as the new data reported in this volume. Also reported are the results of the excavation of three sites: 23CL109, a multi-component Archaic, Woodland and Steed-Kisker site; 23CL199, a late Kansas City Hopewell site; and 23CL108, a Steed-Kisker burial mound. Recommendations for mitigation of the impact of the lake upon the prehistoric resources are also given. The volume was prepared by Dr. Patricia J. O'Brien, Associate Professor of Anthropology, Kansas State University. An analysis of human bone recovered from 23CL108, by Dr. Michael Finnegan, Associate Professor of Anthropology, Kansas State University, is also presented.

Volume 2 presents the results of historical studies, including a narrative history, a study of place names, a survey of significant historical sites and recommendations for mitigation. Also included is an appendix on "Yankee Smith" the founder of Smithville, a study not required by the Corps contact but derived from this work. The study was prepared by Mr. Dennis Shockley, a doctoral candidate in the Department of History, Kansas State University.

Volume 3, presenting the results of an architectural survey, represents a departure from such studies, which are usually descriptive. The volume includes a model describing the effects of the local environment upon the vernacular architecture, and as well develops a chronology of architectural types and a catalog of site types and engineering features. The work was prepared by Mr. Robert Melnick, historical architect, Assistant Professor of Pre-Design Professions, College of Architecture, Kansas State University.

Patricia J. O'Brien
Project Director

INTRODUCTION

In May, 1976, Kansas State University and the U.S. Army, Corps of Engineers, Kansas City District entered into an agreement (Contract No. DACW41-76-C-0125) which authorized the Department of Sociology, Anthropology and Social Work to conduct a survey for archeological sites that lay within the remaining unsurveyed non-easement tracts of the Smithville Lake project area. The contract also required the intensive testing of sites 23CL108, the Chester Reeves Mound, and 23CL109, the Richardson Hulse Site. The Yeo Site, 23CL199, was intensively tested when work on 23CL109 was completed.

Fieldwork, started May 24, 1976, continued to July 29, 1976, a period of ten weeks. The work schedule was designed to overlap with the eight week Kansas Archeological Field School session (June 8 to July 29, 1976), and the students were all rotated on survey and excavation to maximize their learning experiences as well as complete the work of this project.

The project was under the general direction of Dr. Patricia J. O'Brien, Associate Professor of Anthropology at Kansas State University. The survey work was coordinated by the senior surveyor, Mr. Brian O'Neill, assisted by Mr. Daniel Pullen and Mr. Lynn Toburen. These three surveyors, with rotated students, walked the fields.

Dr. Michael Finnegan, Associate Professor of Anthropology, Kansas State University, a physical anthropologist and a specialist in osteology--with a field foreman, Mr. Harold Beal--directed completion of excavations at the Chester Reeves burial mound (23CL108) which were started in the summer of 1975.

Mr. David Eck was field foreman for the tests and excavations at the Richardson Hulse (23CL109) and Yeo sites (23CL199).

The following is a report of the results of the work including a discussion of the environmental setting of the lake, previous survey work, survey methods, tracts of land covered, sites located, settlement patterns, excavations and analyses, and evaluations and recommendations.

ENVIRONMENTAL SETTING

Smithville Lake, which is being constructed by the U.S. Army Corps of Engineers, will be located on the Little Platte River, and its tributary Camp Branch just north of the town of Smithville in Clay County, northwest Missouri.

Northwest Missouri is situated within the Dissected Till Plains of the Central Lowland province of North America (Thornbury 1965:212-213, 226-228). The area of Smithville Lake is a Prairie/Forest transitional vegetation zone, with tall grass cover on the uncultivated uplands merging into hardwood forest (basically oak-hickory) along the streams.

In terms of its location, about 20-25 miles upstream from the Missouri River, the area is similar to the upper reaches of the Little Blue River in Jackson County, Missouri. Baumler (Brown and Baumler 1976:11-43), in his reconstruction of the pre-White environment of the Little Blue, has recognized three vegetation zones: Tributary Floodplain Forest, Slope and Upland Forest and Upland Prairie (*ibid*: 34-37). Baumler notes (1976:34) that the Tributary Floodplain Forest is important for its nut resources, and the Slope and Upland Forest has the greatest diversity of woody and herbaceous plant foods and exceeds all other zones in its potential nut and acorn harvest (*ibid*: 36). The Upland Prairie has the least potential for prehistoric plant-food collecting economies (*ibid*:37).

For human occupation the oak-hickory forest's resources--nuts and wood (for fuel and building)--would have been of paramount significance. The prairie grasses, though used for some constructional purposes, were most important for the bison herds they supported. Although a variety of small animals were available, deer and bison were the most important prehistoric protein sources. Undoubtedly, they were supplemented by fish and some mollusca. Roots and wild fruits were available, too.

More detailed descriptions of these zones as well as those of the Missouri River Floodplain Forest and the Floodplain Prairie are given in Baumler, while other descriptions of the Kansas City environs are to be found in Calabrese (1969:18-21), Riley (1967:2-4), and Johnson (1974:108-114). It must, however, be stated that Baumler's work is masterful and the reader is strongly urged to examine it since a summary would not do it justice.

One other local resource which should be mentioned is the naturally occurring chert utilized in the manufacture of stone tools. The bulk of the exposed geologic strata in northwestern Missouri are Pennsylvanian in age. Within them are found four chert bearing limestone strata. Starting with Spring Hill at the top, we find Argentine, Westerville and finally, Winterset (see Greene and Howe 1952).

Spring Hill chert is highly fossiliferous especially near the strata edges which are yellowish in color. The chert itself is a greenish-grey in color. Argentine chert is light grey to brown and even buff in color. Because of its color similarity to Westerville

which is buff or sometimes cream, they can be confused. Westerville chert consistently has a matte surface texture while Argentine appears to have a more smooth texture. Winterset chert has a smooth texture, is dark grey to almost black in color and has white banded streaks within it.

Mississippian strata, especially the Burlington limestone within it which has a very fine grained white chert, and was widely used in the St. Louis area and southwestern Missouri, is present below the Pennsylvanian strata in the region. It is not naturally exposed and thus was not available for aboriginal use. When found at Kansas City sites it had to be imported to the region.

PROBLEM

Although the contract required the completion of site survey, as well as intensive testing of sites 23CL108 and 23CL109, it also required that the results of such work be framed to focus on specific problems of the archeology not only of Smithville Lake but of the Kansas City area.

Problem (1) required the development of "a cultural chronology for the entire area via radiometric dating." Site 23CL109 because of its multi-component nature: Early, Middle and Late Archaic, Late Woodland, and Steed-Kisker, as well as large size, was selected for that reason.

Problem (2) required the development of "a demographic model describing the settlement patterns (i.e., small farmsteads, large village groups) associated with the Mississippian (Steed-Kisker) culture." That is, by an examination of all available survey data we hoped to isolate patterns of relationships between the various Steed-Kisker sites found, tested and excavated, such that an interpretation of the settlement system of the valley for this culture period would be possible. Site survey data along with all previous data on Steed-Kisker materials (i.e., Calabrese's work) in the area were to be utilized.

The excavations at 23CL108, the Chester Reeves mound, were to focus on the development of "a model relating the nutritional and pathological condition of the Steed-Kisker peoples with that of their inferred environment." The relatively high incidence of pathologies at the Calovich Mound (14WY7)--including sacral anomalies, the high infant and child mortality rates (55 of 73 burials were sub-adults),

and the high incidence of possible nutritional deficiency pathologies (porotic hyperostosis and cribra orbitalia) among the young suggests that environmental factors be examined for their impact on Steed-Kisker populations. We were concerned to establish whether the health conditions of the Calovich Mound people were unique to them or whether they were a reflection of the total Steed-Kisker population.

The excavations at 23CL109, the Richardson Hulse site, were to focus on the development of "a model for the community patterns of the Steed-Kisker culture." Data from excavations at the Young (23PL4), Steed-Kisker (23PL13) and Coons (23PL16) sites suggest the strong probability that Steed-Kisker habitation sites were in reality farmsteads rather than villages. We were attempting to ascertain whether this was also true in the Smithville area or if the Smithville Steed-Kisker sites differed in their internal structuring. Site 23CL109 was considered especially promising because of its size.

SURVEY

Previous Survey Work

In the spring and summer of 1967 the University of Missouri, in cooperation with the National Park Service, conducted a survey of the Little Platte River. That work was done by Rolland Pangborn, Marvin Kay, and Thomas J. Riley (see Riley 1967). Twenty-three sites were located behind the Smithville dam axis--23CL104 to 23CL117 in Clay county and 23CI12 to 23CI20 in Clinton county. Twenty-two are habitation sites (camps or villages) and one is a burial mound. Fourteen are non-ceramic and eight are ceramic sites. Four sites were recommended for further work--23CL109, 23CL113, 23CL114 (all habitation sites), and 23CL108 (a burial mound).

In the summer of 1968, personnel from the University of Missouri, again with support from the National Park Service, returned to the area and excavations were undertaken by F. A. Calabrese (1969, 1974). In addition three new sites were located--23CL118, 23CL119, and 23CL120 (all habitation sites). Two are ceramic sites and the other non-ceramic.

In general, the survey work of the University of Missouri focused on the Little Platte River and resulted in the recording of 26 new sites within Clay and Clinton counties.

In 1975, personnel from Kansas State University, with the support of the U.S. Army Corps of Engineers, surveyed the southern third of Smithville Lake and eighteen new sites were discovered. Twelve were

prehistoric and six were historic sites--23CL195-23CL205, 23CL208-23CL215. One (23CL208) was a possible burial mound, the others were habitation sites (O'Brien 1976).

Archeological Background

The archeology of the Kansas City area has received the attentions of Waldo R. Wedel (1943), J. Mett Shippee (1964, 1967, 1972), F. A. Calabrese (1969, 1974), Alfred E. Johnson (1974), and P. J. O'Brien (1972). One result has been the recognition of eight cultural-historical units. Their estimated time spans and diagnostic artifacts are, after Johnson (1974:114-115):

- "1. Early Archaic - 8000-5000 B.C., Hardin Barbed and Agate Basin-like dart points.
2. Middle Archaic - 5000-2500 B.C., side-notched dart points.
3. Late Archaic - 2500 B.C.-A.D. 1, contracting-stemmed dart points.
4. Kansas City Hopewell - A.D. 1-500, corner-notched dart points and sand tempered, plain-surfaced pottery.
5. Late Woodland - A.D. 500-1000, corner-notched arrow points and cord-marked grit tempered pottery.
6. Steed-Kisker - A.D. 1000-1300, side-notched arrow points and shell-tempered plain-surfaced pottery.
7. Historic Indian: Kansa - A.D. 1500-1800, simple triangular arrow points, "Oneota-like" ceramics: Fanning Plain and Trilled, French, English, and American trade goods.
8. Euro-American - A.D. 1714-present, Utilitarian use of metal, especially iron, glazed ceramics, glass, religious paraphernalia of Christianity, etc."

It should be noted that not all authorities consider the Nebo Hill complex to be Middle Archaic, some consider it to be Late Archaic (see especially Chapman 1975:200-204). I myself am still inclined to see it as Middle Archaic and have placed it as such. At the same time because there is some question as to its correct assignment, I have identified Nebo Hill sites as Nebo Hill when its complex of artifacts are found on a site. Those other sites called Middle

Archaic but lacking Nebo Hill tools are identified by side-notched dart points. Therefore, if the later assignment should turn out to be correct an easy conversion will be possible.

Survey Methods and Tracts Covered

Farnsworth (1973) indicates there are three techniques for archeological survey: 1) personal reconnaissance; 2) farm owner interview; and 3) local collector interviews. The work of the 1975 and 1976 surveys is almost exclusively based on personal reconnaissance. This was done because the bulk of the lands surveyed were owned by the Corps of Engineers and in many cases the former farm owners were not available. Although some collectors were interviewed, they were the same people utilized by the earlier surveyors and in most cases their site information had been reported.

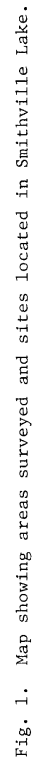
Therefore, all the tracts of land discussed in this report were covered--on foot--by at least a two-man survey team. Basically the fields were criss-crossed at approximately 10 meter (ca. 30 foot) intervals. In those tracts where vegetation cover was so dense as to preclude seeing the ground at all, ridges and knolls were checked. Also checked were gullies, creek banks, and creek beds--where possible. In all cases, a search was made to locate cultural debris eroding from the surface or brought up from below ground by rodent activity.

A more detailed exposition of work done on each tract is presented in the background data report. Figure 1 shows the land surveyed within Smithville Lake and the sites found.

Tract designations are the same as the Corps of Engineers real estate tract numbers. Tracts completely covered by this survey, including those of 1975 are numbers 102-122, 124-160, 162, 164, 200-245, 247-258, 260-263, 265-268, 270-276, 278-282, 303, 305-306, 310-313, 319-331, 339, 341-342, 354-355, 400, 402-404, 406-414, 416, 418, 420-422, 424-428, 431-464, 466-471, 473, 475-492, 494-496, 500-523, 525-527, 530, 532-535, 539-542, 544-551, 554-556, 600-613, 615-627, 629-635, 642 and 646.

Sites Located

Fifty-three (53) possible archeological sites were discovered by this survey, thirteen (13) of which are historic sites. Each site is



discussed in the following paragraphs. The cultural identification of each site is given in its description, along with a statement concerning diagnostic artifacts which support such an identification. A more detailed outline of the culture periods of this area is given in the past section. Since ceramics are diagnostic artifacts, sites lacking either diagnostic projectile point types or pottery are considered to be non-ceramic, and are thought to be potentially Paleo-Indian or Archaic sites or even possibly specialized limited activity Woodland or Steed-Kisker sites (see Table 1).

Clay County

23CL218. This site, located in Tract 104, is multi-component with Early, Middle and Late Archaic points as well as Kansas City Hopewell points and pottery. The site, at an average elevation of 855 feet M.S.L. (mean sea level), is 9.2 feet below the permanent pool level and 21.2 feet below the flood pool level. It covers 1500 sq. meters.

23CL219. This site, located in Tract 109, is a single component Steed-Kisker affiliate, based on point type. The site at an average elevation of 860 feet M.S.L. is 4.2 feet below the permanent pool level and 16.2 feet below the flood pool level. It covers 10,000 square meters.

23CL220. This site is located in Tract 110 and is a single component Steed-Kisker affiliate, based on the pottery. The site, at an average elevation of 835 feet M.S.L., is 29.2 feet below the permanent pool level and 41.2 feet below the flood pool level. It covers 250 square meters.

23CL221. This site, also located in Tract 110, is a possible multi-component occupation area. It has Late Woodland pottery and a possible Kansas City Hopewell projectile point (Steuben?). The site, at an average elevation of 845 feet M.S.L., is 19.2 feet above the permanent pool level and 31.2 feet below the flood pool level. It covers 250 square meters.

23CL222. This possible multi-component site is located in Tract 116-1. It has Steed-Kisker pottery and a broken side-notched dart point which may be Middle Archaic. The site, at an average elevation of 855 feet M.S.L., is 9.2 feet below the permanent pool level and 21.2 feet below the flood pool level. It covers 30 sq. meters.

TABLE 1
Smithville Lake Site Data

Site Number	Site Type	19th C. Ecological Niche	Soil Name	Soil Type	* Area	Elevation	Drainage	Nearest Water	Topography	Side of Stream	Stream Rank	Non-Ceramic	Paleo-Indian	Early Archaic	Middle Archaic	Late Archaic	Kansas City Hopewell	Late Woodland	Stead-Kister	Euro-American
23CL104	Habitation	T	Mo.	F	7,200	900'	Camp Br.	2000'	Bluff top	M	4					x				
23CL105	Habitation	T	Sh.	P	-	980'	Camp Br.	2000'	Bluff top	S	4					x				
23CL106	Habitation	T	Br.	P	4,800	830'	L. Platte	700'	Valley floor	W	5						x			
23CL107	Habitation	T	Br.	P	18,000	830'	L. Platte	400'	Valley floor	W	5									
23CL108	Mound	T	La.	F/P	126	950'	L. Platte	1500'	Bluff top	W	5									
23CL109	Habitation	T	La.	F/P	27,000	830'	L. Platte	600'	Valley floor	E	5				x		x	x	x	x
23CL110	Habitation	T	Co.	F/P	-	820'	L. Platte	400'	Valley floor	E	5									
23CL111	Habitation	T/P	Ar.	F/P	5,000	940'	L. Platte	2200'	Bluff top	E	5	x								
23CL112	Habitation	T	La.	F/P	2,500	940'	L. Platte	1500'	Bluff top	W	5	x								
23CL113	Habitation	T	Ke.	P	45,000	820'	L. Platte	500'	Valley floor	W	5							x	x	
23CL114	Habitation	T	Mo.	F	7,500	830'	L. Platte	600'	Valley floor	E	5				x	x	x	x	x	
23CL115	Habitation	T	Br.	P	11,250	860'	L. Platte	1500'	Valley floor	E	5						x	x	x	
23CL116	Habitation	T	Ke.	P	15,000	860'	Crows Ck.	300'	Valley floor	E	3			x						
23CL117	Habitation	T	Mo.	F	7,500	920'	Crows Ck.	2000'	Bluff top	E	2	x								
23CL118	Habitation	T	Br.	P	-	820'	L. Platte	300'	Valley floor	W	5				x	x	x	x	x	
23CL119	Habitation	T	Ke.	P	-	820'	L. Platte	300'	Valley floor	E	5									
23CL120	Habitation	T	Ar.	F/P	-	850'	L. Platte	1200'	Valley floor	E	5				x	x	x	x	x	
23CL195	Habitation	T	Gr.	P	3,375	835'	Camp Br.	150'	Valley floor	N	4									
23CL196	Habitation	T	Sh.	P	7,500	895'	Crows Ck.	1500'	Bluff top	E	3	x								
23CL197	Habitation	T	La.	F/P	3,600	875'	Camp Br.	600'	Valley floor	S	4					x				
23CL198	Habitation	T	Sh.	P	-	905'	Camp Br.	1500'	Bluff top	S	4	x								
23CL199	Habitation	T	Mo.	F	2,400	835'	Camp Br.	300'	Valley floor	N	4						x			
23CL200	Habitation	T	Ar.	F/P	11,250	885'	Camp Br.	1800'	Bluff top	N	4	x								
23CL201	Habitation	T	Ke.	P	2,700	825'	Camp Br.	150'	Valley floor	N	4					x				
23CL202	Habitation	T	Ra.	F	10,000	840'	Crows Ck.	600'	Valley floor	E	3			x						
23CL203	Habitation	T	Sh.	P	-	895'	Crows Ck.	1500'	Bluff top	E	3	x								
23CL204	Habitation	T	Sh.	P	40,000	915'	Camp Br.	2500'	Bluff top	N	4	x								
23CL205	Habitation	T	Sh.	P	3,750	915'	Camp Br.	2500'	Bluff top	N	4					x				
23CL208	Mound	T	Ar.	F/P	95	825'	L. Platte	1500'	Bluff slope	N	5									
23CL209	Post office?	T	Sh.	P	-	935'	Mitchell Br.	4500'	Bluff slope	N	2									
23CL210	Cemetery	T	Sh.	P	-	925'	Mitchell Br.	4500'	Bluff slope	N	2									
23CL211	Farmstead	T	Sh.	P	-	915'	Camp Br.	1000'	Valley floor	S	5									
23CL213	Farmstead	T	Sh.	P	-	875'	Camp Br.	900'	Valley floor	N	3									
23CL214	Farmstead	P	La.	F/P	-	890'	Camp Br.	1800'	Valley floor	S	3									
23CL215	Farmstead	P	Sh.	P	-	870'	Camp Br.	1000'	Valley floor	S	3									
23CL218	Habitation	T	Ke.	P	1,500	855'	Crows Ck.	300'	Valley floor	N	3			x	x	x	x			
23CL219	Habitation	T	La.	F/P	100	860'	Crows Ck.	1700'	Bluff slope	E	3									
23CL220	Habitation	T	La.	F/P	250	835'	Crows Ck.	400'	Bluff slope	W	3									
23CL221	Habitation	T	La.	F/P	250	845'	Crows Ck.	200'	Bluff slope	W	3									
23CL222	Habitation	T	-	-	30	855'	L. Platte	1100'	Valley floor	E	5	x								
23CL223	Habitation	T	-	-	7,500	815'	L. Platte	400'	Valley floor	S	5			x						
23CL224	Habitation	T	Br.	P	400	825'	L. Platte	1000'	Valley floor	E	5									
23CL225	Habitation	T	Br.	P	-	830'	L. Platte	800'	Valley floor	W	5									
23CL226	Farmstead	T	Ke.	P	900	845'	L. Platte	800'	Bluff slope	E	5									
23CL227	Farmstead	T	La.	F/P	900	945'	L. Platte	2400'	Bluff top	W	5									
23CL228	Farmstead	T	Br.	P	600	835'	L. Platte	600'	Valley floor	W	5									
23CL229	Habitation	P	Ke.	P	7,500	870'	Holtzclaw Ck.	300'	Valley floor	E	2									
23CL230	Farmstead	P	Ke.	P	900	890'	Holtzclaw Ck.	300'	Valley floor	E	3									
23CL231	Habitation	T	Br.	P	2,400	890'	Camp Br.	800'	Valley floor	E	3									
23CL232	Habitation	T	Mo.	F	1,200	870'	Camp Br.	200'	Valley floor	E	3									
23CL233	Habitation	P	Ke.	P	400	905'	Camp Br.	1000'	Valley floor	E	3	x								
23CL234	Farmstead	P	La.	P	10	870'	Camp Br.	1200'	Valley floor	N	3									
23CL235	Habitation	T	La.	F/P	20	885'	L. Platte	600'	Bluff slope	W	5									
23CL112	Habitation	T	-	-	-	860'	L. Platte	600'	Valley floor	W	4					x				
23CL113	Habitation	T	-	-	4,000	940'	L. Platte	1500'	Bluff top	W	4					x				
23CL114	Habitation	T	-	-	-	840'	L. Platte	300'	Valley floor	W	5									
23CL115	Habitation	T	-	-	-	860'	L. Platte	400'	Valley floor	E	4									
23CL116	Habitation	T	-	-	1,800	840'	L. Platte	600'	Valley floor	W	4									
23CL117	Habitation	T	-	-	2,100	840'	L. Platte	1000'	Valley floor	W	5									
23CL118	Habitation	T	-	-	2,100	900'	Roberts	200'	Bluff top	W	2	x								
23CL119	Habitation	T	-	-	-	840'	L. Platte	400'	Valley floor	E	4									
23CL120	Habitation	P	-	-	1,500	850'	L. Platte	300'	Valley floor	W	4	x								
23CL121	Habitation	T	-	-	-	940'	L. Platte	1600'	Bluff top	S	4									
23CL122	Habitation	T	-	-	100	935'	L. Platte	5000'	Bluff top	E	5	x								
23CL123	Farmstead	T	-	-	200	925'	L. Platte	5300'	Bluff top	E	5									
23CL124	Farmstead	T	-	-	100	955'	L. Platte	5000'	Bluff top	S	4									
23CL125	Habitation	T	-	-	800	875'	L. Platte	400'	Valley floor	E	4									
23CL126	Farmstead	T	-	-	10	870'	L. Platte	400'	Valley floor	E	4									
23CL127	Habitation	T	-	-	150	865'	L. Platte	300'	Valley floor	E	4									
23CL128	Habitation	T	-	-	900	865'	L. Platte	600'	Valley floor	N	4					x				
23CL129	Habitation	T	-	-	200	890'	L. Platte	400'	Valley floor	S	4	x								
23CL130	Habitation	T	-	-	900	870'	L. Platte	600'	Valley floor	E	4									
23CL131	Habitation	T	-	-	600	865'	L. Platte	500'	Valley floor	W	4									
23CL132	Habitation	T	-	-	20	910'	L. Platte	400'	Valley floor	E	4									
23CL133	Habitation	T	-	-	40	880'	L. Platte	400'	Valley floor	W	4									
23CL134	Habitation	T	-	-	375	855'	L. Platte	700'	Valley floor	E	4									
23CL135	Habitation	T	-	-	200	865'	L. Platte	1000'	Valley floor	E	4									
23CL136	Habitation	T	-	-	45	865'	L. Platte	700'	Valley floor	E	4	x								
23CL137	Habitation	T	-	-	2,250	870'	L. Platte	900'	Valley floor	E	4									
23CL138	Farmstead	T	-	-	300	875'	L. Platte	950'	Valley floor	E	4									
23CL139	Habitation	T	-	-	300	855'	L. Platte	400'	Valley floor	E	4									
23CL140	Farmstead	T	-	-	400	920'	Roberts Br.	1100'	Bluff top	W	3									
23CL141	Habitation	T	-	-	10	845'	L. Platte	400'	Valley floor	E	4									
23CL142	Habitation	T	-	-	20	845'	L. Platte	300'	Valley floor	W	4									
23CL143	Farmstead	T	-	-	20	900'	L. Platte	1000'	Valley floor	E	4									
23CL144	Kiln?	T	-	-	6	885'	L. Platte	2200'	Bluff slope	W	4									
23CL145	Habitation	T	-	-	-	845'	L. Platte	600'	Valley floor	W	4									
23CL146	Habitation	T	-	-	10	890'	L. Platte	400'	Valley floor	E	4									
23CL147	Habitation	T	-	-	150	875'	L. Platte	300'	Valley floor	E	4									
23CL148	Habitation	T	-	-	400	875'	L. Platte	300'	Valley floor	W	4	x								
23CL149	Habitation	T	-	-	50	875'	L. Platte	1200'	Valley floor	W	4	x								
23CL150	Farmstead	T	-	-	10,000	865'	L. Platte	1000'	Valley floor	W	4									
23CL151	Habitation	T	-	-	-	855'	L. Platte	800'	Valley floor	W	4	x								
23CL152	Habitation	T	-	-	-	835'	L. Platte	500'	Valley floor	W	5	x								
23CL153	Habitation	T	-	-	-	845'	L. Platte	800'	Valley floor	E	5									
23CL154	Habitation	T	-	-	600	880'	L. Pl													

23CL223. This multi-component site is also located in Tract 116-1. It covers 7500 sq. meters within which are 5 distinct artifact clusters. Three have Steed-Kisker materials, (one of these three has late Kansas City Hopewell pottery and a point, while another has a Paleo-Indian Hell Gap point). The fourth cluster has a Middle Archaic Nebo Hill point, while the last lacks diagnostic material. Steed-Kisker materials dominate and the site is probably a Steed-Kisker farmstead. The site, at an average elevation of 815 feet M.S.L., is 49.2 feet below the permanent pool level and 61.2 feet below the flood pool level.

23CL224. This site is located in Tract 127 and is a single component Steed-Kisker affiliate, based on pottery and a point. The site, at an average elevation of 825 feet, is 39.2 feet below the permanent pool level and 51.2 feet below the flood pool level. It covers 400 sq. meters.

23CL225. This site, located in Tract 143, is a multi-component Late Woodland and Steed-Kisker site. Eight debris clusters are found in the field. Seven have Steed-Kisker materials, while the eighth has no diagnostic remains. One of the Steed-Kisker clusters also has some Late Woodland materials. Cultural affiliation is based on pottery and points. Steed-Kisker is dominant, and the site is probably a farmstead. It is a very important site to test the hypothesized farmstead character of these sites. The site, at an average elevation of 830 feet, is 34.2 feet below the permanent pool level and 46.2 feet below the flood pool level.

23CL226. This multi-component site is located in Tract 238. It has remains of an historic farmstead and Late Woodland occupation (based on pottery). The site, at an average elevation of 845 feet M.S.L., is 19.2 below the permanent pool level and 31.2 below the flood pool level. It covers 900 sq. meters. This site is important because the Woodland material could easily be sorted from the American.

23CL227. This site is located in Tract 404 and has the remains of an old historic farmstead. The site, at an average elevation of 945 feet M.S.L., 80.8 above the permanent pool level and 68.8 feet above the flood pool level. It covers 900 sq. meters.

23CL228. This site, located in Tract 410, has the remains of an old historic farmstead. The site, at an average elevation of 835 feet M.S.L., is 29.2 feet below the permanent pool level and 41.2 feet below the flood pool level. It covers 600 sq. meters.

*23CL229. This multi-component site is located in Tract 323. It has Late Woodland and Steed-Kisker remains (based on points and pottery). The site, at an average elevation of 870 feet M.S.L., is 5.8 feet above the permanent pool level and 6.2 below the flood pool level. It covers 7500 sq. meters.

23CL230. This site is located in Tract 323 and has the remains of an old historic farmstead. The site, at an average elevation of 890 feet M.S.L., is 25.8 feet above the permanent pool level and 13.8 feet above the flood pool level. It covers 900 sq. meters.

*23CL231. This site, located in Tract 323, has Steed-Kisker remains (based on pottery) including a daub concentration. The site, at an average elevation of 890 feet M.S.L., is 25.8 feet above the permanent pool level and 13.8 feet above the flood pool level. It covers 2400 sq. meters.

*23CL232. This site, located in Tract 323, may be multi-component, with Steed-Kisker (based on pottery) and Archaic (based on a point tip) occupations. The site, at an average elevation of 870 feet M.S.L., is 5.8 feet above the permanent pool level and 6.2 feet below the flood pool level. It covers 1200 sq. meters.

23CL233. This site, located in Tract 322, is non-ceramic. The site, at an average elevation of 905 feet M.S.L., is 40.8 feet above the permanent pool level and 28.8 feet above the flood pool level. It covers 400 sq. meters.

23CL234. This site is located in Tract 325 and has the remains of an old historic farmstead. The site, at an average elevation of 870 feet M.S.L., is 5.8 feet above the permanent pool level and 6.2 feet below the flood pool level. It covers 10 sq. meters.

23CL235. This multi-component site is located in Tract 409. It has Steed-Kisker and Late Woodland materials (based on projectile points). The site, at an average elevation of 885 feet M.S.L., is 20.8 feet above the permanent pool level and 8.8 feet above the flood pool level. It covers 20 sq. meters.

* These Steed-Kisker sites were possibly all parts of a functioning whole. Their location in this extreme upland locale is inexplicable at present and it is imperative they be tested.

Clinton County

23CI21. This multi-component site, located in Tract 454, has points of the Early and Late Archaic as well as Kansas City Hopewell, Late Woodland and Steed-Kisker. The land owner reports that no pottery has been found and the site, which is in unplowed pasture (note: it may have been plowed in the past). This site, at an average elevation of 940 feet M.S.L., is 75.8 feet above the permanent pool level and 63.8 feet above the flood pool level. It was reported in 1971 by J. Mett Shippee.

23CI22. This non-ceramic site is located in Tract 414. The site, at an average elevation of 935 feet M.S.L., is 70.8 feet above the permanent pool level and 58.8 feet above the flood pool level. It covers 100 sq. meters.

23CI23. This site is located in Tract 414 and has the remains of an old historic farmstead. The site, at an average elevation of 925 feet M.S.L., is 65.8 feet above the permanent pool level and 53.8 feet above the flood pool level. It covers 200 sq. meters.

23CI24. This site is located in Tract 414 and has the remains of an old historic farmstead. The site, at an average elevation of 955 feet M.S.L., is 90.8 feet above the permanent pool level and 78.8 feet above the flood pool level. It covers 100 sq. meters.

23CI25. This site, located in Tract 609, has the remains of Nebo Hill Middle Archaic (points and axes). The site, at an average elevation of 875 feet M.S.L., is 10.8 feet above the permanent pool level and 1.2 feet below the flood pool level. It covers 800 sq. meters.

23CI26. This site is located in Tract 609 and has the remains of an old historic farmstead. The site, at an average elevation of 870 feet M.S.L., is 5.8 feet above the permanent pool level and 6.2 feet below the flood pool level. It covers 10 sq. meters.

23CI27. This site, located in Tract 609, appears to be Kansas City Hopewell on the basis of a Synders point. This site, at an average elevation of 865 feet M.S.L., is 0.8 feet above the permanent pool level and 11.2 feet below the flood pool level. It covers 100 sq. meters.

23CI28. This site, located on Tract 603, appears to be Late Archaic on the basis of a Langtry point. The site, at an average elevation of 865 feet M.S.L., is 0.8 feet above the permanent pool level and 11.2 feet below the flood pool level. It covers 900 sq. meters.

23CI29. This site, located in Tract 604, appears to be non-ceramic. The site, at an average elevation of 890 feet M.S.L., is 25.8 feet above the permanent pool level and 13.8 feet above the flood pool level. It covers 200 sq. meters.

23CI30. This site, located in Tract 604, appears to be Middle Archaic Nebo Hill (based on axe fragment). The site, at an average elevation of 870 feet M.S.L., is 5.2 feet above the permanent pool level and 6.2 feet below the flood pool level. It covers 900 sq. meters.

23CI31. This site is located in Tract 601-1 and may be Early Archaic in affiliation (based on Hardin Barbed point). The site, at an average elevation of 865 feet M.S.L., is 0.8 feet above the permanent pool level and 11.2 feet below the flood pool level. It covers 600 sq. meters.

23CI32. This multi-component site, located in Tract 604, has Paleo-Indian, Nebo Hill Middle Archaic (based on points) and Kansas City Hopewell (based on pottery) affiliations. The site, at an average elevation of 910 feet M.S.L., is 45.8 feet above the permanent pool level and 33.8 feet above the flood pool level. It covers 20 sq. meters.

23CI33. This multi-component site, located on Tract 601-1, is an old historic farmstead, but also has a non-ceramic occupation. The site, at an average elevation of 880 feet M.S.L., is 15.2 feet above the permanent pool level and 3.8 feet above the flood pool level. It covers 40 sq. meters.

23CI34. This multi-component site is located in Tract 542-1 and has Late Woodland and Steed-Kisker affiliation (based on pottery and points). The site, at an average elevation of 855 feet M.S.L., is 9.2 feet below the permanent pool level and 21.2 feet below the flood pool level. It covers 375 sq. meters.

23CI35. This site, located on Tract 542-1, is of Steed-Kisker affiliation (based on pottery). The site, at an average elevation of 865 feet M.S.L., is 0.8 feet above the permanent pool level and 11.2 feet below the flood pool level. It covers 200 sq. meters.

23CI36. This site is located on Tract 542-1. No diagnostic materials were recovered, and it is non-ceramic. The site, at an average elevation of 865 feet M.S.L., is 0.8 feet above the permanent pool level and 11.2 feet below the flood pool level. It covers 45 sq. meters.

23CI37. This multi-component site, located on Tract 542-1, has Nebo Hill Middle Archaic (based on loaf mano) and Steed-Kisker (based on pottery) remains. The site, at an average elevation of 870 feet M.S.L., is 5.2 feet above the permanent pool level and 6.2 feet below the flood pool level. It covers 2250 sq. meters.

23CI38. This site, located on Tract 503, has the remains of an old historic farmstead. The site, at an average elevation of 875 feet M.S.L., is 10.8 feet above the permanent pool level and 1.2 feet below the flood pool level. It covers 300 sq. meters.

23CI39. This site is located on Tract 503 and has Nebo Hill Middle Archaic (based on a point) and Steed-Kisker (based on an end scraper) affiliation. The site, at an average elevation of 855 feet M.S.L., is 9.2 feet below the permanent pool level and 21.2 feet below the flood pool level. It covers 300 sq. meters.

23CI40. This site is located on Tract 523-1 and has the remains of an old historic farmstead. The site, at an average elevation of 920 feet M.S.L., is 55.8 feet above the permanent pool level and 43.8 feet above the flood pool level. It covers 400 sq. meters.

23CI41. This site, located on Tract 460, has a Steed-Kisker (based on pottery) affiliation. The site, at an average elevation of 845 feet M.S.L., is 19.2 feet below the permanent pool level and 31.2 feet below the flood pool level. It covers 10 sq. meters.

23CI42. This multi-component site, located on Tract 458, has Nebo Hill Middle Archaic (points) and Steed-Kisker (pottery) materials. The site, at an average elevation of 845 feet M.S.L., is 19.2 feet below the permanent pool level and 31.2 feet below the flood pool level. It covers 20 sq. meters.

23CI43. This site is located on Tract 604 and has the remains of an old historic farmstead. The site, at an average elevation of 900 feet M.S.L., is 35.8 feet above the permanent pool level and 23.8 feet above the flood pool level. It covers 20 sq. meters.

23CI44. This site is located on Tract 603 and is Euro-American. It may be the remains of an old kiln because of the mass of clinkers. The site, at an average elevation of 885 feet M.S.L., is 20.8 feet above the permanent pool level and 8.8 feet above the flood pool level. It covers 6 sq. meters.

23CI45. This multi-component site, located on Tract 448, has Early and Late Archaic, Kansas City Hopewell, and Steed-Kisker points and pottery. The site, at an average elevation of 845 feet M.S.L., is 19.2

feet below the permanent pool level and 31.2 feet below flood pool level. It was in pasture and data were provided by Mr. Lawson, the land owner.

23CI46. This multi-component site, located on Tract 604, has Nebo Hill Middle Archaic and Late Woodland points. The site, at an average elevation of 890 feet M.S.L., is 25.8 feet above the permanent pool level and 13.8 feet above the flood pool level. It covers 10 sq. meters.

23CI47. This site is located on Tract 609 and seems to be a single component Nebo Hill Middle Archaic affiliate (based on an axe). The site, at an average elevation of 875 feet M.S.L., is 10.8 feet above the permanent pool level and 1.2 feet below flood pool level. It covers 150 sq. meters.

23CI48. This site, located on Tract 609, lacked diagnostic materials-- it may be non-ceramic. The site, at an average elevation of 875 feet M.S.L., is 10.8 feet above the permanent pool level and 1.2 feet below flood pool level. It covers 400 sq. meters.

23CI49. This site, located on Tract 466, lacked diagnostic materials-- it may be non-ceramic. The site, at an average elevation of 875 feet M.S.L., is 10.8 feet above the permanent pool level and 1.2 feet below flood pool level. It covers 50 sq. meters.

23CI50. The site is located on Tract 466 and has the remains of an old historic farmstead. It is at an average elevation of 865 feet M.S.L. and is 0.8 feet above the permanent pool level and 11.2 feet below flood pool level. It covers 10,000 sq. meters.

23CI51. This site, located on Tract 506, lacks diagnostic remains. The site was reported by Mr. Harold A. Harris, but because we were unable to contact the landowner it was not surveyed. It is approximately at the 855 foot M.S.L. elevation and would be about 9.2 feet below the permanent pool level and 21.2 feet below flood pool level.

23CI52. This site, located in Tract 434, has no diagnostic remains. Because of dense ground cover it was not relocated by the survey team although our informant, Mr. Harold A. Harris, assures us a site is in the tract. The site, at an average elevation of 835 feet M.S.L., is 29.2 feet below the permanent pool level and 41.2 feet below flood pool level.

23CI53. This site, located in Tract 414, has Late Woodland points. It was reported by Mr. Harold A. Harris as near a duck blind in Trimble Wild Life Area. Resurvey did not locate the site because of poor ground cover. The site, at an average elevation of 845 feet M.S.L., is 19.2 feet below the permanent pool level and 31.2 feet below flood pool level.

23CI54. This site is located on Tract 633, Plattsburg City Park. No diagnostic remains were found, and it may be non-ceramic. The site, at an average elevation of 880 feet, is 15.8 feet above the permanent pool level and 3.8 feet above the flood pool level. It covers 600 sq. meters and will be seeded to grass to protect it.

23CI55. This site, located on Tract 541, is a burial mound. Its cultural affiliation is not known for certain, but its location and the use of a limestone capping slab suggest Steed-Kisker. The site, at an average elevation of 905 feet M.S.L., is 40.8 feet above the permanent pool level and 28.8 feet above flood pool level. It is approximately 10 meters in diameter.

Finally, the location of single isolated prehistoric finds did occur in this survey. Since none seem to represent sites (lacking cultural debris like chert chips, broken rock and burnt limestone), they will not be discussed further here, although data on them were recorded.

Settlement Patterns

Settlement data from Smithville Lake present some interesting contrasts when compared with data collected from Brush Creek, at present a tributary of the Missouri River but aboriginally a tributary of the Platte River (Fig. 2).

Smithville Lake encompasses two drainages: the primary one is the Little Platte River; the secondary one, its tributary Camp Branch. The Little Platte River joins the Platte River about 8 miles downstream from the dam axis and has its headwaters near the town of Osborn about 13 miles north of Plattsburg. The distance between the dam axis and Plattsburg (at the north end of the lake) is approximately 15 miles. Brush Creek is about 7 miles long. Thus, when it is compared with the Little Platte segment under consideration, it is half its length. Both drainages have the same stream rank: 5.

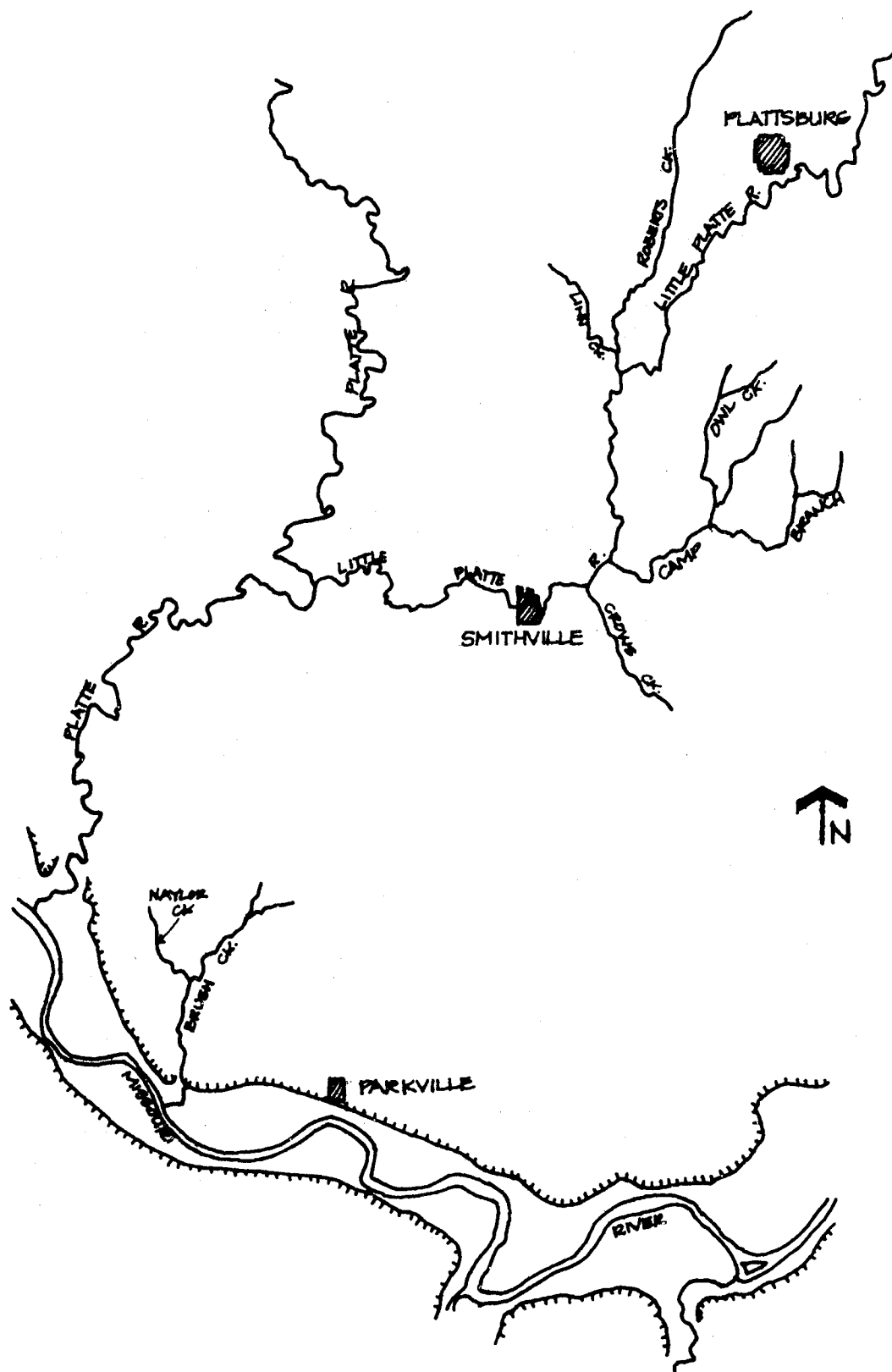


Fig. 2. Map showing the relationship of Brush Creek, the Little Platte River and Camp Branch to each other and the Kansas City area.

Both Camp Branch and Brush Creek are about the same length and are morphologically similar. Camp Branch is 8 to 9 miles long, has one major tributary (Owl Creek) with permanent water, and several smaller intermittent tributaries. Brush Creek is about 7 miles long with a major tributary (Naylor Creek) branching to the northwest. Brush Creek has a geomorphic stream rank of 5 while Camp Branch has a rank of 4 (see Weide and Weide 1973).

Johnson (1974:120) reports 50 archeological sites on Brush Creek. These sites are assignable to cultural-historical units from 8000 B.C. to A.D. 1250.

The Little Platte segment in the Lake has been almost completely surveyed and a total of 75 sites have been recorded. Table 2 tabulates the Little Platte River archeological components. Camp Branch has been completely surveyed and 21 sites have been found on it. Table 3 tabulates the Camp Branch archeological components. Table 1 gives data on all the sites.

Using the Land Surveyor's records to reconstruct the environment indicates all the Smithville sites were located in timber (Oak-hickory; species not specified) except six (23CL229--Late Woodland/Steed-Kisker, 23CL230 and 23CL234--both Euro-American, 23CL233 probably Archaic, 23CI20--Late Archaic, and 23CI55--Steed-Kisker mound) in prairie and one (23CL111--Late Archaic) in timber/prairie.

Soil data (available for Clay Co.) indicates that 10 soil types (all loams or clay loams) have sites situated on them. The native vegetation for these soils is reported as tall grass prairie (P), tall grass prairie and cottonwood-willow, oak-hickory, ash, maple (F/P). Only have mixed hardwoods (F).

Table 4 gives soil type names, associated native vegetation, conditions of formation and code symbol: Prairie--P, Forest/Prairie--F/P, and Forest--F. These data are abstracted from agronomy soil type descriptions. There is an interesting overlap of these soil groups with Baumler's three vegetation zones: Tributary Floodplain Forest = Forest, Slope and Upland Forest = Forest/Prairie, and Upland Prairie = Prairie. This suggests the Little Platte drainage is ecologically similar to the Little Blue.

Along Camp Branch all Early and Middle Archaic sites are on prairie (P) soils. Late Archaic sites are 66% prairie (P), 17% forest/prairie (F/P), and 17% forest (F). The Kansas City Hopewell sites (4) are 50% on prairie (P), 25% forest (F), and 25% forest/prairie (F/P). The Late Woodland sites (2) are located 50% on prairie (P) and 50% forest/prairie (F/P). The Steed-Kisker sites (5) were 80% on prairie (P) and 20% forest (F).

TABLE 2

Archeological Components on the Little Platte

	No.	%	No. *	%
Paleo-Indian	2	1.8%	2	2.5%
Early Archaic	4	3.6%	4	5.1%
Middle Archaic	16	14.5%	16	20.2%
Late Archaic	8	7.2%	8	10.1%
Kansas City Hopewell	10	9.0%	10	12.6%
Late Woodland	15	13.6%	15	19.0%
Steed-Kisker	24	21.8%	24	30.4%
Unknown (non-ceramic)	18	16.3%		
Historic	13	11.8%		
	110	99.6%	79	99.9%

* tabulations are made without the historic and unknown to compare these data to Johnson's (1974:Table 5).

TABLE 3

Archeological Components on Camp Branch

	No.	%	No.*	%
Early Archaic	1	4.3%	1	7.7%
Middle Archaic	1	4.3%	1	7.7%
Late Archaic	6	26.1%	6	46.1%
Kansas City Hopewell	2	8.7%	2	15.4%
Late Woodland	0	0	0	0
Steed-Kisker	3	13.0%	3	23.1%
Unknown (non-ceramic)	5	21.7%		
Historic	5	21.7%		
	23	99.8%	13	100.0%

* tabulations are made without the historic and unknown to compare data to Johnson's (1974:Table 5).

TABLE 4

Soil Types of the Smithville Lake Area

<u>Name</u>	<u>Type</u>	<u>Native Vegetation</u>	<u>Formed in</u>	<u>Symbol</u>
Armster (Ar)	Loam	Decid. trees & tall grass prairie	Glacial till on upland	F/P
Bremer (Br)	Clay loam	Tall grass prairie	In silty alluvium under prairie veg.	P
Cotter (Co)	Loam to Clay loam	Tall grass prairie w/cottonwood & willow	In deep medium alluvium	F/P
Grundy (Gr)	Loam to Clay loam	Tall grass prairie	In Wis. Loess	P
Kennebec (Ke)	Loam	Tall grass prairie	In alluvium under prairie grasses	P
Ladoga (La)	Loam	Oak-hickory trees & tall grass prairie	In loess under grass & forest veg.	F/P
Moniteau (Mo)	Loam	Mixed hardwoods	In silty alluvium or stream terraces	F
Norborne (No)	Loam to Clay loam	Tall grass prairie & cottonwood & willow	In deep medium alluvium	F/P
Ray (Ra)	Loam	Oak, hickory, ash, maple, cottonwood & willow	In thick medium alluvium	F
Shapesburg (Sh)	Clay loam	Tall grass prairie	In loess under prairie veg.	P

On the Little Platte River (where soils are known) Middle Archaic sites are found on prairie (P) soils 40% of the time, on forest (F) 20%, and forest/prairie (F/P) 40%. Late Archaic sites are found on prairie (P)--33%, on forest (F)--33%, and forest/prairie (F/P) 33% of the time. Kansas City Hopewell sites are found on prairie (P) soils 80% and forest/prairie (F/P) 20%. Late Woodland sites are found 60% of the time on prairie (P) soils, 10% on forest (F), and 30% on forest/prairie (F/P). The Steed-Kisker sites are located on prairie (P) soils--50%, on forest (F) 8%, and on forest/prairie (F/P) 42%.

On Crows Creek all Early Archaic sites are on prairie (P) soils as are all Middle (Nebo Hill) and Late Archaic sites. Kansas City Hopewell sites are on prairie (P)--50% and forest/prairie (F/P) soils 50%. The only Late Woodland site is on forest/prairie (F/P) soil while the Steed-Kisker sites are on prairie (P)--50% and forest/prairie (F/P) 50%.

Crows Creek and Camp Branch both have a general pattern of prairie (P) soils for the Early and Middle Archaic moving to mixed soils: prairie (P), forest/prairie (F/P) or forest (F) for the later Kansas City Hopewell, Late Woodland and Steed-Kisker occupations. This shift begins though in the Late Archaic. On the Little Platte River sites are found on more than one soil type beginning with the Middle Archaic, and maybe earlier if the data were complete.

Two things may be reflected here: (1) the probable greater use of the prairie resources in the Archaic period, but also (2) the spread of forests into the interior areas of the Uplands by erosion following climatic fluctuations at the end of the Pleistocene and the final loess formation.

Data on cultural components within the lake (Table 1) show that the two Paleo-Indian occupations are found on the valley floor at the 815 and 910 foot elevation and are 400 feet from water. We also see that 88% of the Early Archaic sites (7) are situated on the valley floor between an elevation of 835 and 865 feet (average 849') and are 150 to 600 feet from water (average 407'). One site (12%) has a 940 foot elevation, is 1600 feet from water and is on a bluff top. Middle Archaic sites (18) are situated on the valley floor (17) at the 820 to 910 foot elevation (average 809'), and are 150 to 1500 feet from water (average 589') or on bluff top (1) at 940' elevation 1500 feet from water. Late Archaic sites (16) are located on either the valley floor (12) or the bluff top (4). Those on the valley floor are located 150 to 1200 feet from water (average 558'), and are on the 820 to 875 foot elevation (average 843'). Those on the bluff top are located 1600 to 2500 feet from water (average 2025'), and are at the 900 to 980 foot elevation (average 934').

Kansas City Hopewell sites (15) are found on the valley floor at the 820 to 910 foot elevation (average 843'), and are 150 to 1500 feet from water (average 488'), but one has a 940 foot elevation, is 1600 feet from water, and is on the bluff top. Late Woodland sites (19) are found on the valley floor (15), bluff slope (3) or bluff top (1). Those on the valley floor are located at 815 to 875 foot elevation (average 841') and are 300 to 1500 feet from water (average 620'). Those on the bluff slope are located at 845 to 885 foot elevation (average 858') and are 200 to 800 feet from water (average 558'). The bluff top site is at a 940 foot elevation and is 1600 feet from water.

There are 30 non-mound Steed-Kisker sites. In addition, there is one identified Steed-Kisker burial mound, and two others are possible Steed-Kisker mounds. The mounds are located at the 825 to 950 foot elevation on bluff tops or slopes, and are 1266 feet from water. Four other sites, found on bluff slopes or tops, are not mounds. They have elevations from 835 to 940 feet (average 880') and are 400 to 1700 feet from water (average 1075'). The other sites (26) are located on the valley floor at the 815 to 870 foot elevation (average 844') and are 150 to 1500 feet from water (average 613').

In general, sites on the valley floor, within the six prehistoric cultural periods, are within the 835 to 870 foot elevation level. The sites seem to fluctuate in distances from water through time (based on averages). Early Archaic sites are 407' from water, Middle Archaic--589', Late Archaic--554'. The Kansas City Hopewell sites are 488' from water and Late Woodland sites are 558'. Steed-Kisker sites are 607' from water.

The bluff top Early Archaic site is at the 940 foot elevation and is 1600 feet from water. The Middle Archaic (Nebo Hill) site on the bluff top is the same, while Late Archaic sites on the bluff are at the 934 foot elevation and 2025 feet from water. The lone Kansas City Hopewell bluff site is at an elevation of 940 feet, and 1600 feet from water. This is true of the only Late Woodland bluff top site. Three Late Woodland, bluff-slope sites are at the 858 foot elevation and 558 feet from water. The non-mound Steed-Kisker sites on the bluff slopes are at the 880 foot elevation and are 1075 feet from water.

It should be noted that one bluff top site (23CI21) was occupied during all of the cultural periods under discussion and may be unique for this reason and because of its location. The landowner (Mrs. McKeehan, personal communication) reports finding no pottery, though the points of three pottery making complexes are present. This site is presently situated northeast of Trimble Wildlife Management Area, which is located in one of the lowest areas on the Little Platte, and water may well have collected in the area in the past. Since the

area is presently a stopover for migrating waterfowl, it may well have been so in the past. If so, this site would have been a perfect lookout for such game, and it potentially may be a specialized, limited activity site, specifically a Spring/Fall hunting camp!

Settlement data from Camp Branch and the Little Platte present some interesting contrasts when compared with each other and with data collected from Brush Creek, at present a tributary of the Missouri River but before the turn of the century a tributary of the Platte River. Note that Euro-American sites are not used in this analysis because Johnson (1974) did not analyze data on sites of this period from Brush Creek.

Johnson (1974:20) reports 50 archeological components on Brush Creek. These sites were occupied during cultural-historical units from 8000 B.C. to A.D. 1250. Table 5 shows the component distribution for Brush Creek, the Little Platte, Camp Branch, Crows Creek and Linn Creek.

Of the prehistoric sites on Camp Branch, 61% are Archaic. Johnson (1974:Table 5) reports 40% of the sites on Brush Creek as Archaic. He reports 17% as being Kansas City Hopewell which is near the 15% for Camp Branch. Brush Creek has 13% Late Woodland components, while Camp Branch has none. Thirty percent of the components along Brush Creek are Steed-Kisker, which is about one third larger than the 23% for that complex on Camp Branch.

In summary, Camp Branch has the same general occupancy of pre-historic populations as Brush Creek except that the Kansas City Hopewell and Steed-Kisker occupations are fewer in number, while the densest occupation seems to have been in Late Archaic (46%) times, and there are no Late Woodland sites.

These data would seem to suggest that the prehistoric populations used this area most extensively when their cultural patterns were most markedly that of hunters and gatherers. This may be related to the fact that Camp Branch fingers into the prairies and was within a Prairie/Forest transition zone (see Fig. 3 showing Johnson's [1974] map of the Kansas City region in 1842). Brush Creek is over five miles from the nearest prairie while Camp Branch, at its eastern end, parallels it.

The Little Platte River--from the dam axis to Plattsburg--has 78 known sites. Of the 78 (excluding mounds, non-diagnostic and Euro-American sites) 35% are Archaic (2% Early Archaic, 20% Middle Archaic and 10% Late Archaic), 13% are Kansas City Hopewell, 19% are Late Woodland while 30% are Steed-Kisker in affiliation. Table 6 shows the

TABLE 5

Archeological Components on Specific Tributaries
Within the Kansas City Area

	Brush Ck	L. Platte	Camp Br	Crows Ck	Linn Ck
Paleo-Indian	-	2	2.5%	-	-
Early Archaic	3	4	5.1%	1	7.7%
Middle Archaic	9	16	20.2%	1	7.7%
Late Archaic	7	8	10.1%	6	46.1%
Total Archaic	19	40%	28	35.4%	8
				61.5%	6
				54.6%	0
				0%	0
Kansas City Hopewell	8	17%	10	12.6%	2
Late Woodland	6	13%	15	19.0%	-
Total Woodland	14	30%	25	31.6%	2
				15.4%	2
				18.2%	0
				0%	0
Steed-Kisker	14	30%	24	30.4%	3
				23.1%	3
				27.3%	-
				-	-
Total	47	100%	79	100.0%	13
				100.0%	11
				100.0%	0
				0%	0

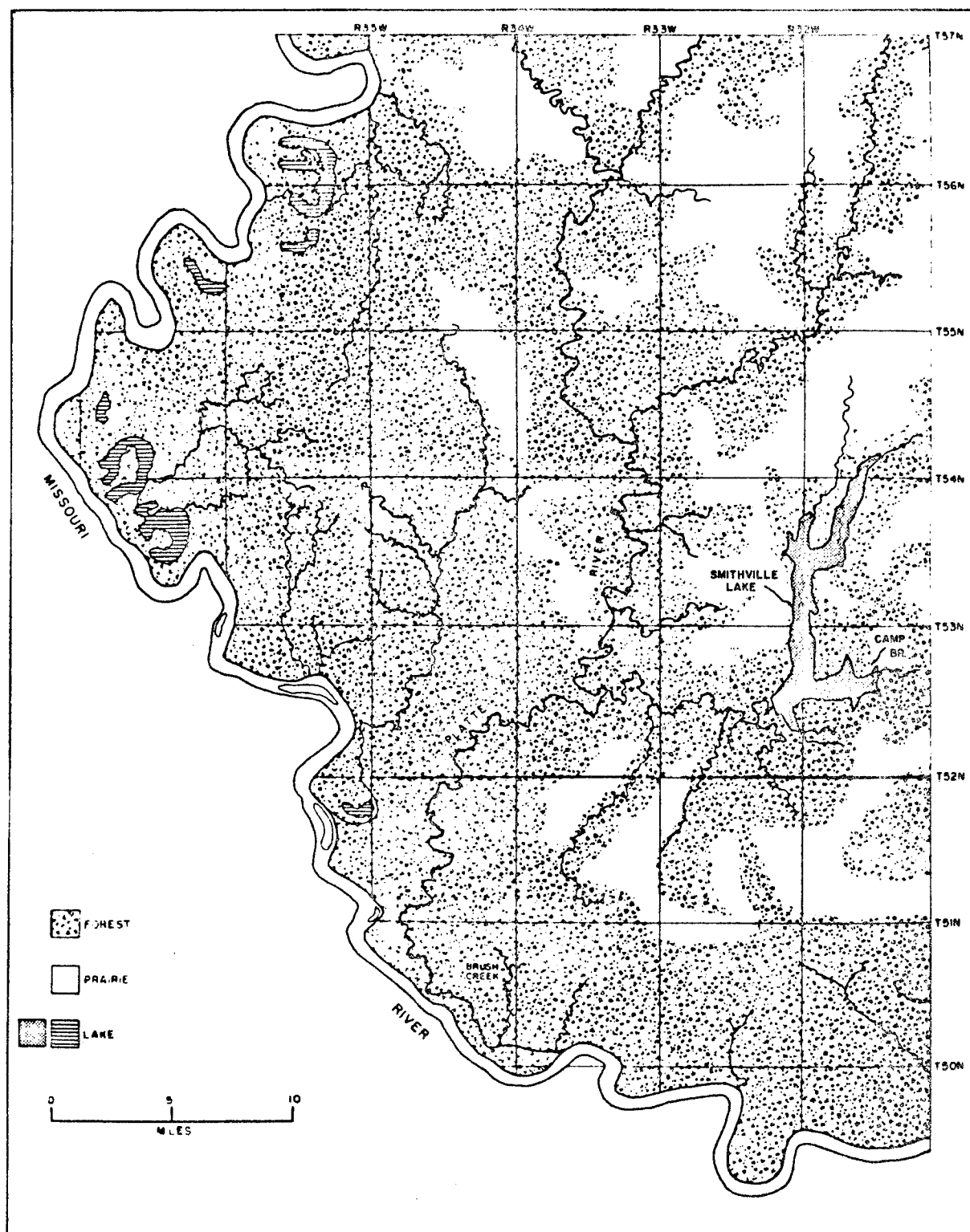


Fig. 3. Hutawa's map of Buchanan, Platte and Jackson Counties, Missouri in 1842 (from Johnson 1974).

TABLE 6

Comparison of Components on Brush Creek and the Little
Platte River and Its Tributaries

	Brush Ck	L. Platte		L. Platte Tributaries		Total
Paleo-Indian	-	-	2	3%	-	2
	-	-	100%	-	-	
Early Archaic	3	6%	4	5%	4	11
	27%		36%		36%	
Middle Archaic	9	19%	16	20%	2	27
	33%		59%		7%	
Late Archaic	7	15%	8	10%	8	23
	30%		35%		35%	
Total Archaic	19	40%	28	35%	14	61
	31%		46%		23%	
Kansas City Hopewell	8	17%	10	13%	3	21
	38%		48%		14%	
Late Woodland	6	13%	15	19%	1	22
	27%		68%		5%	
Total Woodland	14	30%	25	32%	4	43
Steed-Kisker	14	32%	24	30%	6	44
			54%		14%	
Total	47	100%	79	100%	24	150
	31%		53%		16%	

component frequencies for the Little Platte, Brush Creek, and for the Little Platte's tributaries. The Little Platte and Brush Creek are basically similar. The Middle Archaic is essentially the same, while Late Archaic occupations are slightly more important on the Brush Creek, although the total percentage difference is only 5%. The Kansas City Hopewell occupation of the Little Platte is 4% less than that of Brush Creek, and Late Woodland components on the Little Platte are 6% more frequent than for Brush Creek, while there is no difference in the Steed-Kisker occupations on the two drainages. In sum, the prehistoric occupation of the Little Platte is more similar to Brush Creek than to Camp Branch.

Finally, a comparison of the surveyed area of Crows Creek, another tributary creek of the Little Platte, shows a pattern different from the others. Fourteen percent of the components are Early Archaic, 14% are Middle Archaic, while the Late Archaic components also constitute 14% of the total. Thus, 42% of the occupation was during the Archaic period. Fourteen percent are Kansas City Hopewell sites, and there are no Late Woodland sites. Steed-Kisker is represented by 43% of the components.

When data on numbers of components from Brush Creek, near the Missouri River, are compared with similar data from both the Little Platte River and Camp Branch, they seem to suggest: 1) that there is a proportional decrease in total site numbers as one moves away from the Missouri River to the prairie areas; and, 2) that this decrease is not proportional for the different prehistoric components in the Kansas City area. Rather the data suggest a marked dominance of different groups through time. In general the upland areas (20+ miles inland from the Missouri River) were most used by Archaic peoples, while middle areas (10-20 miles from the river) were dominated by Woodland groups. Late Woodland sites are not well represented in upland areas, but are present in middle areas and near the Missouri River. The farming Steed-Kisker peoples were especially dense in middle areas and areas near to the Missouri river, while occupancy in upland areas was thin.

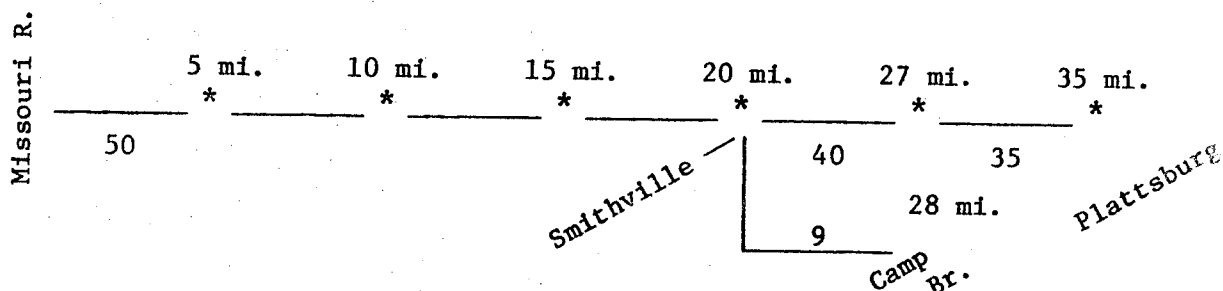
In 1976 (O'Brien, 1976:14-15) it was proposed that "the number of sites is inversely proportional to the distance from the Missouri River along a stream", and the following linear model was proposed:

Missouri R.		5 mi.	10 mi.	15 mi.	20 mi.	25 mi.
		*	*	*	*	*
	50	(40)	(30)	(20)	9	

(1) projected number of sites

1 actual number of sites

Based on the new data from the project area such a model does not appear to work as cleanly--see below.



There is some diminution of the number of sites up the drainage, but the greatest contrast is along the smaller tributaries like Camp Branch.

EXCAVATIONS

Yeo Site, 23CL199

The Yeo site, 23CL199, was discovered in the summer of 1975 as part of a systematic survey of Camp Branch, a tributary of the Little Platte River, which is to be a part of Smithville Lake. The site is located on the north side of the floodplain of Camp Branch. The field was in corn stubble and weeds and remains so to the present. Its legal description is the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 16, Township 53N, Range 32W. Its elevation above mean sea level is 840-830 feet. The site was tested because in 1975 it was the only single-component Kansas City Hopewell known within Smithville Lake (O'Brien, 1976:16). No testing of any Kansas City Hopewell sites had been done in the Smithville area. This site offered the best opportunity for such a test.

The site, situated on a level floodplain, covers about 800 sq. meters. It is located near a bend in Camp Branch and is surrounded, on three sides, by the trees and brush which line the banks of an unnamed intermittent stream on the north and west and Camp Branch on the south (Fig. 1).

Thirteen 2-meter test squares were opened at the corners and center of the 800 sq. meter site (Fig. 4). Sq. 6n-20W was enlarged by

three one meter squares (5N-19W, 6N-19W and 5N-20W) to complete the excavation of Feature 5, a pit. All squares were excavated to the 40 cm level, and two (2N-30W and 0-4E) were excavated to the 60 cm level. One (24N-18E) was taken down to 50 cm, while 6N-20W was taken to 60 cm except in the southeast where the depth was 70 cm for the excavation of the pit. Squares 5N-19W, 6N-19W, 5N-20W were also excavated to 70 cm for the same reason.

All squares were excavated in arbitrary levels. The plow zone was removed in 20 cm intervals, and the rest of the excavation in 10 cm levels. When, during analysis, it was found that these 10 cm levels were not significant they were combined into 20 cm levels for purposes of presenting the data in tabular form. Therefore, 0-4E/1 is sq. 0-4E/0-20 cm (the plow zone), 0-4E/2 is sq. 0-4E/20-30 cm and 30-40 cm, 0-4E/3 is sq. 0-4E/ 40-50 cm and 50-60 cm, while 0-4E/4 would be sq. 0-4E/60-70 cm.

With the completion of these tests and the discovery that the site had a 20-40 cm level of undisturbed material which, unfortunately, had scant remains within it, and with the field season in its last week, it was decided that it would be most practical to remove the plow zone by means of a road grader in an attempt to locate sub-surface structures.

A roadgrader, with a 12-foot blade made three long cuts--South, Center and North (Fig. 4), in an east to west direction. Cuts were made in 10 cm intervals, once below the plow zone, until features were found or the sterile sub-soil appeared. Five crew members followed the blade and collected all conspicuous items. These were provenienced as South, Center and North Cut. Most material was found in the South Cut, including four storage pits. The pits were hand excavated, and their contents were water-screened and floated for maximum recovery of botanical materials.

Features

Five pits were the only sub-surface structures found at the site. They are clustered in a crude oval, with the maximum distance between about 6 meters (Fig. 4). Presumably they formed a functioning storage facility.

Feature 1. This pit was slightly oval in shape (Fig. 5) with an 84 cm N-S axis and a 65 cm E-W axis. The bottom was flat and presumably the walls were straight, although only 10 cm of it remained. The pit was recognized at 39 cm below the datum (which was the present surface of the ground at the 0-0 stake).

Feature 2. This pit was almost circular in shape (Fig. 5), had a flat bottom and straight sides. It was 81 cm wide on the N-S axis and 90 cm on the E-W axis. It was 30 cm deep. The pit was identified at 39 cm below datum.

Feature 3. This pit was almost circular in shape (Fig. 5) with a 63 cm N-S axis and a 63 cm E-W axis. The bottom was flat (presumably the walls were straight). An excavation only 6 cm of the pit was found to remain. It was recognized at 45 cm below datum.

Feature 4. This pit was almost circular in shape (Fig. 5) with a 90 cm N-S axis and 85 cm E-W axis. The bottom was flat (presumably the walls were straight). On excavation it was discovered that only 15 cm of it remained. It was identified at 46.5 cm below datum.

Feature 5. This pit was slightly oval in shape (Fig. 5). It was 80 cm across along the N-S axis and 100 cm at the E-W axis. Debris from the pit appeared at 31 cm below datum but no color change occurred. It was 32 cm deep, and while the soil near the bottom of the pit was softer there was no distinct color change. Its dimensions were defined by recognizing contrasts of soil density. The pit had a flat bottom and straight walls.

The trash-filled storage pits found at this site conform to the shapes and proportions of Kansas City Hopewell pits at the Young site, 23PL4; the Trowbridge site, 14WY1 (Bell, 1976:18-20); the Iatan site, 23PL53 (P. Katz, 1976:41); and the Deister site, 23PL2 (S. Katz, 1974: 37-38).

Ceramics

Ten rim sherds, two small complete vessels and 310 body sherds were recovered. Nine rims and 285 body sherds were sand tempered. Ten body sherds (one from 6N-20W/1, one from F.4 and eight from F.2) were sand and grog tempered, while the two vessels and 12 body sherds (all from South Cut) were grog tempered. The remaining three grog-tempered body sherds came from F.2 (1) and 6N-20W/1 (2). Table 7 lists the locations of all the sand-tempered body sherds. The rims will be discussed separately.

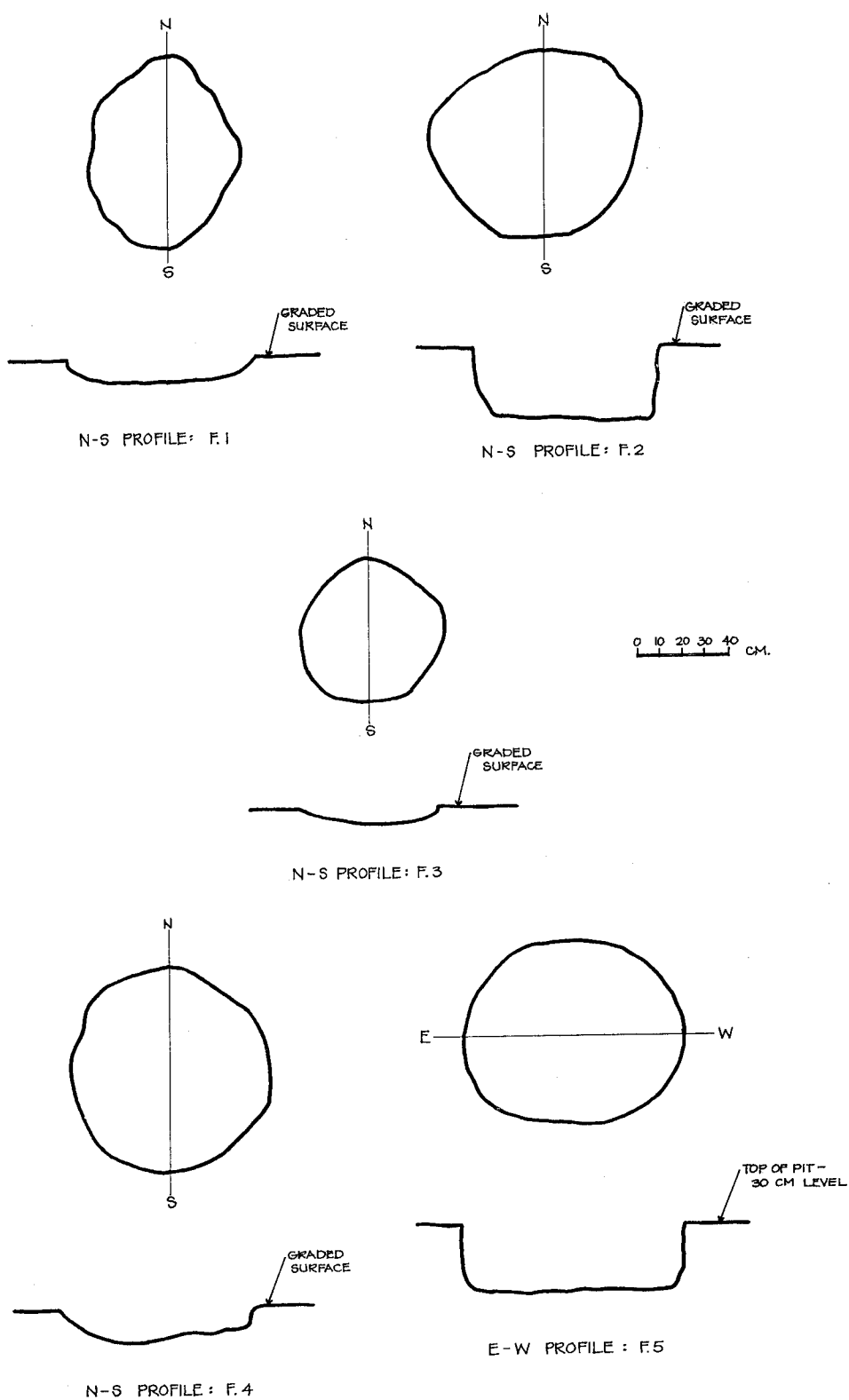


Fig. 5. Map showing the outlines and profiles of all the features from 23CL199.

TABLE 7
Distribution of Limestone, Rough Rock, Daub,
Sandstone and Sand Tempered Body Sherds from 23CL199

	Burnt Limestone (in gms)	Rough Rock (in gms)	Daub (#)	Sandstone (in gms)	Sand Tempered Body Sherds
14S-38W/1	7	157	-	A-39	19
/2	-	75	-	-	1
8S-24W/1	-	10	3	-	-
/2	-	315	-	-	-
6S-12W/1	35	439	3	B-52	4
/2	31	27	-	A-41	1
0 - 4E/1	69	6	-	A-2	2
/2	-	3	-	-	-
/3	-	-	-	-	-
2N-30W/1	292	73	-	A-6	-
/2	16	36	-	A-178	1
/3	-	129	-	A-11	-
4N-26W/1	83	234	1	-	-
/2	-	12	-	-	-
6N-20W/1	-	48	-	B-1, A-2	16
/2	-	66	1	-	7
/3	-	-	-	B-1	-
/60-70	-	-	-	-	-
5N-19W/1	-	2	-	-	4
/2	-	-	-	-	-
5N-20W/1	-	6	-	-	2
/2	-	35	1	-	1
6N-19W/1	40	8	-	-	1
/2	75	-	-	-	-
10N-20W/1	137	63	2	B-7	11
/2	5	69	-	-	14
10N- 8W/1	14	47	1	-	3
/2	31	3	-	-	-
16N- 2W/1	-	438	1	-	1
/2	-	116	1	A-9	1
16N- 4E/1	35	131	-	-	2
/2	-	362	3	-	2
24N-18E/1	-	18	-	-	-
/2	-	19	-	-	-
/40-50	-	33	-	-	-
28 -28W/1	-	-	-	-	-
/2	-	11	-	-	2
F.1	271	-	20	-	-
F.2	562	983	2	A-1	83
F.3	170	-	9	-	2
F.4	500	-	2	-	8
F.5	3954	239	2	A-3	11
Subtotal	6327	4203	53	A-292, B-61	199
South Cut	4453	-	5	A-138, B-514	71
Center Cut	162	-	-	A-6, B-175	9
North Cut	287	-	-	-	6
Subtotal	4902		1	A-144, B-689	86
Total	11,229	4203	58	A-436, B-750	285

The sand-tempered sherds have a hard, compact, paste. The grog or sand-grog tempered specimens are softer and the paste is more crumbly. In all particulars these ceramics conform to Kansas City Hopewell pottery. Alfred E. Johnson (personal communication) has examined typical body sherds and all the rims and assures me they conform in every way to late Kansas City Hopewell ceramics. Therefore they fit at the upper end of the ceramic seriation for Kansas City Hopewell (Johnson and Johnson, 1975:290) and should date about A.D. 500 or later.

All of the rims are slightly flaring with slightly constricted "necks." Lips are either flat (Fig. 6a), extended (Fig. 6b), pointed (Fig. 6c), or rounded with a slight rolling (Fig. 6d). The pointed lips (2) are decorated with lip notching created by thumb depressions, thus giving the lip edge a markedly wavy effect. The wave is about 1.5 to 2 cm long from crest to crest. The rounded lip is decorated with notching, made with a narrow stick. The notches are about 1.5 to 2 mm thick and spaced about 1 cm apart. Two of the three rims are decorated thus, the third is plain. Both the flat and extruded lips are undecorated. Lip notching is the only decorative element found on the sand tempered ceramics. Table 8 presents attributes of these rims.

Two other rim fragments are too small to measure for orifice size or rim angle. Both are sand tempered. One from 6N-20W/1 is stick notched (4 mm wide at 1 cm intervals) while the other, from F.5, is thumb notched (4 mm wide at 9 mm intervals). Lips are rounded.

Two complete vessels were found in the South Cut at the site. The smaller was nestled inside the larger. The larger is an oval bowl (Fig. 6e) with orifice measurements of 7.04 by 8.56 cm. Height is 5.35 cm at the center. The vessel lacks surface decoration, though it is ochre to grey in color. It is grog tempered and the paste is slightly crumbly. The vessel is hand-modeled from a single lump of clay.

The second vessel is shaped like a small globular cup (Fig. 6f). It is hand-modeled and grog tempered with a soft paste. It is ochre colored at the surface and within the core. Its orifice is 4.93 cm in diameter and it is 6.6 cm high. The body of the pot is decorated with five thumb depressions surrounded each by a circle of reed (?) impressed punctates. This design is separated from the upper part of the vessel by a horizontal line of punctates (Fig. 6g).

A miniature vessel was reported by S. Katz (1974:35) at the Diester site but was not illustrated.

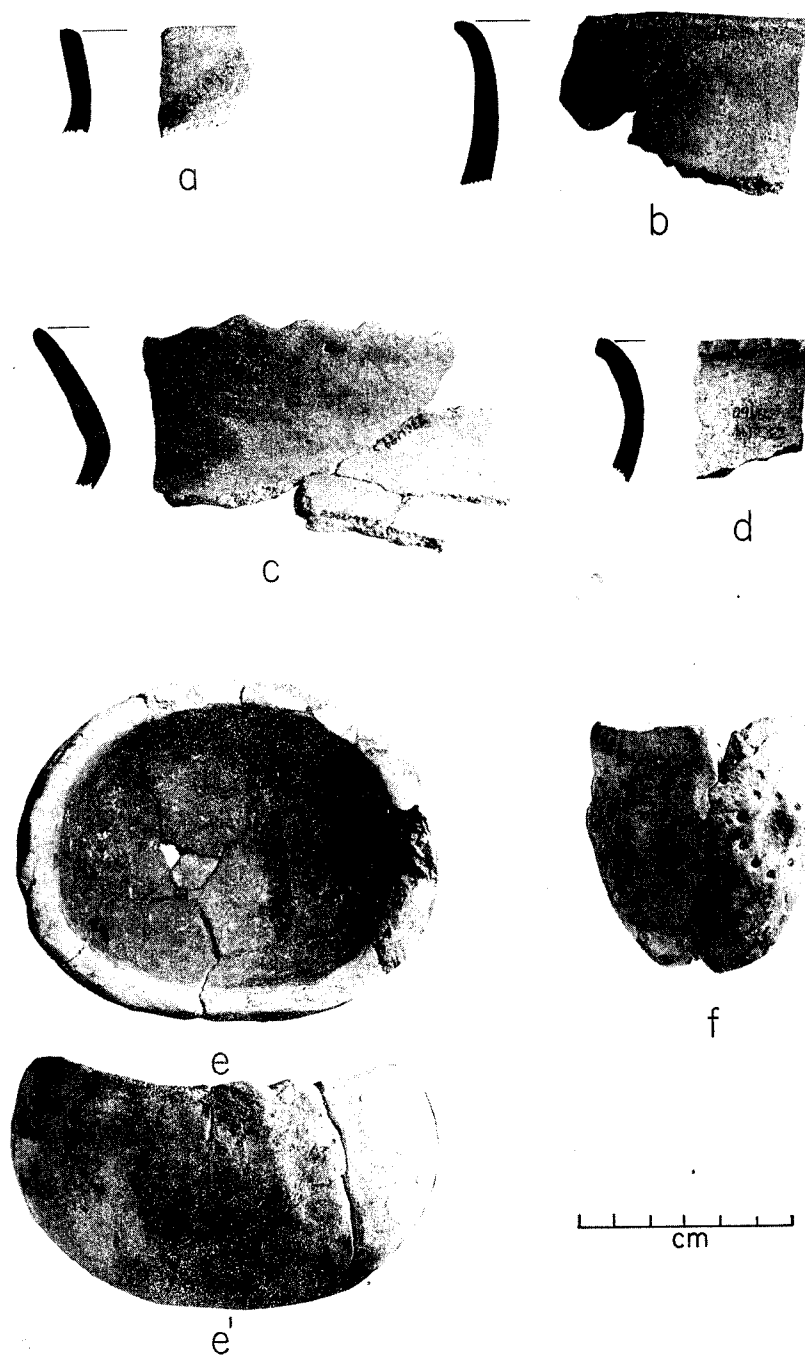


Fig. 6. Ceramics from site 23CL199.

TABLE 8

Rim Sherd Attributes

<u>Provenience</u>	<u>Lip Type</u>	<u>Temper</u>	<u>Orifice Size</u>	<u>Core Color</u>	<u>Surface Color</u>	<u>Decoration</u>
South Cut	flat	sand	18 cm	Ochre	Ochre	none
6N-19W/1	extruded	sand	16 cm	L. grey to D. ochre	L. grey to D. ochre	none
6N-20W/1	extruded	sand	14 cm	D. grey	D. ochre	none
16N-4E/1	pointed	sand	20 cm	Ochre	D. ochre to grey	Thumb notched
South Cut	pointed	sand/grog	20 cm	Ochre	Ochre	Thumb notched
South Cut	rounded	grog	28 cm	Ochre	Ochre	none
Feature 1	* rounded	sand	14 cm	Whitish to L. grey	Whitish to L. grey	Stick notched
Surface	* rounded	sand	14 cm	Whitish to L. grey	Whitish to L. grey	Stick notched

* These rims look as if they came from the same pot.

Chipped Stone

Projectile Points. One complete Steuben-like point was found on the surface of the site (Fig. 7a). Also found were three base fragments, probably of the same type, one point fragment and one mid-section with notching. Additional data are presented in Table 9.

Two other, essentially complete, points were found. One (Fig. 7b) from South Cut is similar to Manker points from the Trowbridge site (Bell 1976:Fig. 13c). The second has serrated edges, is corner-notched (Fig. 7c), and appears similar to Scallorn points from Late Woodland sites in the area.

Also in the collection are four possible projectile tips, although it is equally possible they are knife tips.

Bifaces. Four complete bifaces and four fragments were found at the site. The largest is oval (Fig. 7d), with a rounded base (Type A). A second is elongated (Fig. 7e) with a rounded base and a fairly rounded tip (Type B). The third is triangular (Fig. 7f), with a straight base (Type C). The last is triangular (Fig. 7g), with a rounded base (Type D). Table 9 presents data on the bifaces.

Drill bases. Two possible drill bases were found. Both have shallow side notches (Fig. 7h) and may represent reworked broken points. The largest is 4.2 cm long, 1.9 cm wide and 0.74 cm thick at the base. The broken end is 0.78 cm thick. It came from Feature 5 and was made of Westerville chert (unheated). The second is 3.4 cm long, 2.03 cm wide, 0.62 cm thick and 0.71 cm thick at the broken end. It is made of Spring Hill chert (unheated) and came from 10N-20W/1.

Side scraper. One possible side scraper was found in the South Cut. It is a parallel to slightly expanding, hinge fractured flake, which is retouched on both edges (Fig. 7i). It is 4.12 cm long, 3.96 cm wide, 1 cm thick and made of Spring Hill chert.

End scrapers. Four end scrapers were recovered at the site. Using Roger's typology developed for Trowbridge scrapers (reported in Bell, 1976:35), two types are present: 1) end scrapers with bilateral retouch. An end and two sides are retouched (Fig. 7j); and, 2) "blocky" scrapers made on thick flakes or tabloids (Fig. 7k). Table 9 presents the data on the endscrapers.

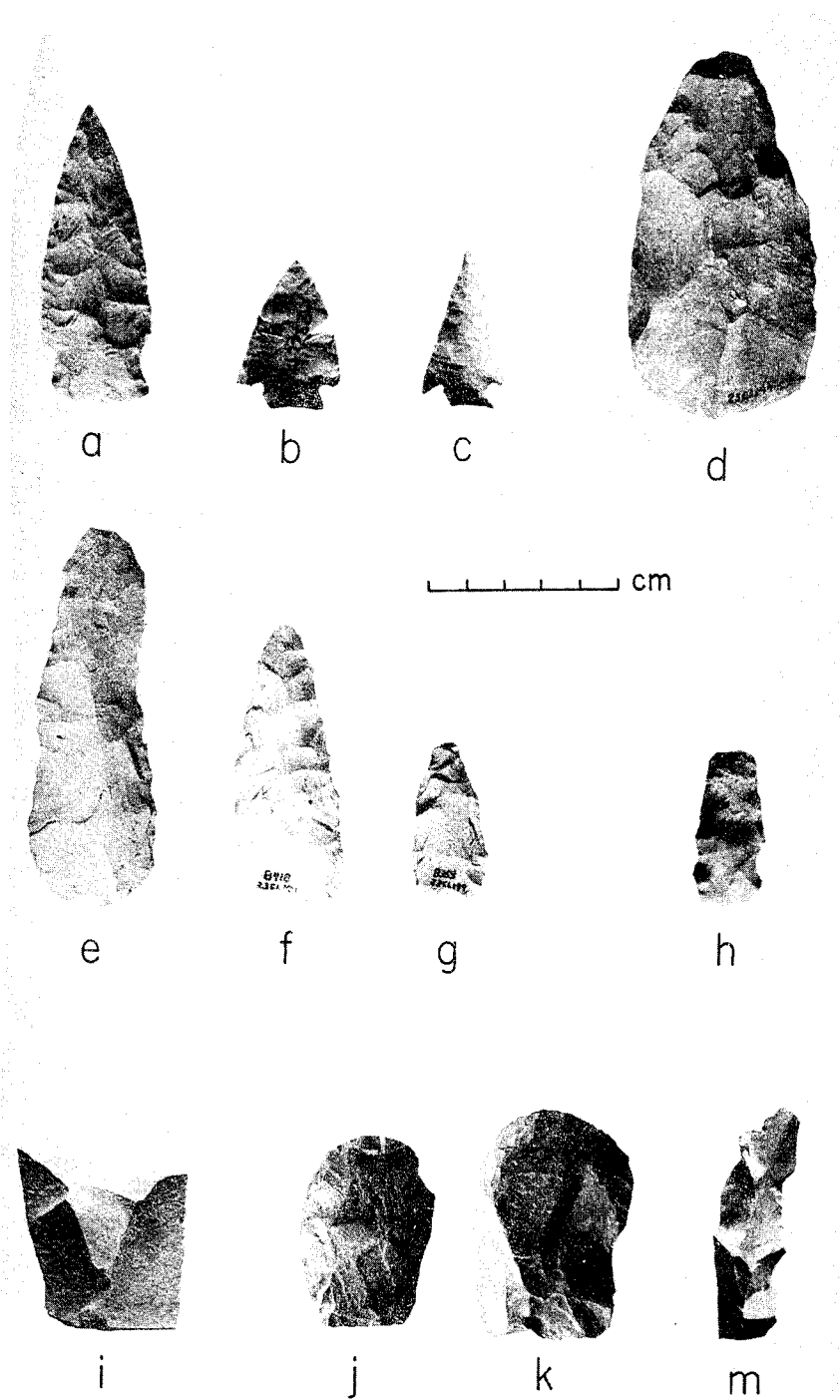


Fig. 7. Chipped stone artifacts from site 23CL199.

TABLE 9
Basic Data on Chipped Stone Tools From 23CL199

Provenience	L	W	Th	Chert Type	Heat Treated	Part	Type	Figure
Projectile Points:								
Surface	7.9	2.95	0.78	Westerville	No	Whole	Steuben	7a
Surface	6.1	3.34	0.82	Spring H411	No*	Tip	Steuben (?)	-
Surface	(inc.)	3.45	0.85	Spring H411	No	Mid Section	Steuben (?)	-
Surface	(inc.)	3.12	0.72	Westerville	No	Base	Steuben (?)	-
6N-20W/1	(inc.)	3.24	0.66	Spring H411	No	Base	Steuben (?)	-
8S-2W/2	1.3	3.35	0.61	Spring H411	No	Base	Steuben (?)	-
South Cut	(inc.)	2.77	0.53	Westerville	Yes	Whole	Manker	7b
24N-18E/1	4.06	2.28	0.55	Westerville	No	Whole	-	7c
2N-30W/2	4.21	2.38	0.83	Westerville	No	Tip	-	-
16N-4E/1	(inc.)	(inc.)	0.79	Whitish	Yes	Tip	-	-
Feature 5	3.47	2.5	0.6	Westerville	No*	Tip	-	-
Surface	(inc.)	1.4	(inc.)	Westerville	No	Tip	-	-
	(inc.)	2.3	1.18	Westerville	No	Tip	-	-
Blifaces:								
South Cut	9.67	5.06	1.4	Spring H411	Yes	Whole	A	7d
South Cut	10.03	3.4	1.1	Westerville	No	Whole	B	7e
Feature 5	7.24	2.9	1.23	Westerville	No	Whole	C	7f
24N-18E/2	4.3	2.08	0.83	Spring H411	No	Whole	D	7g
South Cut	3.9	3.67	1.1	Spring H411	No	Tip 1/2	A (?)	-
10N-8W/1	(inc.)	(inc.)	-	Light Pink	Yes	Tip	-	-
South Cut	-	-	0.76	Light Pink	Yes	Mid Section	-	-
South Cut	-	-	0.68	Light Grey	Yes	Mid Section	-	-
End Scrapers:								
South Cut	5.8	3.35	1.39	Spring H411	No	-	Bilateral	7j
Surface	5.06	3.6	1.0	Winterset	No	-	Bilateral	-
Feature 5	3.43	4.18	2.57	Westerville	No	-	Blocky	-
North Cut	6.07	4.55	3.4	Spring H411	No	-	Blocky	7k

*tip heated

Spokeshaves. Three spokeshaves were recovered. Two are made on long parallel-sided blade-like flakes with triangular cross-sections. Both have two or three scraping surfaces (Fig. 71). The third spokeshave has only one scraping surface, and is made on a tabular flake. The latter spokeshave, of Spring Hill chert, is 3.45 cm long, 3.2 cm wide and 1.35 cm thick. It came from 0-4E/1. The scraping notch is 1 cm wide and 3 mm deep.

The former were also made of Spring Hill chert. One, from 14S-38W/1, is 6.1 cm long, 2.01 cm wide and 0.76 cm thick. It has two scraping notches measuring 1 cm wide by 3 mm deep, and a third elongated notch which is 1.9 cm wide and 3 mm deep. The second, from Feature 5, is 3.7 cm long, 1.25 cm wide and 0.67 cm thick. It has two scraping notches, and possibly an elongated third. They are 6.5 mm by 2 mm deep, 5 mm by 2 mm deep, and 1 cm by 2 mm deep.

Worked chert. Thirteen irregularly-shaped flakes showed evidence of use induced retouch. Ten are of Westerville chert (one heated); they came from: South Cut (3), 2N-30W/3, 6N-20W/2, 14S-38W/2, 10N-8W/1, 0-4E/1, 5N-19W/1 and 5N-20W/1. Two, of Spring Hill chert (both heated), came from 6S-12W/2 and 24N-18E/1. The last, of deep amber-colored flint which is translucent at the ends, came from 10N-8W/1. This flint is not native to the Kansas City area.

Chert Debris. Table 10 shows the distribution of chert debris by provenience and chert type. The known, exposed, Kansas City area cherts are all Pennsylvanian in age. The youngest, Spring Hill chert from the Lansing Group, consists of 1152 gms. (54.4%). Westerville chert, of the Linn sub-group of the Kansas City Group, consists of 662 gms (31.2%). Finally, we have Winterset chert of the Bronson sub-group of the Kansas City group which consists of 281 gms (13.2%).

Two cherts of unknown source, possibly from glacial till deposits, are present. One is pale white with pin spots of grey--21 gms (1.0%); while the last is light grey with fine mottling--5 gms (0.2%).

If debris is a reflection of chert resource preference then Spring Hill and Westerville cherts were the most preferred (85.6%). It is possible, however, that they were the most accessible in the upland Smithville area because they are the most recent Pennsylvanian members and would be more likely to outcrop in the uplands than the lower, older Winterset.

TABLE 10
Distribution of Chert Debris at 23CL199

	Spring Hill	Westerville	Winterset	Other
14S-38W/1	2	8	2	-
/2	1	1	-	-
/3	1	-	-	-
8S-24W/1	3	6	-	-
/2	6	4	2	-
6S-12W/1	-	2	-	-
/2	1	-	1	-
0- 4E/1	1	1	1	1
/2	-	-	-	-
/3	-	-	-	-
2N-30W/1	3	3	2	4
/2	5	1	-	-
/3	6	-	-	-
4N-26W/1	2	1	-	-
/2	-	-	-	-
6N-20W/1	8	4	3	3*
/2	2	4	-	-
/3	-	-	-	-
/60-70	-	-	1	-
5N-19W/1	-	1	1	1
/2	1	1	-	-
5N-20W/1	-	1	-	-
/2	1	3	-	-
6N-19W/1	2	4	-	1
10N-20W/1	3	1	1	1
/2	4	3	-	-
10N- 8W/1	2	3	-	-
/2	-	1	-	-
16N- 2W/1	4	4	-	2
/2	4	-	3	1
16N- 4E/1	3	1	-	3
/20-30	-	1	-	-
24N-18E/1	3	1	-	-
/2	-	2	1	-
/3(40-50)	-	-	-	-
28N-28W/1	1	1	-	-
/2	-	1	-	-
F.5	4	4	1	3
F.2	2	12	3	5
F.3	2	-	-	-
F.4	1	4	1	1
Total	76 (1152)	93 (662)	23 (281)	25*

* Includes the lone light grey line mottled chert chip.
() grams

Ground Stone

Hammerstones. Six hammerstones with slightly different shapes are present. Type A (Fig. 8a) is a flat river cobble, rectanguloid in shape. Type B (Fig. 8b) is a river cobble which has flattened cross-section and an ovoid outline. Type C (Fig. 8c) is a triangloid river cobble. Type D (Fig. 8d) is a river cobble which is circuloid in cross-section and oval in shape. Type E (Fig. 8e) is a spheroid river cobble. Type F (Fig. 8f) includes irregularly-shaped rocks, probably from glacial till, that show battering.

Table 11 presents data on these tools. Table 12 includes data on hammerstone fragments too small to classify.

Hammerstones--pitted. Hammerstones which show battering at the edges, and have a shallow pit or depression on a smooth side perhaps for use as an anvil are present. There are two types: Type A (Fig. 8g)--river cobbles that are triangular in shape; and, Type B (Fig. 8h)--flat sections of larger rocks--probably from glacial till. Table 11 gives characteristics.

Manos. Tools characterized as having one and sometimes two flat sides showing evidence of striations from use on a metate. Based on shape variations there are six types. Type A (Fig. 9a) includes river cobbles which are rectanguloid in shape and cross-section. They have one flat surface. Type B (Fig. 9b) manos are spheroid river cobbles with one flat surface. Type C (Fig. 9c) are triangular river cobbles, oval in cross-section with one flat surface. Type D (Fig. 9d) includes oval-shaped river cobbles with triangular cross-sections and one flat surface. Type E (Fig. 9e) are oval-shaped river cobbles with oval cross-sections and one flat surface. Type F (Fig. 9f) are squarish in shape, made from broken rocks--probably glacial till--and are rectangular in cross-section. This type has two flat surfaces. See Table 11.

Four incomplete mano fragments were recovered: one from the Center Cut is of rough pink quartzite (204 gms), and 3 from the South Cut are made of basalt (253 gms), rhyolite (192 gms) and rough pink quartzite (829 gms).

Metate. No complete metates were recovered although there were four fragments. One from the North Cut is made of flat tabular red quartzite (415 gms). Two are made of pink quartzite. One from 16N-4E/1 (604 gms) is worked on one side and the other from 16N-2W/1 is worked on both sides (127 gms) and burnt. The last, made of red quartzite, came from 16N-2W/1 (93 gms).

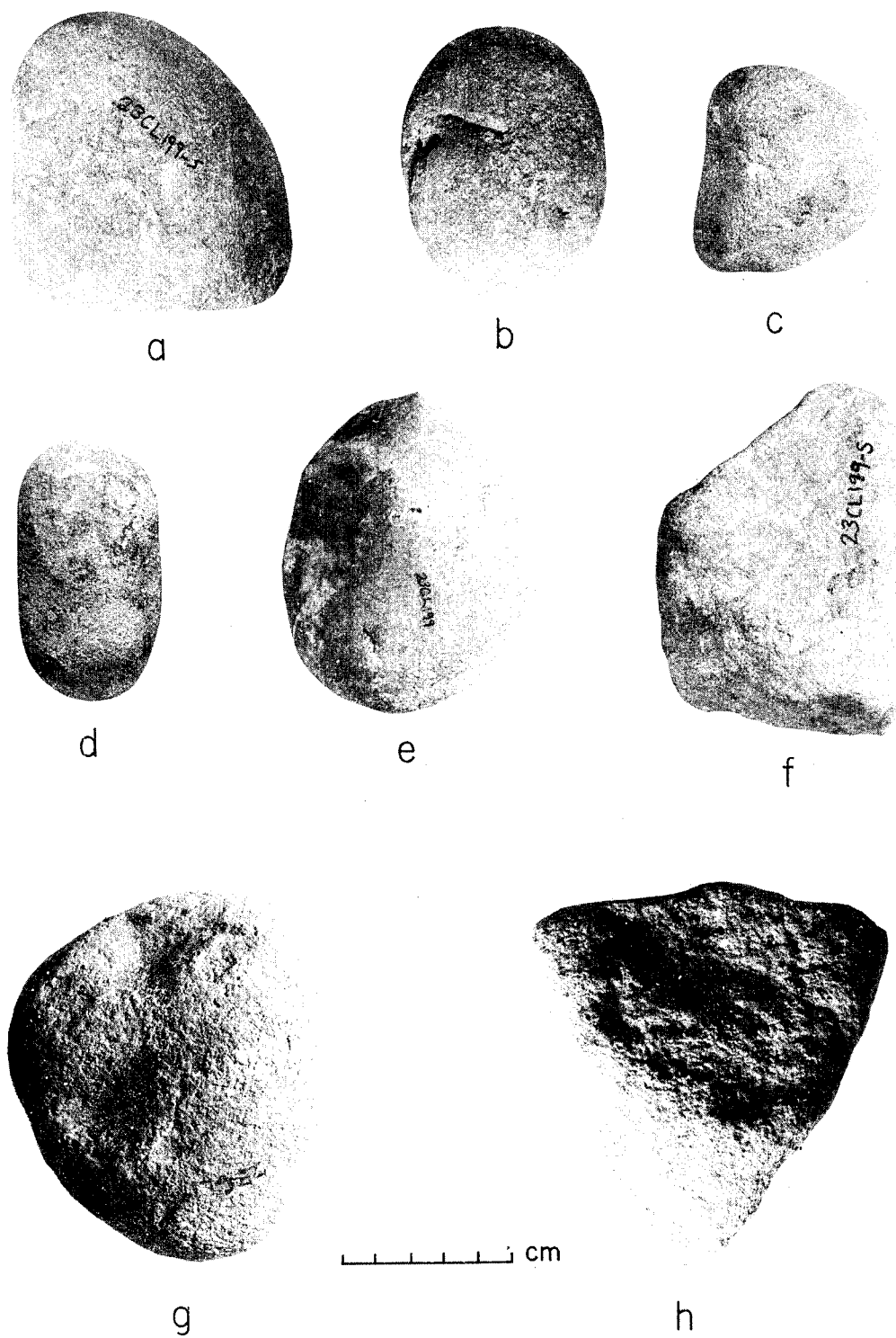


Fig. 8. Hammerstones and pitted hammerstones from site 23CL199.

TABLE 11
Basic Data on Ground Stone: Hammerstones from 23CL199

<u>Provenience</u>	<u>Length</u>	<u>Width</u>	<u>Thickness</u>	<u>Rock Type</u>	<u>Weight</u>	<u>Figure</u>
Hammerstone A:						
South Cut	1.05	6.0	2.9	Quartzite (?)	205.6	-
South Cut	9.7	6.8	3.2	Basalt (?)	371	-
South Cut	6.8	5.95	3.9	Quartzite (?)	221.2	-
South Cut	8.0	8.1	4.25	Quartzite	239	8a
Hammerstone B:						
South Cut	7.7	6.1	3.15	Quartzite	226.5	8b
Center Cut	7.65	5.9	3.65	Quartzite	226	-
South Cut	6.8	4.9	3.3	Quartzite	155.5	-
South Cut	8.0	6.4	3.6	Rhyolite	239.7	-
South Cut	8.5	6.8	3.8	Quartzite	349.4	-
Feature 2	9.1	6.05	3.4	Quartz	354.5	-
Hammerstone C:						
South Cut	6.1	5.25	3.2	Quartzite	169.8	8c
10N-20W/1	6.9	5.3	3.9	Quartz	171.2	-
Hammerstone D:						
5N-20W/1	5.05	4.1	2.5	Quartzite	67.6	-
Center Cut	6.05	4.6	3.7	Quartzite	123.2	-
South Cut	6.5	4.4	3.3	Quartzite	136.5	-
Feature 2	6.0	4.5	4.4	Quartzite	163.8	-
10N-20W/2	5.4	4.6	3.4	Quartzite	124.1	8d
4N-26W/1	7.45	4.1	3.7	Quartzite	178.7	-
Hammerstone E:						
Center Cut	6.3	5.5	4.0	Yellow Quartzite	221.1	-
Center Cut	6.9	5.5	5.3	Crumbly Quartzite	288.2	-
Surface	8.85	7.2	5.1	Yellow Quartz	292.5	8e
Hammerstone F:						
Feature 2	8.4	5.2	3.75	Basalt	238.1	-
South Cut	9.55	6.25	5.6	Quartzite	541.9	8f
South Cut	9.1	4.95	4.5	Quartzite	244.7	-
South Cut	9.1	5.4	5.65	Quartzite	338.5	-
North Cut	11.3	8.7	6.1	Quartzite	802.5	-
Pitted Hammerstone A:						
South Cut	9.9	8.6	5.8	Quartzite	640.7	8g
South Cut	11.9	10.35	6.6	Rhyolite	964.5	-
Pitted Hammerstone B:						
South Cut	10.8	10.1	5.7	Dark Red Quartzite	916.4	-
14S-38W/1	8.4	6.35	4.65	Crumbly Quartzite	270.7	-
South Cut	8.4	6.1	5.2	Rhyolite (?)	483.4	-
10N-8W/2	10.3	9.3	5.2	Pink Quartzite	614.2	8h
Manos A:						
South Cut	12.3	9.2	5.0	Basalt	892	-
South Cut	11.25	9.2	5.7	Quartzite	833.7	-
South Cut	11.3	8.5	5.8	Quartzite	690.4	-
Surface	12.75	8.2	6.0	Basalt	950.6	-
16N-2W/1	9.1	6.4	4.2	Basalt	439.3	9a
Feature 5	8.4	6.2	4.8	Rhyolite?	415.8	-
Manos B:						
North Cut	12.6	10.0	9.2	Rhyolite	1,512	-
South Cut	7.6	5.8	6.05	Basalt?	394.2	-
South Cut	11.8	10.7	9.9	Granite	1,388.9	-
South Cut	6.4	5.0	5.5	Quartzite	231.3	-
North Cut	10.5	9.8	9.2	Quartzite	1,376	9b
South Cut	8.3	6.95	5.6	Basalt	371.1	-
South Cut	10.25	6.75	6.3	Basalt	671.3	-
Manos C:						
Center Cut	8.2	6.8	4.25	Granite	310	-
Center Cut	6.5	4.4	3.0	Quartzite	113.1	9c
South Cut	10.7	7.8	5.1	Basalt	582.2	-
Manos D:						
South Cut	9.1	7.6	5.0	Quartzite	510	9d
Manos E:						
South Cut	15.5	10.3	4.6	Quartzite	1,052	9e
Manos F:						
South Cut	8.3	8.2	4.1	Rhyolite	509.4	9f

TABLE 12
Basic Data on Incomplete
Hammerstone Fragments From 23CL199

<u>Provenience</u>	<u>Rock Type</u>	<u>Weight</u> *
16N- 4E/1	Rough Pink Quartzite	187
5N-20W/1	Red Quartzite	197
6S-12W/1	Rough Pink Quartzite	243
0 - 4E/1	" " "	242
14S-38W/1	" " "	49
2N-30W/1	" " "	208
6N-20W/1	" " "	39
6N-19W/1	Red Quartzite	55
16N- 4E/1	" "	39
10N-20W/2	Pink Quartzite	86
10N- 8W/1	Caramel Quartzite	44.5
10N- 8W/1	" "	31
24N-18E/1	Pink Quartzite	140
14S-38W/1	" "	30.5
6S-12W/1	Red Quartzite	27
10N- 8W/2	Rhyolite	181
6N-19W/1	Granite	54
Feature 2	Rough Pink Quartzite	321
10N-20W/2	" " "	31
North Cut	Rhyolite	557
Center Cut	"	887
" "	Rough Pink Quartzite	158
" "	" " "	206
" "	" " "	269
South Cut	" " "	322
" "	" " "	161
" "	" " "	432
" "	" " "	314
" "	" " "	274
" "	" " "	719
" "	Red Quartzite	214
" "	" "	114
" "	" "	210
" "	White Quartz	100
" "	Diorite	999

* in grams

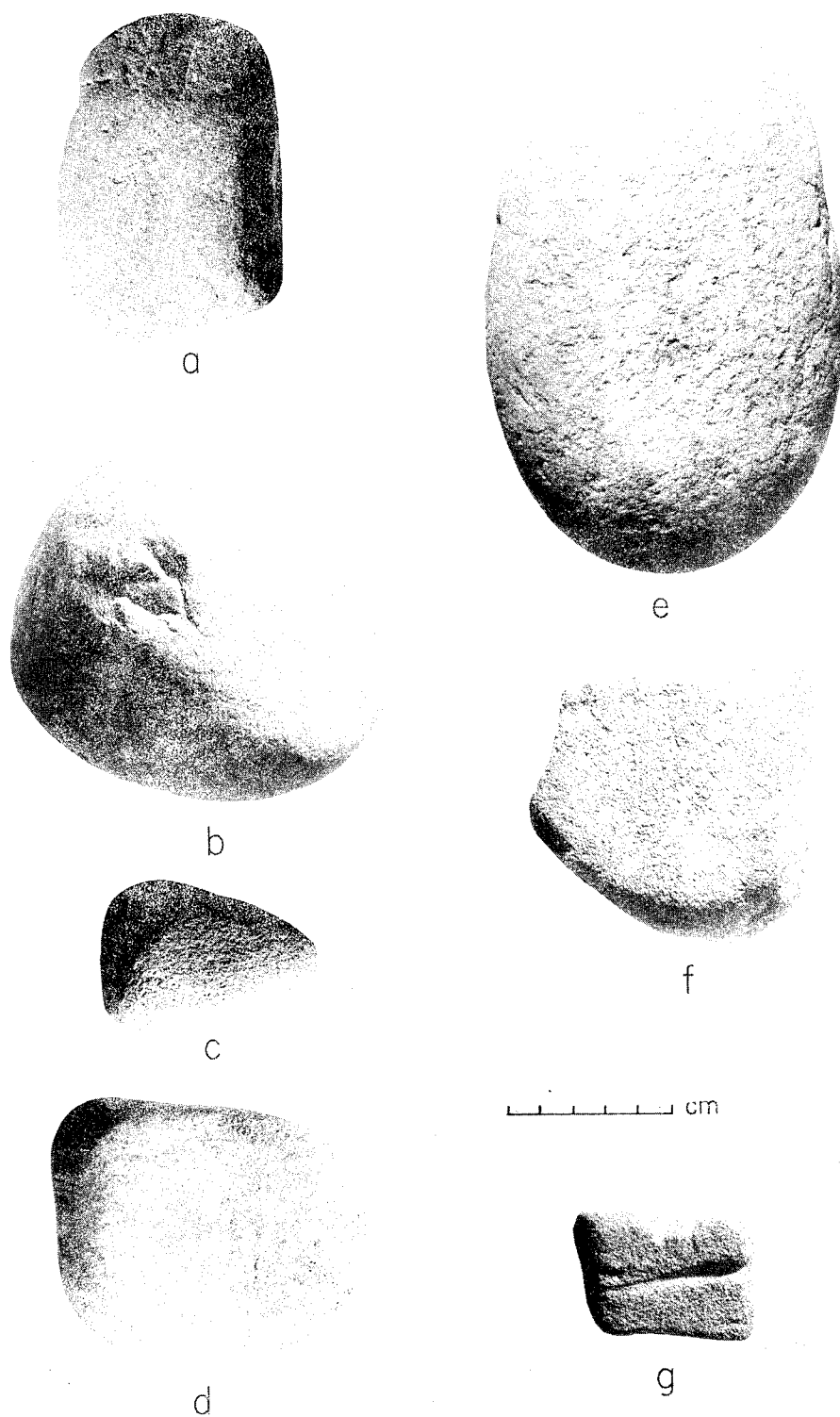


Fig. 9. Ground stone and bone tools from site 23CL199.

Abraders. Abrading tools, in general, are of sandstone and were used to smooth, polish, cut or sharpen softer materials. Two types of sandstone were used for these tools at this site. The first, type A, has fine grained quartz crystals in a foliated matrix varying from yellowish to grey in color with mica inclusions. The second, type B, is also fine grained with mica specks, but the matrix is reddish in color and blocky or massive not foliated in structure. Table 7 shows the distribution of unworked sandstone at the site by type and weight.

Three types of abrading tools are present: sandstones with one or more flat abraded surfaces; sandstones with oval abraded surfaces; and, sandstones criss-crossed with V-shaped grooves--usually called awl abraders. Table 13 presents data on these tools. Size data other than weight are not given because these tools are rough pieces of sandstone used for specific functions, but not formed into elegantly finished artifacts. As Table 13 shows, some were used both to sharpen awls and as flat grinding surfaces.

There is one, possible, complete, finished abrading tool. It is a rectangular block of Type B sandstone with 10 awl sharpening grooves (Fig. 9g). It is 5.46 cm long, 3.97 cm wide, 2.76 cm thick and came from the South Cut.

Pigments. Hematite, limonite and red ochre were all used as pigments. Raw hematite was found in the South Cut (16 gms), 8S-24W/1 (0.5 gms) and 8S-24W/2 (1.5 gms). Raw limonite was found in the South Cut (14 gms). One piece of faceted hematite (3 gms) was found in 2N-30W/2. Nine small pieces of red ochre were recovered (6.5 gms). Six came from 6N-20W/2, 1 from 10N-20W/2, 1 from 10N-8W/2, and the last from 6N-20W/3. One large hunk of yellow ochre (92 gms) was found in the South Cut.

Miscellaneous. Sixty-six (83.9 gms) pieces of daub were recovered from the site. Table 7 shows their distribution. Eight pieces of burnt limestone, all with grinding scratches, were recovered. One huge piece (154 gms) has a concave surface, while the others are 7 small pieces (48.5 gms). All were found in Feature 2. Three pebbles were found: 1 from Feature 2 (23 gms), 1 from 6N-19W/1 (24 gms) and 1 from 10N-20W/2 (14 gms).

Fauna

Animal Bone. Table 14 shows the distribution of identifiable fauna found at the site. In addition, over 400 small (under a centimeter

TABLE 13
Abrading Tool Data From 23CL199

<u>Cat. No.</u>	<u>Provenience</u>	<u>Rock Type</u>	<u>Tool Type</u>	<u>Weight*</u>
8401	10N- 8W/2	A	Flat: 1 side worked	6
8315	6S-12W/1	A	Flat: 2 sides worked	16
8375	24N-18E/2	B	Flat: 1 side worked	134
-	South Cut	B	Flat: 1 side worked	29
-	South Cut	B	Flat: 3 sides worked	395
8384	24N-18E/1	A	Awl: 2 grooves	11
8405	8S-24W/2	A	{ Awl: 2 grooves Concave: 1 side worked	31
8276	6N-20W/1	B	Awl: 3 grooves	4
8261	0 - 4E/1	B	{ Awl: 1 groove Concave: 1 side worked	152
-	Center Cut	B	Awl: 5 grooves	44
-	South Cut	B	Awl: 6 grooves	68
-	Center Cut	B	Awl: 1 groove	36
-	South Cut	A	Awl: 1 groove	46

* in grams

TABLE 14
Distribution of Animal Bone Fragments From 23CL199

<u>Provenience</u>	<u>Number/Species</u>
Feature 2	2 -- probably Box turtle (<u>Terrapene carolina</u>)
Feature 2	1 -- Gar (<u>Lepisosteus</u> sp.) fish scale
Feature 1	1 -- Coyote (<u>Canis latrans</u>), right lower second molar
10N-8W/2	1 -- Deer (<u>Odocoileus</u> sp.), left tibia
Feature 2	1 -- Deer (<u>Odocoileus</u> sp.), left mandible
Feature 4	1 -- Deer (<u>Odocoileus</u> sp.), tooth
Feature 5	1 -- rib, probably Deer (<u>Odocoileus</u> sp.)
Feature 2	1 -- Box turtle (<u>Terrapene carolina</u>)
Feature 2	1 -- River otter (<u>Lutra canadensis</u>), right humerus
Feature 5	1 -- Deer (<u>Odocoileus</u> sp.), left middle phalange (burnt)
South Cut	1 -- Deer (<u>Odocoileus</u> sp.), occipital
South Cut	1 -- Deer (<u>Odocoileus</u> sp.), atlas vertebra

in size) unidentifiable fragments were found. They are most probably broken mammal bones. Feature 1 had 64, Feature 2 101, Feature 3 32, Feature 4 143, Feature 5 10, 5N-20W/2 2, 6N-19W/1 5, and 3 were found in the South Cut. As can be seen the bulk of the remains came from the pits.

Of the identified remains (13 fragments) 7 were deer, 3 turtle (Box), 1 river otter, 1 coyote and 1 fish (gar). All the mammals would have been present in the local environment as well as the turtle and the fish.

Bone Tools. Five possible bone tool fragments were found. Three may be awl fragments as the bone sections are tapered and smoothly polished. The three may have been made of split deer metapodials. All were burnt and came from Features 2, 3, and 4.

The tip of an awl or needle (Fig. 9h) came from Feature 3. It is split on one side and broken at the base. The tip has polish planes longitudinally from the point, but the point is damaged so its wear pattern is missing.

Finally, from the South Cut a burnt deer (?) metapodial was recovered. The bone is polished and it could be either an awl or beamer fragment.

Flora

Because the contents of the pits were water screened and floated, a variety of charred seeds were recovered. These will be sent to the Missouri Botanical Gardens in St. Louis, Missouri, for analysis. Preliminarily it appears that the bulk are acorn and hickory nuts with some possible amaranth and chenopodium seeds.

Radiocarbon Dates

Four wood charcoal samples were submitted to the Geochronology Lab, University of Georgia. Dates obtained are:

UGA-1449	Feature 2	1850 \pm 100	A.D. 100
UGA-1450	Feature 1	915 \pm 165	A.D. 1035
UGA-1452	Feature 4	1020 \pm 295	A.D. 930
UGA-1453	South dozer cut	1185 \pm 65	A.D. 765

Needless to say a range from A.D. 100 to A.D. 1035 for this site makes no sense!

However, we can discard the A.D. 100 date since there are no early or mid sequence Kansas City Hopewell ceramic elements. All diagnostic cultural elements point to the site being late Kansas City Hopewell (Alfred E. Johnson, personal communication). Thus, we end up with three late dates, two of which have large standard deviations. If we subtract the first sigma from each of these dates, we end up with dates of: A.D. 870 (F.1), A.D. 635 (F.4), and A.D. 700 (South Cut). These dates are 135 to 370 years later than the A.D. 500 date for terminal Kansas City Hopewell. Whether they are totally out of line, and thus useless, is difficult to establish especially in light of our ignorance of Late Woodland in the Kansas City area and its possible relationship to Kansas City Hopewell.

Conclusions

The data from the Yeo site, 23CL199, suggest and in some cases demonstrate the following. First, it is a late Kansas City Hopewell site dating possibly as late as the mid-Eighth century A.D. Second, the road grading operations revealed no evidence of house structures, nor were fireplaces or hearths found. Only five trash-filled storage pits--clustered together--were found. This suggests the site was a storage site. Given the large number of hammerstones and fragments, plus pitted nutting stones, manos, and the small quantity of chert debris, with no primary quarry chert, it would appear the site was a specialized, limited activity type. Since the only features were pits and the bulk of the tools and debris was that used to collect the wild plant resources of the area, especially nuts it is thought that the site was a wild plant storage site.

The few projectile points, scrapers, spokeshaves, drills and bifaces, as well as the scant animal bone remains are the amount and type of debris to be expected if a few people visited the site seasonably during the year, first to collect and store the nuts and then, to return to remove them.

Thus, it is hypothesized that the Yeo site is a uni-functional plant collection and storage site of late Kansas City Hopewell people. This type of site is, in fact, exactly what is expected if Johnson's (1976:12) model, of ancillary and special-function sites as a part of Kansas City Hopewell settlement patterns, is correct.

Richardson Hulse Site, 23CL109

The Richardson Hulse site, 23CL109, has been known to collectors for many years, but was first reported and tested in 1967 by Riley (1967:6-8). The site is located on the east side of the floodplain of the Little Platte River (Fig. 1) on a large knoll just east of a permanent spring. The fields have been under cultivation for years and were in corn at the time of excavation. The legal description is SW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 7, Township 53N, Range 32W.

At the time of excavation the land belonged to Mrs. Frances C. Orr who kindly let us excavate it and who was actively interested in all aspects of the work. The site is named for Mrs. Orr's grandfather, Richardson Hulse, who originally settled the land in the 19th century. We cannot thank Mrs. Orr too much for her cooperation and for the loan for analysis of some of the artifacts in her possession from the site.

The site is situated on a knoll and covers an area about 2000 feet by 800 feet.

Three test areas were staked out on the site: A, B and C. Test A consisted of twelve 2-meter squares. Seven were excavated to the 40 cm level (0-10W, 0-12W, 0-16W, 0-20W, 2S-16W, 8S-18W and 20N-18W), four to the 50 cm level (0-0, 0-14W, 0-18W, and 22N-18W) and one (0-2W) to the 60 cm level. Test B consisted of eight 2-meter squares. One (15S-12W) was excavated to the 20 cm level, one (0-2W) to the 30 cm level, five (2S-2W, 14S-10W, 16S-10W, 22S-8W and 22S-10W) to the 40 cm level, and one (0-0) to the 50 cm level. Test C consisted of two 2-meter squares. One (0-0) was excavated to the 50 cm level, while the other (0-2W) was taken down to the 100 cm level to establish controls for the site's stratigraphy--if any. In test C, change in both the color and texture of the soil occurred at about the 35 cm level, which is also where the quantity of artifacts diminished.

In test A the soil changed between the 22 and 30 cm level, although some scattered artifact debris was found at greater depth. This was also true in test B.

All squares were excavated in arbitrary levels. The plow zone or level 1 was taken down in 20 cm intervals, while below level 1, zones were removed in 10 cm intervals. To make data presentation easier, table provenience A: 0-2W/1 is read as test A, sq. 0-2W/0-20 cm; 0-2W/2 is sq. 0-2W/20-30 cm; 0-2W/3 is sq. 0-2W/30-40 cm; 0-2W/4 is sq. 0-2W/40-50 cm; and 0-2W/5 is sq. 0-2W/50-60 cm. This same coding was used on test B and C.

Since the site was extensive, we were hopeful of locating a Steed-Kisker house(s) as well as other sub-surface structures. To that end soil corings were made at about 2-meter intervals in search of structures or a midden. Unfortunately, the bulk of the site lay in the plow zone with sterile yellow loess soil just below, except in a central flat area. This area also had the greatest concentration of cultural debris and three test areas were marked out (A, B and C) in a 2-meter grid system as mentioned. The results, in terms of sub-surface structures, were disappointing. Only four features were located.

As the site was to be destroyed by the reservoir, and because of the light yellow color of the sub-soil, it was felt that the most effective way to locate sub-surface features was to remove the plow zone after a test of the small midden area was completed. The test was completed during the summer of 1976.

In October, 1976 a roadgrader with a 12-foot wide blade was used to remove the plow zone from most of the site (2000 by 800 feet). The plow zone was removed in 10 cm intervals. A crew of six followed the roadgrader and collected all conspicuous items. Provenience controls were four arbitrary segments--North, North-Center, South Center and South. The North and Center areas contained most of the artifacts. These four segments were designated North Cut, North-Center Cut, South-Center Cut and South Cut (Fig. 10).

When sub-soil was encountered, all stained areas were staked out and ultimately shovel-scraped and tested. Because of the size of the site and its multi-component character, a large number of houses, hearths and pits had been anticipated. Therefore, it was a surprise to discover (in addition to the four features found in the tests) only five more features--all Euro-American or Steed-Kisker--for a total of nine. No houses were found, not even the outlines of the historic farmstead, the source of much of the surface debris (although several hearth (?) areas were located). This is important for it provides important data on Archaic and Woodland use of the site, as well as the identification of a new uni-functional type of Steed-Kisker site--a storage site.

All pits were excavated by hand and all the prehistoric features were water screened and floated to insure maximum recovery of material, especially botanical remains.

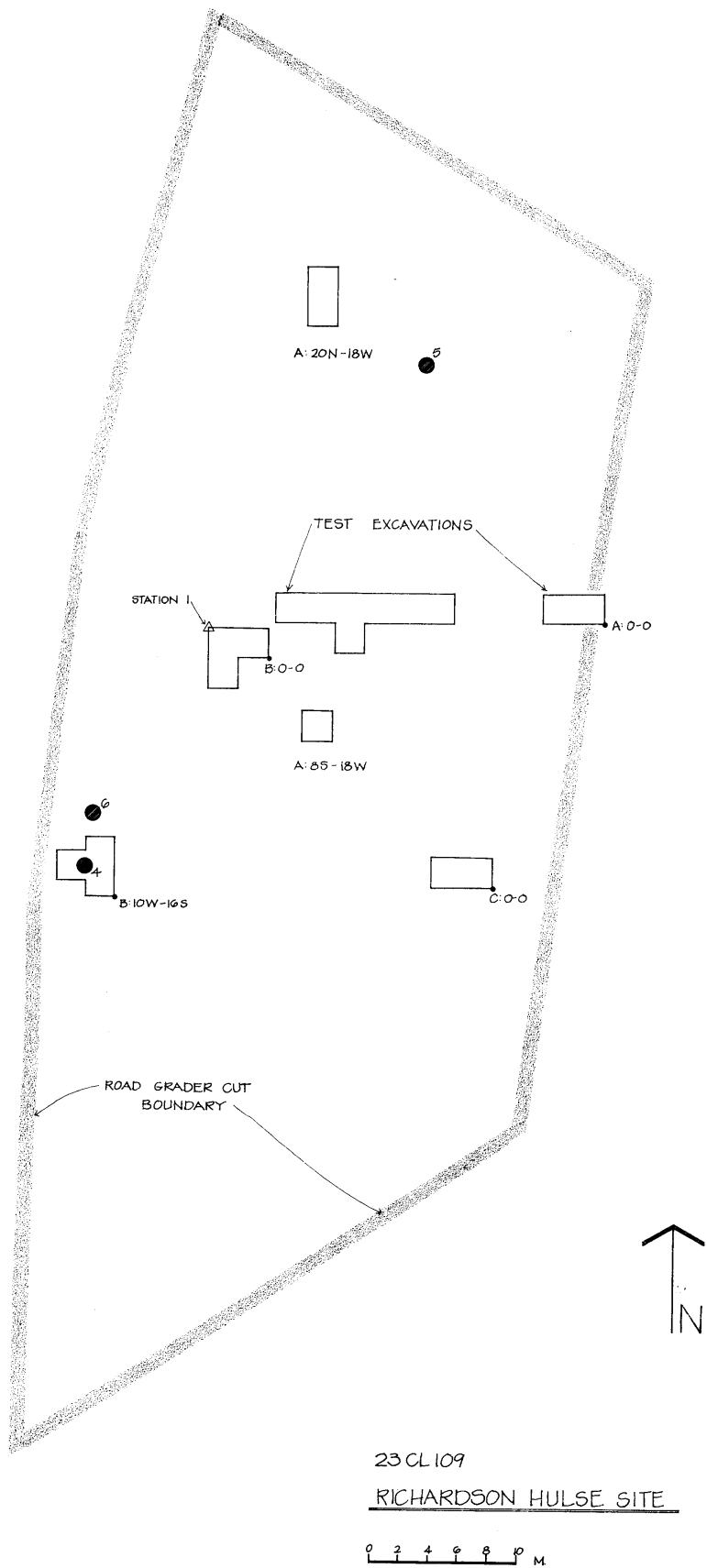


Fig. 10. Map showing excavation tests and extent of roadgrading at 23CL109.

Features

Nine sub-surface structure were found at the site: Three were Steed-Kisker storage/trash pits, all the others were historic--hearths, post holes and ash areas (Fig. 11).

Feature 1. A slightly-amorphous, oval, stain 67 cm long (longest axis) and 4 cm wide (perpendicular to that axis). It was approximately 35 cm deep, and had steep sloping sides (Fig. 12). It may have been a small pit.

Feature 2. This stain represents an historic post hole. It was approximately 24 cm square (9 inches) and 16 cm deep. One nail was found in it. It has a NW-SE axis orientation suggesting the historic "structure" had that orientation.

Feature 3. When first encountered this stain had a slightly egg-shaped form and looked like a rodent hole, but when excavated the northern end of it turned out to be an historic post hole like Feature 2 with the same axis orientation. From center to center the two post holes are about 140 cm apart (1.7 feet). The long axis of the Feature 3 stain is 54 cm and its maximum width is 34 cm, but the post hole itself was probably 19 cm square (7 inches). The relationship of these two features to the ash pit and clinker area beside Feature 6, suggests they are probably not part of a structure, but could represent the remains of a hitching post or any one of 15 other things. The amorphous rodent burrow area of the feature was 15 cm deep, while the post hole proper was 26 cm deep.

Feature 4. A Steed-Kisker storage/trash pit. It was almost circular in form, 94 cm wide (W-S axis) by 93 cm long (E-W axis) and was 33 cm deep. The floor was basically flat and the profile was belled (108 cm by 111 cm). The feature appeared just below the plow zone at 20 cm (Fig. 12).

Feature 5. A Steed-Kisker storage/trash pit. It is almost circular in form, 107 cm wide (N-S axis) by 99 cm (E-W axis), and 46 cm deep. The floor was flat and the slightly-belled profile (Fig. 12) was 111 cm at its widest.

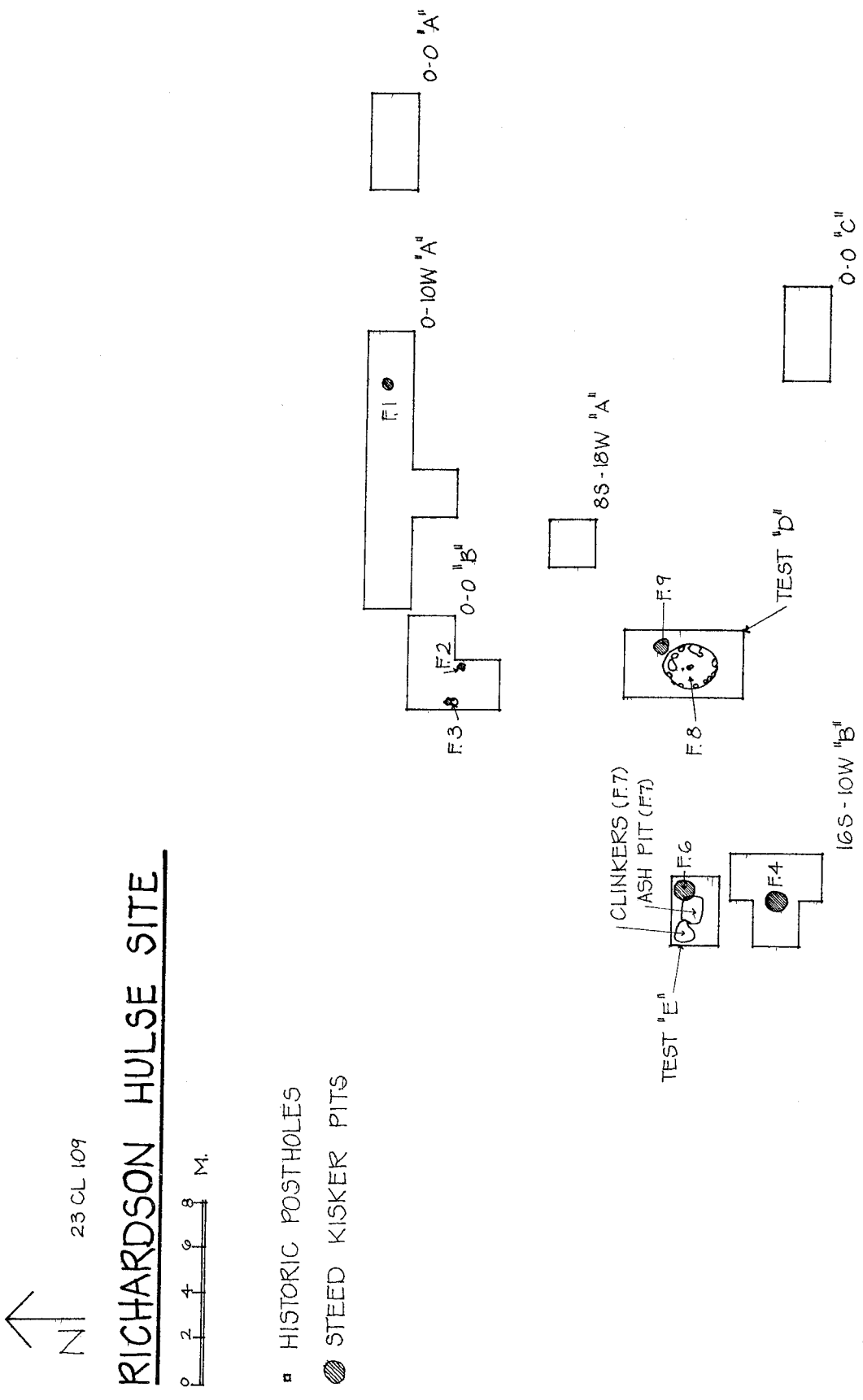


Fig. 11. Map showing prehistoric and historic features at 23CL109.

Feature 6. A Steed-Kisker storage/trash pit. It is almost circular in form, 110 cm (N-S axis) by 108 cm (E-W axis), and 35 cm deep. The floor was flat and the walls straight (Fig. 12). It was 92 cm wide at the bottom.

Feature 7. When first exposed by the roadgrader this feature appeared as an elongated rectangle, but after shovel scraping it became apparent that there were two sections (Fig. 12). One section was a rectangular ash pit (filled with fine ash-powdered soil and some bone fragments) approximately 89 cm long (E-W axis) by 79 cm wide (N-S axis) and when excavated 5 cm deep. The other, trianguloid, clinker-filled section, was about 90 cm long (E-W axis) by 78 cm wide (N-S axis), and was only 9 cm deep.

The ash pit intruded into Feature 6. The presence of historic debris and the clinkers indicate that Feature 7 was Euro-American. Since bricks and other Euro-American habitation debris were found on this site (indicating a possible farmstead), it can be suggested that this feature was once a part of a historic fireplace.

Feature 8. A large circular stain about 180 cm (E-W axis) by 161 cm (N-S axis), full of charcoal and burnt slabs of limestone. A bit of broken glass and unburnt pig's teeth identify it as historic. It was a relatively shallow, flat basin and was 25 cm deep (Fig. 12). In gross form it seems similar to a feature reported by Calabrese (1974:17) on site 23CL119, which was identified as a product of sugar processing at that site in the early 20th century.

Feature 9. This pit, just north of Feature 8, contained is a concentration of burnt limestone and charcoal. It was trianguloid in shape (Fig. 12) and was 16.5 cm deep. It was 81 cm wide (E-W axis) by 86 cm long (N-S axis). It may have been related to Feature 8 since it too had historic material in it.

Ceramics

Twenty-six rim sherds, one almost-complete vessel and 468 body sherds were recovered. Of the body sherds, 295 are shell tempered--284 are plain surfaced and 11 are cord-roughened. Eleven are shell tempered with some sand. Their surfaces are plain. It is possible the sand was

a natural inclusion in the clay and not an especially-added temper. In all respects these sherds fit the description of Calabrese's (1969:69-71) Platte Valley ware. Seventeen shell-tempered rims were also recovered at the site, mostly from pits. One was incised (Fig. 13a) while the others were plain (Fig. 13b). They also fit the Platte Valley ware description (*ibid*:71-74). Seven are from Feature 4, one from Feature 5, six from Feature 6, two from A:0-12W/2 and one from A:0-18W/1.

The almost-complete vessel was found in Feature 4. It is a small, shouldered vessel with a slightly extruded lip (Fig. 13c). It is shell tempered and the surface has a smoothed-over cord-roughened treatment. It is 10.5 cm high, has an orifice diameter of 8 x 10.5 cm and is 12 x 14.5 cm wide at the shoulders.

Sand-tempered sherds were also found at the site and seem to be Kansas City Hopewell. There are 88 plain-surfaced body sherds and 4 rims. The rims were found in Feature 4, A:0-10W/3 and B:16S-10W/2. All have round lips and are slightly flaring (Fig. 13d-e). One has stick notching on the lip, another a wavy lip, while the other two are plain. They are late Kansas City Hopewell and are similar to those found at the Yeo site (23CL199).

Grit-tempered ceramics are also present. Twenty-six are cord-roughened while 45 have a plain surface. Three are 3 rims--1 plain, 1 cord-roughened and one brushed. The brushed rim, from Feature 6, has notching on the outer edge of the lip (Fig. 13f). The plain surface rim from B:14S-10W/1 and 2 is notched (Fig. 13g) on the outer lip, while the cord-roughened example from A:2S-16W/3 has a plain rounded lip (Fig. 13h).

In general, these sherds match Calabrese's (1969:75-76) Unnamed Ware description except for the brushed surface and the lip notching (*ibid*:77). The lips are rounded and the vessels seem straight-walled. Calabrese's description seems to apply to the pottery of the Late Woodland period of the Kansas City area. Sherds of this type, along with Scallorn-like points, are found as a complex not only in Smithville Lake but also on sites along Brush Creek.

Table 15 gives distributional data on all the pottery at this site. The lack of good stratigraphic differentiation of these three ceramic groups is indicated in the tabulation by levels.

Bead. One shell-tempered ceramic bead (Fig. 13i) was recovered from Feature 6. It is 1.9 cm long, 1.13 cm in diameter with a 0.25 cm perforation. It is a Steed-Kisker bead since only those people used shell-tempering at the time this pit was open.

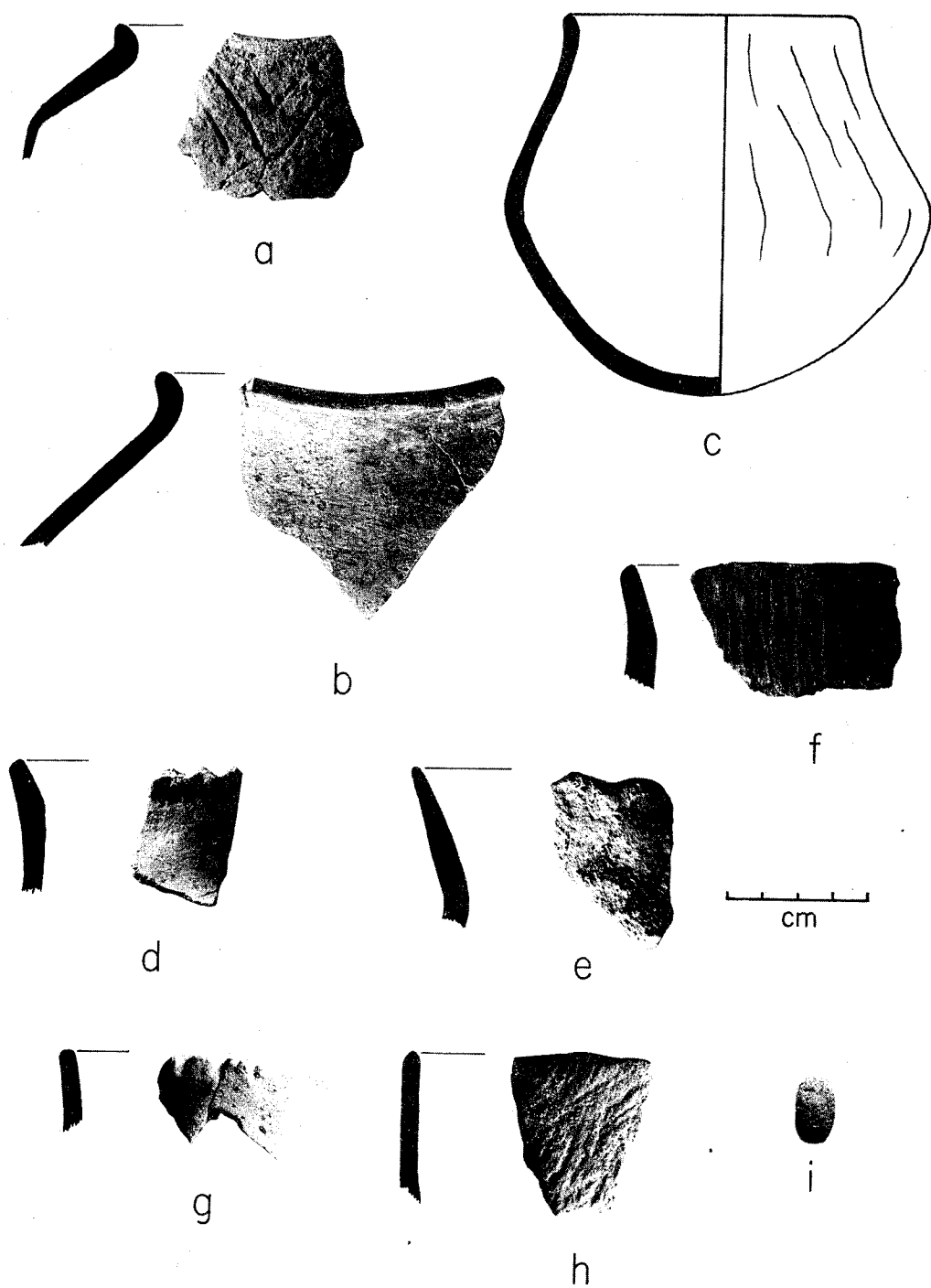


Fig. 13. Ceramics from site 23CL109.

CERAMICS

Provenience	CERAMICS							CHERT							CHIPS							Pebbles
	Shell temper (plain)	Shell temper (cordmarked)	Shell/sand temper	Sand temper (plain)	Sand temper (cordmarked)	Grit temper (cordmarked)	Grit temper (plain)	Spring Hill chert (heat treated)	Spring Hill chert	Westerville chert	Westerville chert (heat treated)	Winterset chert	Winterset chert (heat treated)	Burlington chert	Novaculite chert	White w/gray pin spots chert	White w/gray pin spots chert (heat treated)	Unknown chert	Unknown chert (heat treated)			
Test A:																						
0-0/1	2	-	-	-	-	-	1	6	26	22	13	3	1	1	-	2	-	5	1			
/2	-	-	-	-	-	-	1	1	7	7	5	2	-	-	-	-	-	-	-			
/3	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	2			
/4	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-			
0-2w/1	-	-	-	-	-	-	-	5	3	13	10	-	-	-	-	-	-	-	-			
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/2	1	-	-	1	-	-	-	1	4	-	-	-	-	-	-	-	-	-	-			
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/4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Test B:																						
0-0/1	3	-	-	1	-	-	1	6	20	10	6	3	1	-	-	4	2	1	-			
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2S-2w/1	-	-	-	-	-	-	-	1	3	-	-	1	-	-	-	-	-	-	1			
/2	-	-	-	1	-	-	-	1	2	1	-	-	-	-	-	-	-	-	1			
/3	-	-	-	-	-	-	-	4	5	-	-	-	-	-	-	-	-	-	-			
14S-10w/1	1	-	-	1	1	1	1	6	10	9	3	-	-	-	1	-	-	-	1			
/2	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-			
/3	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-			
16S-10w/1	-	-	-	1	1	2	1	3	4	5	5	-	-	-	-	-	1	-	2			
/2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2			
/3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-			
15S-12w/1	3	1	1	2	-	-	-	2	4	7	6	-	-	-	-	-	-	-	-			
22S-8w/1	1	-	-	2	1	1	1	-	4	5	1	-	-	-	-	-	1	-	-			
/2	1	-	-	-	-	-	-	-	-	2	2	1	-	-	-	-	-	-	-			
/3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
22S-10w/1	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-			
/2	-	-	1	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-			
/3	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-			
Test C:																						
0-0/1	2	-	-	4	-	-	-	7	8	18	13	-	-	-	-	-	-	-	-			
/2	1	-	-	1	-	-	-	2	11	9	3	1	-	-	-	2	1	1	-			
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/4	-	-	-	2	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-			
0-2w/1	-	-	-	-	-	-	-	1	8	3	1	-	-	-	2	-	-	-	-			
/2	1	-	-	1	-	-	-	2	6	-	-	2	1	-	-	-	1	-	-			
/3	-	-	-	2	-	2	-	9	11	8	5	-	-	-	-	1	-	1	1			
/4	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-			
/5	-	-	-	-	-	-	-	4	6	1	1	-	-	-	-	-	-	-	-			
/6	-	-	-	-	-	-	-	-	5	5	4	-	-	-	-	-	-	-	-			
Feature 1	3	-	-	1	-	-	-	1	1	-	3	2	-	-	-	-	-	-	-			
2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-			
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
4	100	8	-	8	11	3	5	9	34	34	15	4	-	8	3	23	8	4	1			
5	26	1	4	1	-	6	-	29	100	80	33	30	5	3	-	14	5	3	-			
6	107	-	7	11	-	11	17	20	67	103	41	39	2	16	-	18	6	4	1			
7	-	-	-	-	-	-	-	4	6	1	1	-	-	1	-	-	-	-	-			
8	-	-	-	-	-	-	-	-	5	5	4	-	-	-	-	-	-	-	-			
TOTAL	283	11	13	75	16	26	45	106	432	335	167	30	5	6	-	36	12	30	2			
LEVEL 1	18	1	1	20	4	5	12	31	210	166	93	14	4	4	-	24	8	19	2			
2	16	1	1	22	1	1	5	34	126	113	48	13	1	1	-	8	2	6	-			
3	9	-	-	10	-	-	6	39	88	50	23	2	-	-	-	4	2	4	1			
4	4	-	-	2	-	-	-	2	7	6	3	1	-	-	-	-	-	1	-			
5	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-			
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-			

Chipped Stone

Projectile Points. Two Early Archaic Hardin Barbed points were recovered. One was complete while the other was broken (Fig. 14a-b). A number of complete and incomplete Middle Archaic Nebo Hill points were recovered at the site (Fig. 14c-g). Two Late Archaic Gary, contracting-stemmed, points were found (Fig. 14h), as were two Manker--Kansas City Hopewell (Bell, 1976:Fig. 13c)--points. One was a large dart (Fig. 14i) and one was a small arrowhead (Fig. 14j). A side-notched dart of unknown type was also found (Fig. 14k).

Several Steed-Kisker triangular arrow points were present. Three (S-K:A) have basal and side notching (Fig. 14l) while one--from the North-Center Cut--is a tip. A fourth point has side-notches (Fig. 14m), while two (S-K:C) have basal notches and double side-notches (Fig. 14n). A final point (S-K:D), an elongated triangle (Fig. 14o), with seriated edges and side notching came from Feature 6.

Two arrowhead-size points with corner-notches (Fig. 14p-q) were found (called L-W:A). They are similar to points found in Late Woodland period sites in the Kansas City area. Also pertaining to Late Woodland period is a Scallorn (?) point (Fig. 14r).

Data on the complete points are given in Table 16. Broken projectile point tips (dart size) were also found: two from the surface, two from the North-Center Cut, one from A:0-2W/3 and one from A:0-10W/2. All but two are made of Winterset chert. Two of the tips of Winterset chert are heat-treated. Two other tips--dart or arrow--came from C:0-0/2 and A:0-14W/1.

Three, probable, mid-sections of Nebo Hill points were found. One from Feature 6, one from A:0-10W/1, and one from the surface. One is made of Winterset, one of heat-treated Westerville and one of heat-treated Spring Hill chert.

Bifaces. One complete and 14 incomplete bifaces were found. They are classified on the basis of size and gross morphology, as well as base shape. There are two basal shapes: rounded and square. Type A bifaces are large, crudely-flaked types, with round bases. They tend to be ovoid in shape (Fig. 15a). Type B are also large, but finely-chipped and with a round base and an elongated oval shape (Fig. 15b). Type C are large, crudely-chipped square-based bifaces (Fig. 15c), while Type D bifaces are thin and finely chipped with a square base (Fig. 15d). Data are presented in Table 16.

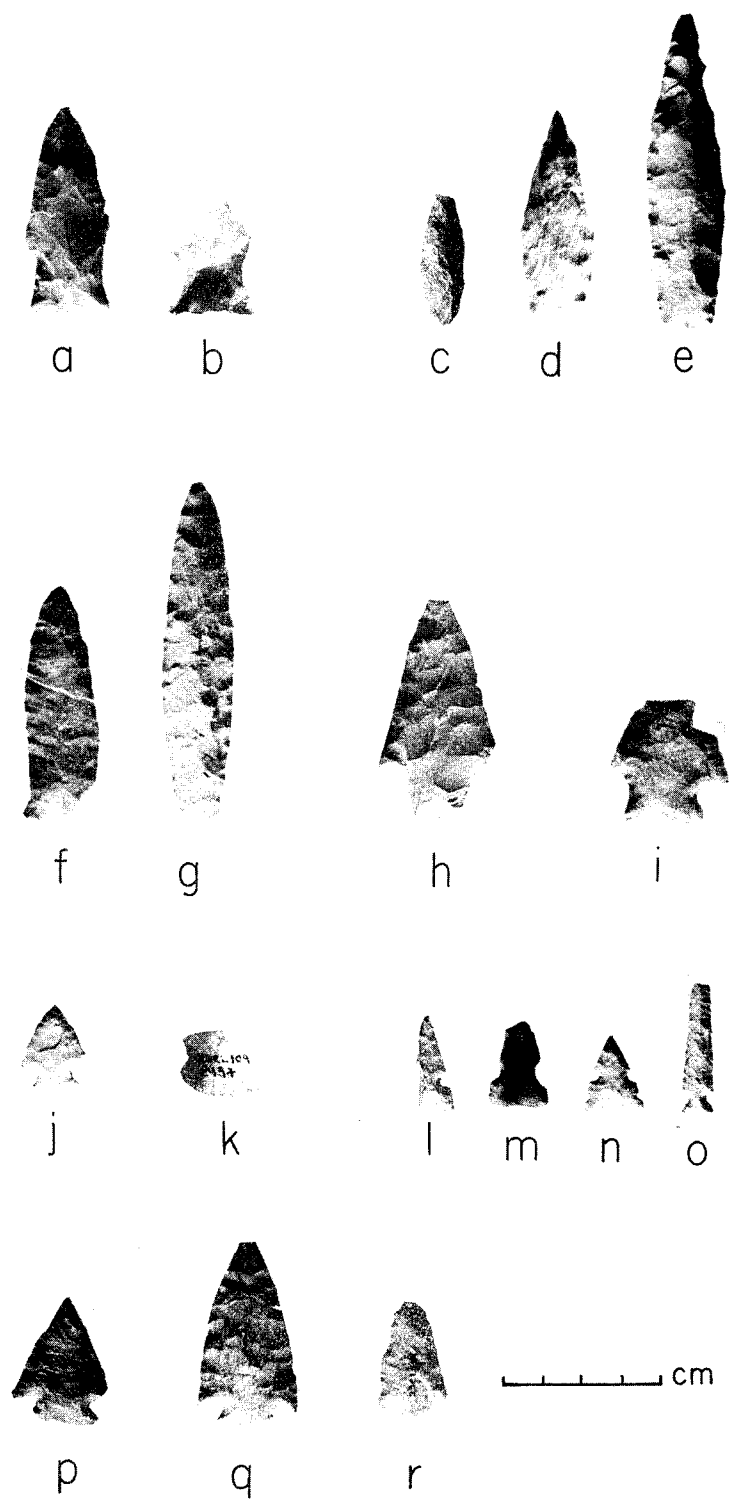


Fig. 14. Projectile points from site 23CL109.

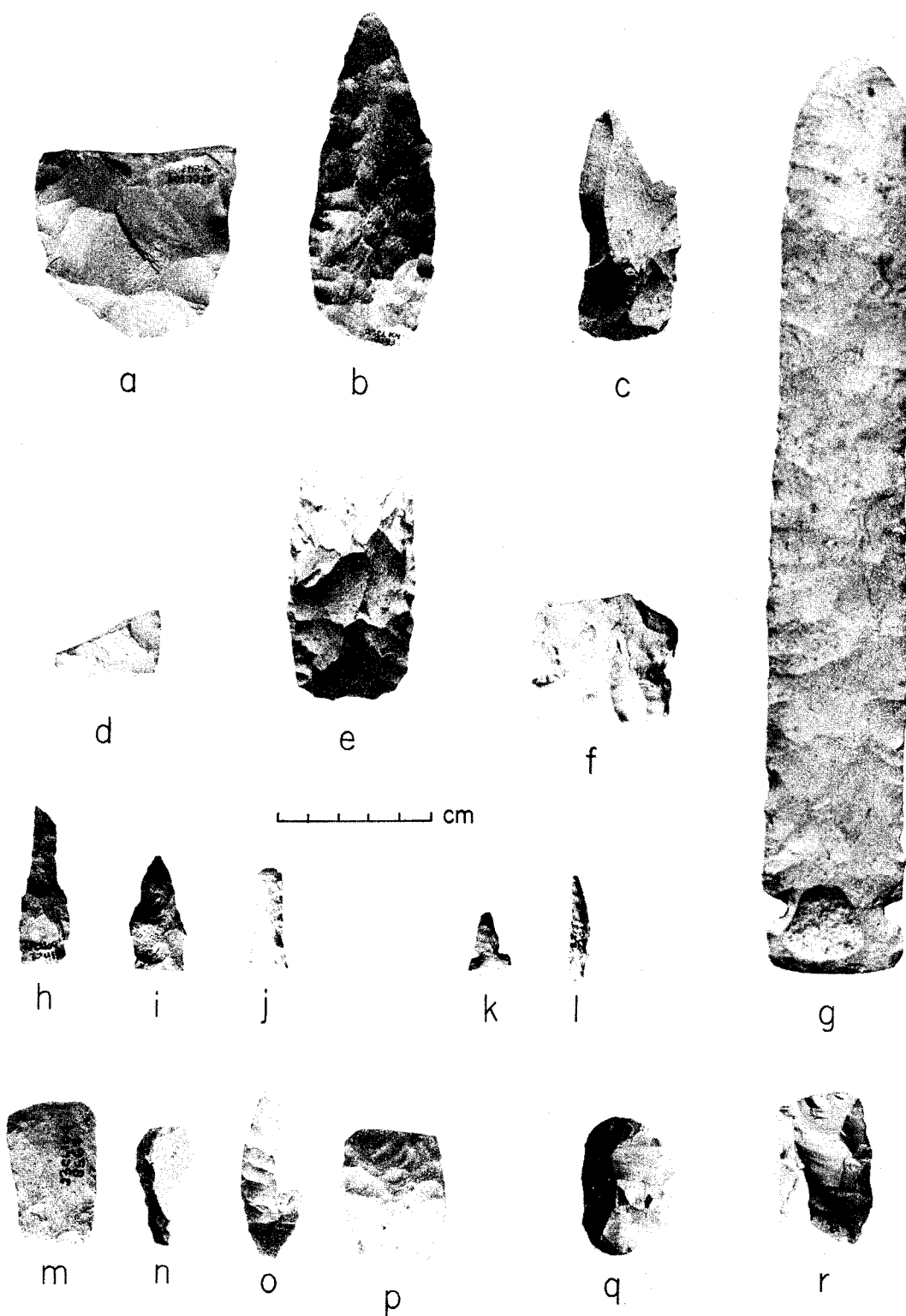


Fig. 15. Chipped stone tools from site 23CL109.

TABLE 16
Chipped Stone Tools from 23CL109

Cat. No.	Provenience	Length	Width	Thickness	Chert Type	Tool Type	Plate
Biface:							
7540	A: 0-2W/3	3.5 inc.	3.72	3.72	Westerville	A	-
-	Surface	8.05 inc.	4.45	2.45	Spring Hill	A	-
7241	North-Center Cut	5.95 inc.	4.6	1.9	Spring Hill	A	-
7243	South Cut	3.73 inc.	3.55	1.6	Westerville	A	-
7241	North-Center Cut	4.8 inc.	2.3	1.45	*Westerville	A	-
7241	North-Center Cut	5.75 inc.	6.45	2.0	Winterset	A	15a
7243	South Cut	11.0	4.1	1.12	Mottled Grey	B	15b
7241	North-Center Cut	7.16 inc.	3.14	2.0	Spring Hill?	C	15c
7241	North-Center Cut	5.25 inc.	4.57	1.27	Spring Hill	D	-
7242	South-Center Cut	2.8 inc.	4.6	1.13	*Winterset?	D	-
-	Surface	2.4 inc.	3.5	0.72	*Westerville	D	15d
7243	South Cut	4.4 inc.	3.06	0.92	*Westerville	D	-
7241	North-Center Cut	2.3 inc.	2.0	0.95	Winterset	D	-
7877	A: 0-10W/3	5.8 inc.	3.18	1.1	Westerville	D	-
End Scrapers:							
7241	North-Center Cut	4.8	3.12	1.15	*Westerville	"blocky"	-
7243	South Cut	4.55	3.1	1.72	Spring Hill	"blocky"	15q
8567	F.5	4.5	2.98	0.56	Burlington?	A	15m
8201	F.4	2.9	2.16	0.63	Burlington?	A	-
7463a	B: 0-0/1	5.4	2.14	0.85	Burlington?	B	-
7241	North-Center Cut	3.93	2.03	0.68	*Westerville	B	15n
-	Surface	1.8 inc.	1.85 inc.	0.66	Burlington	B	-
7403	C: 0-0/1	3.54	2.22	0.5	Westerville	B	-
-	Surface	3.95	2.43	0.74	*Westerville	B	-
8508	F.6	5.68	2.0	0.7	Burlington	C	15o
8507	F.6	4.4 inc.	3.33	0.93	Burlington	C	15p
7241	North-Center Cut	3.8 inc.	3.02	1.2	Westerville	C	-
Projectile Points:							
-	Surface	5.3 inc.	2.28	1.4	Spring Hill	Nebo Hill	-
-	"	5.45 inc.	2.0	1.08	Westerville	"	-
-	"	6.55 inc.	2.19	1.07	*Spring Hill	"	-
-	"	3.09 inc.	1.75	0.86	*Westerville	"	-
-	"	5.4	1.9	1.03	Spring Hill	"	-
7241	North-Center Cut	3.03 inc.	1.7	0.69	Westerville	"	-
7243	South Cut	5.5	1.98	0.89	*Spring Hill	"	-
-	Surface	1.9 inc.	2.1	0.87	Spring Hill	"	-
-	"	8.47	1.83	0.68	Westerville	"	14g
-	Surface	5.87	1.84	0.81	Winterset	"	14f
-	"	5.5 inc.	2.33	0.9	Westerville	"	-
7876	A: 0-10 W/3	7.7	2.0	1.01	Westerville	"	14e
7525	A: 0-0/4	5.13	1.98	1.04	Spring Hill	"	14d
7853	A: 0-10 W/2	3.2	1.18	0.63	Spring Hill	Nebo Hill?	14c
7242	South-Center Cut	5.13	2.2	0.8	Winterset?	Hardin Barbed	14a
-	Surface	3.3 inc.	2.03	0.84	*Burlington?	Hardin Barbed?	14b
8497	Feature 8	1.5 inc.	1.8	0.6	Unknown-pink	Side-notched	14k
7241	North-Center Cut	2.6 inc.	3.5	0.72	Spring Hill	Gary	-
7242	South-Center Cut	5.5	3.05	0.67	Winterset	Gary	14h
-	Surface	3.15 inc.	1.9	0.6	Winterset	Scallorn?	14r
7242	South-Center Cut	2.21	1.6	0.42	Westerville	Manker	14j
-	Surface	3.1 inc.	3.05	0.6	*Spring Hill	Manker	14i
8555	Feature 6	3.15 inc.	0.87	0.36	*Westerville	S-K: D	14o
8561	Feature 5	1.15 inc.	1.66	0.38	*Spring Hill	S-K: A	-
8562	Feature 5	2.47	0.85 inc.	0.35	Spring Hill	S-K: A	14l
-	"	1.8	1.43	0.33	*Westerville	S-K: A	-
-	Surface	2.2 inc.	1.54	0.36	*Westerville	S-K: B	14m
7497	C: 0-0/2	1.47 inc.	1.2	0.3	Westerville	S-K: C	-
-	Surface	1.95	1.5	0.3	Westerville	S-K: C	14n
7968	A: 85-18 W/1	3.14	2.5	0.47	Winterset	L-W: A	14p
-	Surface	4.6	2.51	0.58	Winterset	L-W: A	14q

* heat treated

inc. = incomplete

Five incomplete bifaces, which are unclassifiable, came from: North-Center Cut (2), South-Center Cut, Surface and B:0-0/1.

Gouge. Two Clear Fork Gouges were found. One from the North-Center Cut is of Spring Hill chert and is 7.97 cm long, 3.85 cm wide and 1.76 cm thick. The other (Fig. 15e) is 8.6 cm long, 3.05 cm wide and 1.62 cm thick. It is of Westerville chert and came from A:0-2W/2.

Hafted Side-notched Blades. One, broken, large, side-notched blade was found in B:14S-10W/1 (Fig. 15f). It is made of heat-treated Burlington chert and has lateral and basal grinding. It is 4.2 cm long (incomplete), 4.68 cm wide and 1.4 cm thick. Shippee (1964:30-32) reports a number of blades of this type in the Kansas City area, and they are thought to be Archaic in period. Mrs. Orr has a complete specimen in her collection. It is of heat-treated Burlington chert, and has basal and lateral grinding (Fig. 15g). It is 27.4 cm long, 4.6 cm wide and 1.36 cm thick.

Drills. One rectangular-based drill (Fig. 15h)--with broken tip--came from the North-Center Cut. It is made of Spring Hill chert and is 5.1 cm (incomplete) long, 1.72 cm wide and 0.82 cm thick. The shaft is 0.6 by 0.8 cm thick and is 2.7 cm long (incomplete). It may be a reworked Nebo Hill point. Another drill, definitely a reworked Nebo Hill point (Fig. 15i), came from B:22S-8W/1. It is made of Spring Hill chert and is 3.79 cm long, 1.9 cm wide, 1.05 cm thick. The tapering shaft is 1.4 cm long. The base of a third drill came from the surface. It is made of Burlington chert and is 3.4 cm long (incomplete), 1.4 cm wide (at the base) and 0.71 cm wide. The shaft is 0.97 by 0.71 cm thick. The base flares slightly (Fig. 15j) and the drill is probably a Nebo Hill artifact.

Also probably Nebo Hill is a shaft mid-section, from A:8S-18W/1, which is 0.65 by 0.95 cm thick, 3.27 cm long and made of Burlington chert. Two drill tips, made of Westerville chert, came from B:0-0/1 and Feature 3. The first is 2.65 cm long and the shaft is 0.67 by 0.92 cm thick. The second is 2.5 cm long and the shaft is 0.54 by 0.8 cm thick.

Two, possible, Steed-Kisker drills are present. One is a reworked side- and basally-notched point made of Burlington chert. It is 2.02 cm long, 1.42 cm wide and 0.3 cm thick (Fig. 15k), and came from the surface. The second is a possible micro-drill bit (Fig. 15l) made of Westerville chert. It is 3.28 cm long, 0.67 cm wide, 0.52 cm thick and came from Feature 4.

End Scrapers. A number of end scrapers were found. Ten resemble those of the Steed-Kisker culture and probably are of that affiliation. Three are broken and three are complete. Type A is rectangular in shape (Fig. 15m), type B has a tapering base (Fig. 15n) while type C end scrapers are made on elongated plano-convex flakes (Fig. 15o-p).

Two other end scrapers are what Bell (1976:35) calls "blocky" scrapers, and are Kansas City Hopewell types (Fig. 15q).

Table 16 gives all provenience and other data on these tools.

Side Scraper. One side scraper made on a rectangular flake (Fig. 15r), lacking a bulb of percussion, was found in A:0-16W/1. It is made of Westerville chert and is 5.07 cm long, 3.32 cm wide and 0.88 cm thick.

Core. One core from C:0-2W/2 was found at the site. It is made of Westerville chert and is 5.3 cm long, 5.1 cm wide and 2.93 cm thick.

Worked Chert. Twenty-nine irregularly-shaped flakes showed evidence of use-induced retouch. Eight were made of Westerville chert (three heated). They came from: North-Center Cut (2), Feature 5 (3), A:0-12W/1 (1), A:D-14W/1 (1), and B:15S-12W/1 (1).

Eight were made of Spring Hill chert and came from: South-Center Cut (1), C:0-0/1 (2), /2 (1), /3 (1), A:0-10W/3 (1), A:0-16W/3 (1), and A:22N-18W/1 (1). Ten, made of Winterset chert, came from: Surface (2), Feature 5 (2), South Cut (2), South-Center Cut (1), B:0-0/1 (2), and B:14S-10W/1 (1). Four, of Burlington Chert, came from: Feature 4 (1), A:0-0/1 (1), /2 (1), and A:0-12W/1 (1). One, from Feature 5, was made of a whitish chert with grey pin-head spots.

Chert Debris. Table 15 shows the distribution of chert chip debris by provenience and chert type: 5860 grams were recovered. The exposed Kansas City area cherts are all Pennsylvanian in age. The youngest, Spring Hill chert from the Lansing Group, consists of 3218 gms. (54.9%). Next is Westerville chert of the Linn sub-group of the Kansas City Group, which consists of 1841 gms (31.4%). Winterset chert of the Bronson sub-group of the Kansas City group consists of 588 gms (10%), and Burlington chert, of Mississippian age, consists of 29 gms (0.5%).

Two cherts of unknown source, possibly from glacial till, are present. One is a pale white chert with pin spots of grey--there were 138 gms (2%)--while the last was light grey to pale pink with fine mottling--39 gms (0.6%). Also found were 7 gms of Novaculite (0.1%).

Whether it was imported from Illinois or Arkansas, the most common sources, is unknown.

If debris is a reflection of chert-resource preference, then Spring Hill and Westerville cherts were the most preferred (86.3%). It is possible, however, that they were the most accessible in the upland Smithville area because they are the most recent Pennsylvanian members and would be more likely to outcrop in the uplands than the lower, older, Winterset.

One intriguing point is the similarity in percentages of local cherts used at this multi-component site and the Yeo site (23CL199), a single-component late Kansas City Hopewell occupation area. Spring Hill was used 54.9 (Hulse) to 54.4% (Yeo), Westerville was used 31.4 (Hulse) to 31.2% (Yeo) while Winterset was used 10% (Hulse) to 13.2% (Yeo). One possible hypothesis is that all the chert debris relates to a late Kansas City Hopewell occupation with no significant debris from the Archaic periods, Late Woodland or Steed-Kisker. Needless to say, this is hard to believe. It is most likely they were using cherts most easily obtained during all periods.

Ground Stone

Hammerstones. Hammerstones with ten different shapes are present. Type A (Fig. 16a) is a river cobble which is rectanguloid in shape and flat in cross-section. Type B (Fig. 16b) is a river cobble which is oval in shape and flat in cross-section. Type C (Fig. 16c) is a river cobble which is round in shape and flat in cross-section. Type D (Fig. 16d) is a river cobble which is an elongated ovoid and round in cross-section. Type E (Fig. 16e) is a river cobble which is ovoid in shape and round in cross-section. Type F (Fig. 16f) is a river cobble which is spheroid in shape. Type G (Fig. 16g) is a river cobble which is pear shaped. Type H (Fig. 16h) is a river cobble which is rectanguloid in shape, but squarish in cross-section. Type I (Fig. 16i) includes a series of irregularly-shaped hunks of glacial till. Type J (Fig. 16j) is a river cobble which is trianguloid in shape and cross-section. Table 17 gives all the data on these tools. Table 18 gives data on hammerstone fragments too small to classify.

Hammerstones--pitted. Hammerstones with battering on the edges, and a shallow pit or depression on a smooth side as if used as an anvil. There are two types: Type A (Fig. 17a)--river cobbles that are ovoid in shape; Type B (Fig. 17b)--flat sections of larger rocks, probably glacial till. Table 18 presents data on the pitted hammerstones.

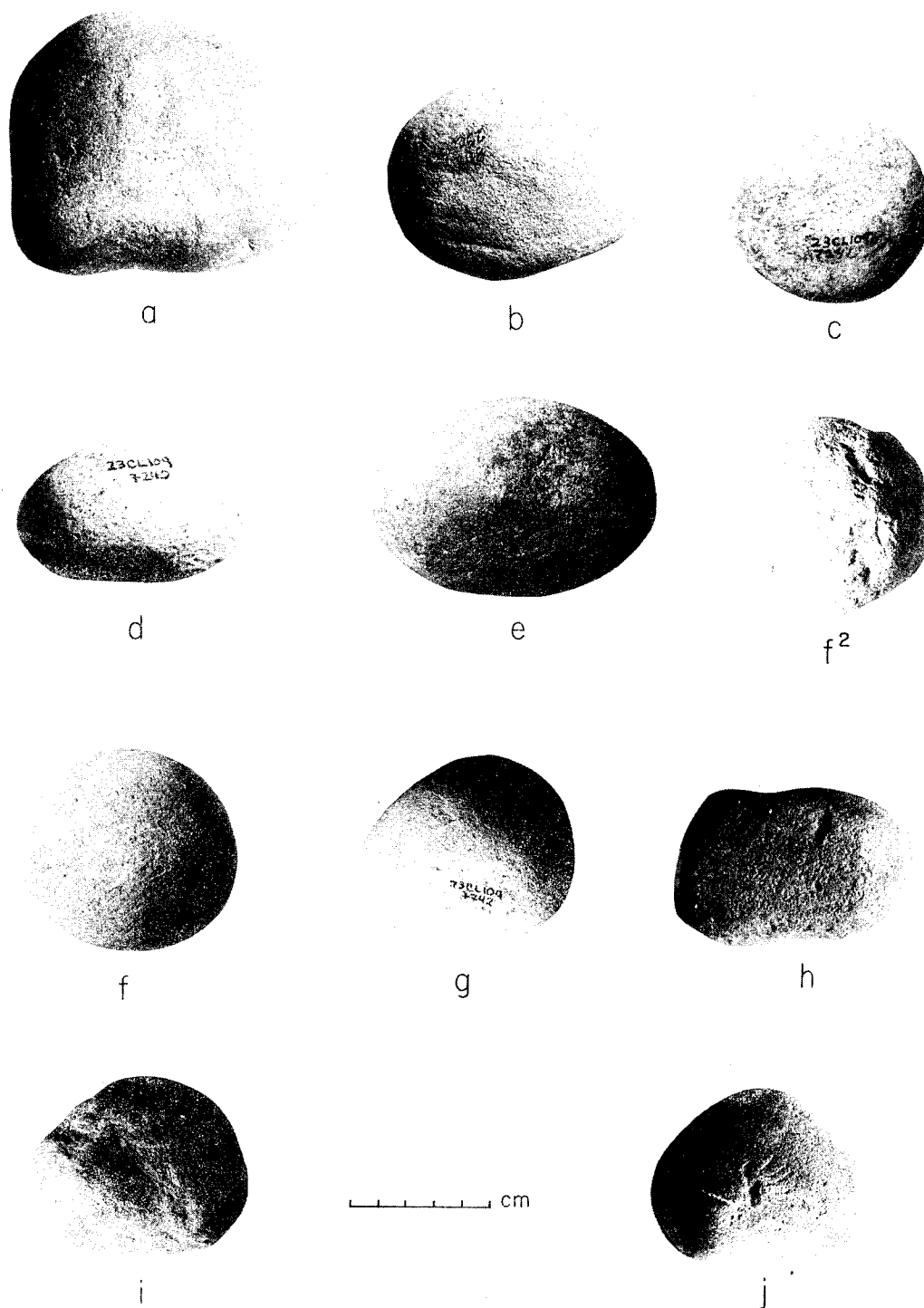


Fig. 16. Hammerstones from site 23CL109.

TABLE 17
 Hammerstones and other ground stone tools from 23CL109

Cat. No.	Provenience	Length	Width	Thickness	Rock Type	Tool Type	Weight	Plate
7240	North Cut	11.1	9.1	3.9	Quartzite	A	645	16a
7240	North Cut	10.1	8.0	3.6	"	A	493	-
7963	B: 165-10W/1	5.6	4.6	2.6	"	B	110	-
8259	B: 225-10W/2	6.7	5.9	3.0	"	B	133	-
7242	South-Center Cut	11.7	9.9	5.6	"	B	839	-
8118	A: 85-18W/2	9.2	3.5	2.0	Rhyolite	B	341	-
7241	North-Center Cut	10.0	7.3	3.4	Quartzite	B	337	16b
7243	South Cut	11.4	8.3	3.3	"	B	508	-
7241	North-Center Cut	8.4	6.7	4.1	"	B	153	-
8181	B: 125-10W/1	6.8	5.9	4.0	"	C	192	-
8496	Feature 6	6.5	5.8	3.4	"	C	176	-
7241	North-Center Cut	7.4	6.1	2.9	"	C	175	-
7241	North-Center Cut	7.4	6.7	2.4	"	C	164	16c
8091	B: 165-10W/2	5.2	4.4	2.6	"	C	182	-
7243	South Cut	5.4	4.4	2.0	"	C	73	-
7242	South-Center Cut	7.1	5.8	3.2	"	C	191	-
7242	South-Center Cut	6.8	5.8	3.2	"	C	178	-
7243	South Cut	5.3	4.8	2.3	"	C	90	-
7242	South-Center Cut	6.0	5.1	3.1	"	C	142	-
7243	B: 0N-2W/1	7.7	6.3	3.5	"	C	232	-
8230	A: 20N-8W/1	7.6	5.4	4.9	"	D	290	-
7240	North Cut	8.1	5.9	3.9	"	D	444	16d
7240	North Cut	7.3	3.9	2.9	"	D	316	-
7901	A: 0N-20W/2	7.7	5.0	3.5	Rhyolite	D	147	-
8202	Feature 4	8.0	4.5	3.3	Quartzite	D	170	-
7240	North Cut	8.3	5.2	3.2	"	D	240	-
8568	Feature 5	11.0	5.0	2.7	"	D	444	-
8059	A: 85-18W/1	7.0	4.0	3.1	"	D	314	-
7243	South Cut	8.7	5.2	3.0	"	D	187	-
7240	North Cut	8.4	5.3	3.9	Basalt	D	262	-
7240	North Cut	10.1	6.2	4.2	Quartzite	D	358	-
7240	North Cut	8.8	5.5	3.5	"	D	235	-
7243	A: 0N-2W/1	8.4	5.0	3.2	"	D	178	-
8118	A: 85-16W/2	7.1	4.3	3.1	"	D	130	-
7241	North-Center Cut	7.0	4.4	4.5	Rhyolite	D	227	-
7241	North-Center Cut	9.9	5.3	4.3	"	D	172	-
7242	South-Center Cut	6.1	4.1	3.6	Quartzite	D	127	-
8181	B: 125-10W/1	5.4	3.5	2.5	"	D	321	-
7241	North-Center Cut	5.5	4.0	3.1	"	D	96	-
8709	Feature 4	9.4	7.1	6.3	Rhyolite	E	591	-
7240	North Cut	9.2	6.9	4.9	Quartzite	E	388	-
7242	South-Center Cut	10.1	8.2	5.8	"	E	649	-
7243	South Cut	12.1	7.4	7.2	Rhyolite	E	931	-
7243	South Cut	9.7	7.2	5.5	Quartzite	E	485	-
7242	South-Center Cut	8.8	6.3	4.3	"	E	340	-
7241	North-Center Cut	10.1	6.5	5.8	"	E	444	16e
7243	South Cut	9.3	6.8	6.0	"	E	536	-
8569	Feature 5	11.0	11.2	6.5	Rhyolite	F	1813	-
8568	Feature 5	14.0	11.4	6.3	Quartzite	F	1031	-
8175	A: 22N-8W/1	6.0	5.7	4.6	Quartzite	F	217	-
7241	North-Center Cut	6.3	5.2	4.6	"	F	217	-
7241	North-Center Cut	6.0	5.2	4.0	"	F	182	-
7240	North Cut	7.5	6.2	4.2	"	F	303	-
8163	Feature 4	8.0	7.2	5.5	"	F	438	16f
7240	North Cut	7.5	7.5	5.1	"	F	489	-
8709	Feature 4	6.7	6.4	5.6	Chert	F2	311	16f2
7930	B: 145-10W/1	6.2	5.6	4.2	"	F2	199	-
7243	C: 0N-2W/1	8.2	7.2	5.2	"	F2	294	-
7243	South Cut	6.7	5.6	5.5	"	G	222	-
7941	B: 145-10W/1	7.3	5.9	5.3	Rhyolite	G	314	-
8502	Feature 6	4.8	4.9	4.8	"	G	205	-
7242	South-Center Cut	7.4	6.3	4.5	Quartzite	G	226	16g
7243	South Cut	6.9	6.1	4.1	"	G	225	-
7243	South Cut	7.4	4.4	4.4	"	G	295	-
7957	B: 165-10W/1	9.0	5.7	4.9	"	H	481	-
7241	B: 0N-2W/2	6.8	5.1	2.8	"	H	133	-
7464	B: 0N-0W/2	7.3	5.7	3.8	"	H	220	-
7242	South-Center Cut	8.2	6.0	4.3	"	H	322	-
8065	B: 165-10W/1	5.1	3.3	3.3	Rhyolite	H	190	-
7242	South-Center Cut	8.8	4.9	2.5	"	H	157	16h
8568	Feature 5	6.4	5.0	4.0	"	H	181	-
7241	North-Center Cut	7.5	5.5	4.0	Quartzite	H	298	-
7242	South-Center Cut	6.9	4.2	4.1	"	H	171	-
7242	South-Center Cut	6.7	5.2	3.4	"	H	179	-
8157	B: 145-10W/1	5.1	1.8	4.8	"	H	361	-
8157	B: 145-10W/1	5.0	4.9	2.9	"	H	86	-
8044	A: 85-18W/2	8.0	5.1	4.0	Schist	I	246	-
8010	B: 165-10W/1	7.4	7.0	5.6	Quartzite	I	405	-
7622	B: 25-2W/1	5.5	4.8	3.5	"	I	120	-
8568	Feature 5	8.0	7.1	4.6	Rhyolite	I	608	-
7766	A: 25-16W/1	8.9	7.8	6.4	"	I	365	-
7241	North-Center Cut	8.2	6.5	4.0	Quartzite	I	319	-
7744	A: 0N-18W/1	7.0	5.8	5.3	"	I	341	-
8181	B: 125-10W/1	5.2	3.5	2.8	Rhyolite	I	80	-
8778	C: 0N-2W/2	6.2	8.0	3.9	Quartzite	I	175	-
7242	South-Center Cut	4.6	4.2	3.3	"	I	70	-
7242	South-Center Cut	8.0	6.7	4.1	"	I	244	-
7817	A: 25-16W/1	9.1	9.0	5.6	"	I	361	-
7241	North-Center Cut	5.7	5.3	4.8	"	I	235	-
7241	North-Center Cut	8.9	6.7	5.6	"	I	479	-
7242	South-Center Cut	8.0	7.2	4.0	"	I	361	-
8230	A: 20N-18W/1	7.3	5.7	4.8	"	I	259	-
7242	South-Center Cut	6.3	6.3	4.5	"	I	305	-
7511	Surface	7.6	5.5	5.2	"	I	325	-
8065	B: 165-10W/1	5.9	5.3	4.2	"	I	173	-
7622	B: 25-1W/1	4.3	4.3	3.3	"	I	108	-
8010	B: 165-10W/1	5.5	4.9	3.1	"	I	130	-
7241	North-Center Cut	7.4	6.8	4.8	Rhyolite	I	385	-
7769	A: 25-16W/1	6.9	5.5	4.7	"	I	216	-
7720	C: 0N-25/2	6.2	5.1	5.4	Rhyolite	I	219	-
8118	A: 85-18W/2	6.2	6.2	3.8	"	I	256	-
8502	Feature 6	6.8	6.7	4.5	Basalt	I	317	-
8568	Feature 5	8.7	8.4	4.7	Quartzite	I	546	-
8059	A: 85-18W/1	10.1	7.9	7.9	"	I	1140	-
7755	A: 0N-16W/1	7.0	6.0	4.6	"	I	296	-
7481	A: 0N-0W/1	7.7	6.1	5.0	"	I	342	16i
7449	B: 0-0/1	8.7	4.7	5.0	"	I	435	-
7242	South-Center Cut	11.0	6.7	4.4	Rhyolite	I	408	-
7476	C: 0N-2W/2	8.1	6.0	4.9	Quartzite	I	410	-
7496	Feature 5	9.6	8.4	7.0	"	I	942	-
7615	A: 0-18W/2	15.5	12.8	14.5	"	I	1876	-
7695	B: 0-0/2	7.1	6.1	4.9	Rhyolite	I	259	-
7242	Surface	7.7	5.0	4.0	Quartzite	I	232	-
7242	South-Center Cut	8.5	5.6	4.3	Basalt	J	308	16j
7241	South-Center Cut	7.5	5.1	7.3	Rhyolite	J	209	-

Fitted Hammerstones:

Cat. No.	Provenience	Length	Width	Thickness	Rock Type	Tool Type	Weight	Plate
7241	North-Center Cut	11.2	9.2	5.7	Quartzite	A	679	17a
7243	South Cut	9.0	7.6	5.8	"	A	485	-
7240	North Cut	11.9	9.8	5.9	Basalt	A	896	-
7410C	C: 0N-0/2	10.8	9.1	7.1	Gabbro	A	1140	-
7241	North-Center Cut	12.7	9.8	8.0	Quartzite	B	1706	17b
7242	South-Center Cut	14.9	10.5	7.9	"	B	1555	-
9240	B: 225-8W/2	9.0	8.3	5.6	"	B	638	-
-	Surface	9.2	8.6	5.7	"	B	648	-

Manos:

Cat. No.	Provenience	Length	Width	Thickness	Rock Type	Tool Type	Weight	Plate
7240	North Cut	15.6	11.1	3.7	Red Quartzite	A	1291	17c
7242	South-Center Cut	12.8	9.8	4.1	"	A	961	-
7575	Surface	13.8	10.65	4.1	"	A	1090	-
7240	North Cut	9.5 inc.	10.55	6.0	"	A	686	-
8118	A: 85-18W/2	7.1	6.0	2.11	Sandstone	B	123	17d
7766	A: 0N-20W/1	5.6	2.8	2.8	Rhyolite	B	144	-
7241	North-Center Cut	7.9	6.8	2.7	Quartzite	B	195	-
7410A	C: 0-0/1	8.4	5.3	4.3	Rhyolite	C	302	-
7242	South-Center Cut	9.7	7.3	4.8	Quartzite	C	487	17e
7241	North-Center Cut	9.0	6.2	4.2	Rhyolite	C	331	-
7622	B: 25-2W/1	10.3	7.8	5.4	Quartzite	C	530	-
7241	North-Center Cut	10.4	7.1	5.0	Rhyolite	C	440	-
7240	North Cut	14.4	10.0	7.1	Quartzite	C	1422	-
7242	South-Center Cut	7.9	6.3	6.3	Granite	D	563	-
8502	Feature 6	9.2	7.9	5.9	Quartzite	D	574	-
7242	South-Center Cut	11.5	10.8	7.4	"	D	1307	17f
7241	North-Center Cut	7.9	3.8	4.7	Quartzite	E	390	-
7241	North-Center Cut	9.0	7.4	6.2	Granite	E	638	-
7241	North-Center Cut	9.4	6.1	5.3	Metaconglomerate	E	426	-
8568	Feature 5	11.4	7.5	6.0	Sandstone	E	795	17g
7240	North Cut	9.3	5.2	4.8	Rhyolite	E	421	-
7932	B: 145-10W/1	7.7	7.1	7.1	Quartzite	F	939	-
7606	B: 25-2W/1	13.2	10.0	6.9	"	F	1207	-
7240	North Cut	7.7	7.2	4.2	Gabbro	G	35	-
7240	North Cut	6.9	7.9	5.3	Granite	G	438	-
7241	North-Center Cut	13.7	12.2	7.3	Rhyolite	G	1840	-
7243	South Cut	13.2	11.8	6.8	Rhyolite	G	1386	-
7243	South Cut	8.6	8.0	6.0	"	G	316	17h
7243	South Cut	7.7	7.5	5.4	"	G	377	-

TABLE 18
Hammerstone Fragments from 23CL109

Cat. No.	Provenience	Rock Type	Weight
7963	B: 16S-10W/1	Basalt	202
7644	C: 0-2W/3	"	142
8568	Feature 5	"	539
7449	B: 0-0/1	"	117
8209	Feature 4	"	100
8230	A: 20N-18W/1	"	56
7756	A: 0-16W/1	"	132
7874	A: 0-16W/1	"	923
TOTAL BASALT			2212 gms
7767	A: 2S-16W/1	Granite	474
8044	A: 8S-18W/2	"	78
7967	A: 8S-18W/1	"	159
7725	C: 0-2W/4	"	135
8181	B: 12S-10W/1	"	43
7706	A: 0-0/2	"	15
7690	B: 0-0/2	"	35
TOTAL GRANITE			939 gms
7822	A: 0-20W/1	Schist	35
7941	B: 14S-10W/1	"	63
7920	A: 0-10W/3	"	187
TOTAL SCHIST			285 gms
7715	A: 0-14W/1	Gneiss	123
7661	A: 0-10W/1	"	117
TOTAL GNEISS			440 gms
8065	B: 16S-10W/1	Diorite	98
8055	B: 0-2W/3	"	25
7655	A: 0-2W/2	"	35
7640	A: 0-18W/1	"	417
8505	Feature 6	"	539
8142	B: 15S-12W/1	"	39
7678	C: 0-2W/2	"	53
7807	A: 2S-16W/1	"	1052
TOTAL DIORITE			2459 gms
8568	Feature 5	Gabbro	105
7478	C: 0-2W/2	"	214
TOTAL GABBRO			319 gms
7646	C: 0-2W/3	Chert	130
TOTAL CHERT			130 gms
7328	C: 0-0/3	Rhyolite	298
7908	A: 2S-16W/2	"	141
8126	B: 15S-12W/1	"	592
7920	A: 0-10W/3	"	76
7920	A: 0-10W/3	"	173
7434	C: 0-2W/3	"	216
7436	C: 0-2W/3	"	493
7805	A: 0-20W/2	"	58
8230	A: 20N-18W/1	"	96
8097	B: 16S-10W/3	"	185
7646	C: 0-2W/3	"	29
7744	A: 0-18W/1	"	67
8230	A: 20N-18W/1	"	44
8065	B: 16S-10W/1	"	36
7418a	C: 0-0/2	"	82
8495	Feature 7	"	156
8240	B: 22S-8W/2	"	69
8157	B: 15S-12W/1	"	44
7738	A: 0-0/1	"	85
8065	B: 16S-10W/1	"	145
7796	A: 0-10W/1	"	79
8568	Feature 5	"	18
7616	A: 0-12W/3	"	127
7418	C: 0-0/2	"	43
7920	A: 0-10W/3	"	37
8001	B: 14S-10W/1	"	110
7988	A: 0-20W/2	"	117
8056	B: 0-2W/3	"	34
7882	A: 0-10W/3	"	240
7901	A: 0-20W/2	"	66
7901	A: 0-20W/2	"	19
7418c	C: 0-0/2	"	8
8019	B: 16S-10W/1	"	113
7920	A: 0-10W/3	"	25
7920	A: 0-10W/3	"	26
8569	Feature 5	"	47
8240	B: 22S-8W/2	"	10
8568	Feature 5	"	43
8568	Feature 5	"	14
7796	A: 0-10W/1	"	38
7941	B: 14S-10W/1	"	25
8026	A: 8S-18W/1	"	18
7901	A: 0-20W/2	"	22
TOTAL RHYOLITE			4384 gms
7764	A: 0-20W/1	Quartzite	252
8568	Feature 5	"	14
7796	A: 0-10W/1	"	162
8010	B: 16S-10W/1	"	53
7764	A: 0-20W/1	"	406
8044	A: 8S-18W/2	"	368
7920	A: 0-10W/3	"	95
7920	A: 0-10W/3	"	99
7805	A: 0-20W/2	"	109
7621	A: 0-12W/3	"	93
7615	A: 0-18W/2	"	189
7738	A: 0-0/1	"	51
7669	A: 0-18W/1	"	22
8080	B: 14S-10W/1	"	54
7901	A: 0-20W/2	"	22
7573	A: 0-2W/4	"	98
7401	C: 0-0/1	"	7
7621	A: 0-12W/3	"	282
7583	A: 0-12W/2	"	36
7655	A: 0-2W/2	"	41
7920	A: 0-10W/3	"	64
7657	A: 0-14W/2	"	117
7730	A: 0-0/2	"	46
7600	A: 0-12W/3	"	103
7640	A: 0-18W/1	"	19
7583	A: 0-12W/2	"	33

TABLE 38
Hammerstone Fragments from 23CL109
-continued-

Cat. No.	Provenience	Rock Type	Weight
7738	A: 0-0/1	Quartzite	27
7718	C: 0-0/4	"	22
7716	A: 0-14W/1	"	17
7640	A: 0-18W/1	"	58
7920	A: 0-10W/3	"	223
7967	A: 8S-18W/1	"	65
7674	A: 0-18W/1	"	325
7600	A: 0-12W/3	"	341
7661	A: 0-10W/1	"	7
7655	A: 0-2W/2	"	54
7441	B: 0-0/1	"	96
8126	B: 15S-12W/1	"	124
7698	C: 0-0/4	"	87
8126	B: 15S-12W/1	"	930
7741	A: 0-18W/1	"	77
7941	B: 14S-10W/1	"	88
7920	A: 0-10W/3	"	29
7796	A: 0-10W/1	"	245
7901	A: 0-20W/2	"	34
7647	A: 2S-16W/1	"	98
7756	A: 0-16W/1	"	144
7583	A: 0-2W/3	"	309
7578	A: 0-12/2	"	219
7473	C: 0-0/2	"	248
7764	A: 0-20W/1	"	121
7908	A: 2S-16W/2	"	90
8568	Feature 5	"	53
7716	A: 0-14W/1	"	77
7725	C: 0-2W/4	"	135
7738	A: 0-0/1	"	221
7640	A: 0-18W/1	"	188
7669	A: 0-18W/1	"	55
7640	A: 0-18W/1	"	128
7655	A: 0-2W/2	"	138
7932	B: 14S-10W/1	"	78
8196	A: 22N-18W/1	"	19
8568	Feature 5	"	12
7716	A: 0-14W/1	"	82
7544	A: 0-2W/1	"	68
8569	Feature 5	"	41
7678	C: 0-2W/2	"	141
7678	C: 0-2W/2	"	146
7920	A: 0-10W/3	"	148
7901	A: 0-20W/2	"	12
7901	A: 0-20W/2	"	5
7716	A: 0-14W/1	"	209
7600	A: 0-12W/3	"	97
7436	C: 0-2W/3	"	220
7941	B: 14S-10W/1	"	68
8044	A: 8S-18W/2	"	92
7544	A: 0-2W/1	"	186
7655	A: 0-2W/2	"	146
7920	A: 0-10W/3	"	19
7640	A: 0-18W/1	"	100
8240	B: 22S-8W/2	"	57
7913	A: 2S-16W/3	"	12
7738	A: 0-0/1	"	21
7583	A: 0-12W/2	"	180
7730	A: 0-0/2	"	153
7436	C: 0-2W/2	"	30
7730	A: 0-0/2	"	127
7920	A: 0-10W/3	"	11
8251	B: 22S-8W/3	"	98
7669	A: 0-18W/1	"	90
7690	B: 0-0/2	"	184
8054	B: 16S-10W/3	"	171
7678	C: 0-2W/2	"	15
7738	A: 0-0/1	"	48
8230	A: 20N-18W/1	"	69
8196	A: 22N-18W/1	"	219
7506	A: 0-2W/1	"	109
8056	B: 0-2W/3	"	99
7410-B	C: 0-0/1	"	71
8126	B: 15S-12W/1	"	108
8196	A: 22N-18W/1	"	78
7600	A: 0-12W/3	"	242
7901	A: 0-20W/2	"	21
7425	B: 0-2W/1	"	35
7506	A: 0-2W/1	"	27
7920	A: 0-10W/3	"	11
7796	A: 0-10W/1	"	21
7490	C: 0-0/3	"	111
7661	A: 0-10W/1	"	130
7425	B: 0-2W/1	"	32
7920	A: 0-10W/3	"	24
7506	A: 0-2W/1	"	37
8108	B: 14S-10W/3	"	23
7524	C: 0-2W/5	"	77
7473	C: 0-0/2	"	10
7920	A: 0-10W/3	"	12
7521	C: 0-2W/6	"	138
8230	A: 20N-18W/1	"	139
8502	Feature 6	"	130
7868	A: 2S-16W/2	"	11
8160	Feature 4	"	172
8181	B: 12S-10W/1	"	470
8108	B: 14S-10W/3	"	74
8568	Feature 5	"	124
7654	A: 0-2W/2	"	20
7243	South cut	"	53
7240	North cut	"	185
8196	A: 22N-18W/1	"	61
8126	B: 15S-12W/1	"	62
7963	B: 16S-10W/1	"	233
8142	B: 15S-12W/1	"	301
7920	A: 0-10W/3	"	76
7920	A: 0-10W/3	"	73
8230	A: 20N-18W/1	"	74
8505	Feature 6	"	273
7882	A: 0-10W/3	"	247
7865	A: 2S-16W/2	"	218
8056	B: 0-2W/3	"	755
7932	B: 14S-10W/1	"	360
7738	A: 0-0/1	"	92
8568	Feature 5	"	267
7537	Surface	"	172
7425	B: 0-2W/1	"	23
7517	B: 0-0/3	"	13
7464	B: 0-0/1	"	4
7506	A: 0-2W/1	"	11
7436	C: 0-2W/3	"	49
7464	B: 0-0/1	"	71

TOTAL QUARTZITE 17,270 gms.

Manos. There are seven different types of manos from the site. Type A is a rectangular, flat mano (Fig. 17c), made from red quartzite, and deliberately formed. Shippee (1964:22-23) reports this style as characteristic of the Nebo Hill complex. Type A manos have one flat grinding surface. Type B is an ovoid, flat, river cobble with one grinding surface (Fig. 17d). Type C, made from a river cobble, is ovoid in shape, but round in cross-section, with one flat grinding surface (Fig. 17e). Type D is spheroid in shape with a flat grinding surface (Fig. 17f) and made from a river cobble. Type E is rectangular in shape and squarish in cross-section (Fig. 17g), made of blocks of stone, perhaps glacial till. One or two grinding surfaces are present. Type F is an irregularly-shaped hunk of glacial till, with a grinding surface (Fig. 17h). Type G is a river cobble, which is trianguloid in shape and cross-section (Fig. 17i).

Table 18 presents data on the manos.

Metate. One shaped and complete metate was found. It is rectangular with a flat surface, which originally was ground smooth, but later re-sharpened by pecking (Fig. 18a). It is 39 cm long, 34 cm wide and about 7 cm thick. It was found on the surface, and is thought to be associated with the Nebo Hill complex and used with Type A manos which fit it perfectly.

Two, flat, fragments of red quartzite, which were once metates were found in the North-Center Cut and in Feature 5.

Also found was a river cobble of Rhyolite, which has a concave grinding surface (Fig. 18b). It is 14.7 cm long, 10.82 cm wide and 6.4 cm thick (1466 gms), and came from A:0-20W/1.

Anvils. Three large slabs of stone with pitted flat surfaces--presumably from use as nutcrackers were found. Three are roughly rectangular in shape, one is oval. The oval specimen (Fig. 18c) is 32 cm long, 21 cm wide, 6 cm thick, and was made of limestone from Feature 6. The rectangular ones (Fig. 18d) were made of red quartzite (2) or limestone, were 30, 25, and 36 cm long, 19, 14, and 23 cm wide, 7.5, 3, and 12 cm thick, and came from Feature 6, the surface and A:20N-18W/1, respectively.

Ground Limestone. Four hunks of limestone, showing use grinding similar to that of a mano, were found in Feature 5, South-Center Cut, A:2S-16W/3 and on the surface.

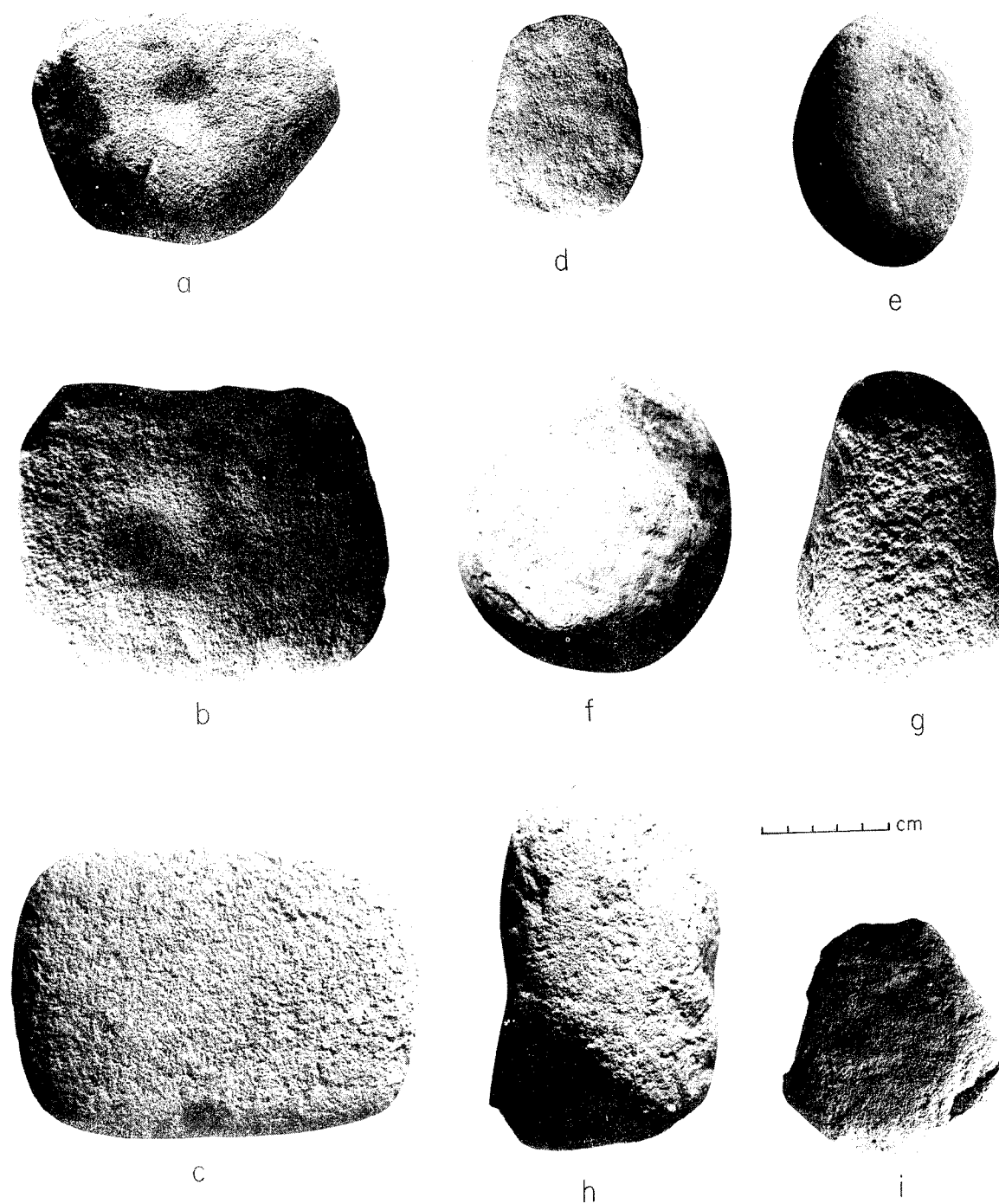


Fig. 17. Pitted-hammerstones and manos from site 23CL109.

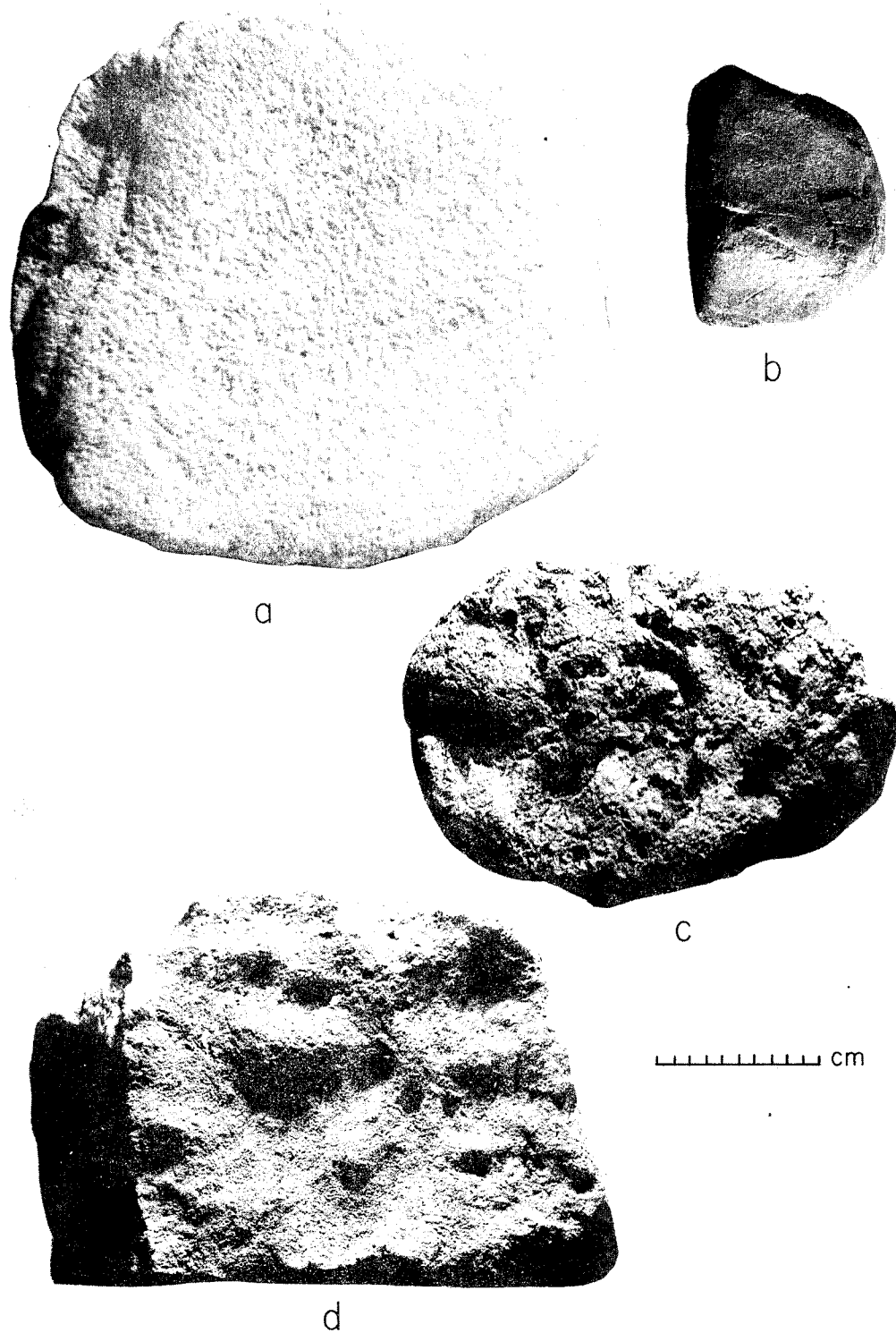


Fig. 18. A metate and anvil from site 23CL109.

Five hunks with concave- to flatly-ground surfaces were found on the surface (2), in Features 5 (2) and 6 (1).

Axes. One battered 3/4-grooved ax was found at the site (Fig. 19a). It is approximately 18 cm long, 10.9 cm thick and about 5.8 cm wide at the haft. The groove is 5.6 cm wide and 10.35 cm thick. The groove itself is 2.8 cm wide and about 1 cm deep. The poll end above the groove is 5.55 cm long and the bit end is 9.45 cm long, although originally it was probably longer. It was found after roadgrading the South-Center Cut.

Also found were three ax fragments: one is a bit-edge fragment from the South-Center Cut, one a space fragment from the groove area A:0-12W/3, while the last is a mid-section. The latter specimen, found on the surface, has a groove 2.7 cm wide and 0.75 cm deep. The ax thickness is 5.7 cm, while the width and length measurements are incomplete.

Finally, a broken ax preform (Fig. 19b) was also found--in the South-Center Cut area. It is 10.75 cm long (incomplete), 6.7 thick and 5.35 cm wide.

All of these tools were made from green diorite.

Mrs. Orr has three 3/4-groove axes in her collection. They are 15.3, 16.1 and 14.2 cm long, 7.1, 7.2 and 6.2 cm wide and 6.2, 5.4 and 5.8 cm thick respectively. She also has a full-grooved ax. It is of diorite and is 11.3 cm long, 7.8 cm wide and 4.9 cm thick (Fig. 19c).

Abraders. Abrading tools are made of sandstone and were used to smooth, polish, cut or sharpen softer materials. Two types of sandstone were used for the tools at this site. The first, Type A, has fine grained quartz crystals and is blockish or massive in structure. The second, type B, is fine grained, with mica specks, and is foliated in structure.

Type A consisting of 710 grams was found in Feature 1 (1), 3 (2) and 4 (1), in Test A: 0-0/1 (1), /2 (1), 0-2W/1 (2), /2 (1), 0-10W/1 (2), /3 (1), 0-12W/1 (1), 0-16W/2 (1), 0-18W/1 (1), 0-20W/1 (1), /2 (1), 2S-16W/1 (1), /2 (1), and in Test B: 14S-10W/1 (3), 22S-8W/1 (1). Type B consisting of 376 grams was found in North-Center Cut (1), in Test A: 0-2W/1 (1), 0-10W/3 (1), 20N-18W/3, and in Test B, 12S-10W/1 (1).

Four types of tools are present: sandstone with one or more flat abraded surfaces (Fig. 19d), sandstone with a concave surface (Fig. 19e), sandstone criss-crossed with V-shaped grooves--awl abraders (Fig. 19f), and sandstone with U-shaped grooves--arrow-shaft abraders (Fig.

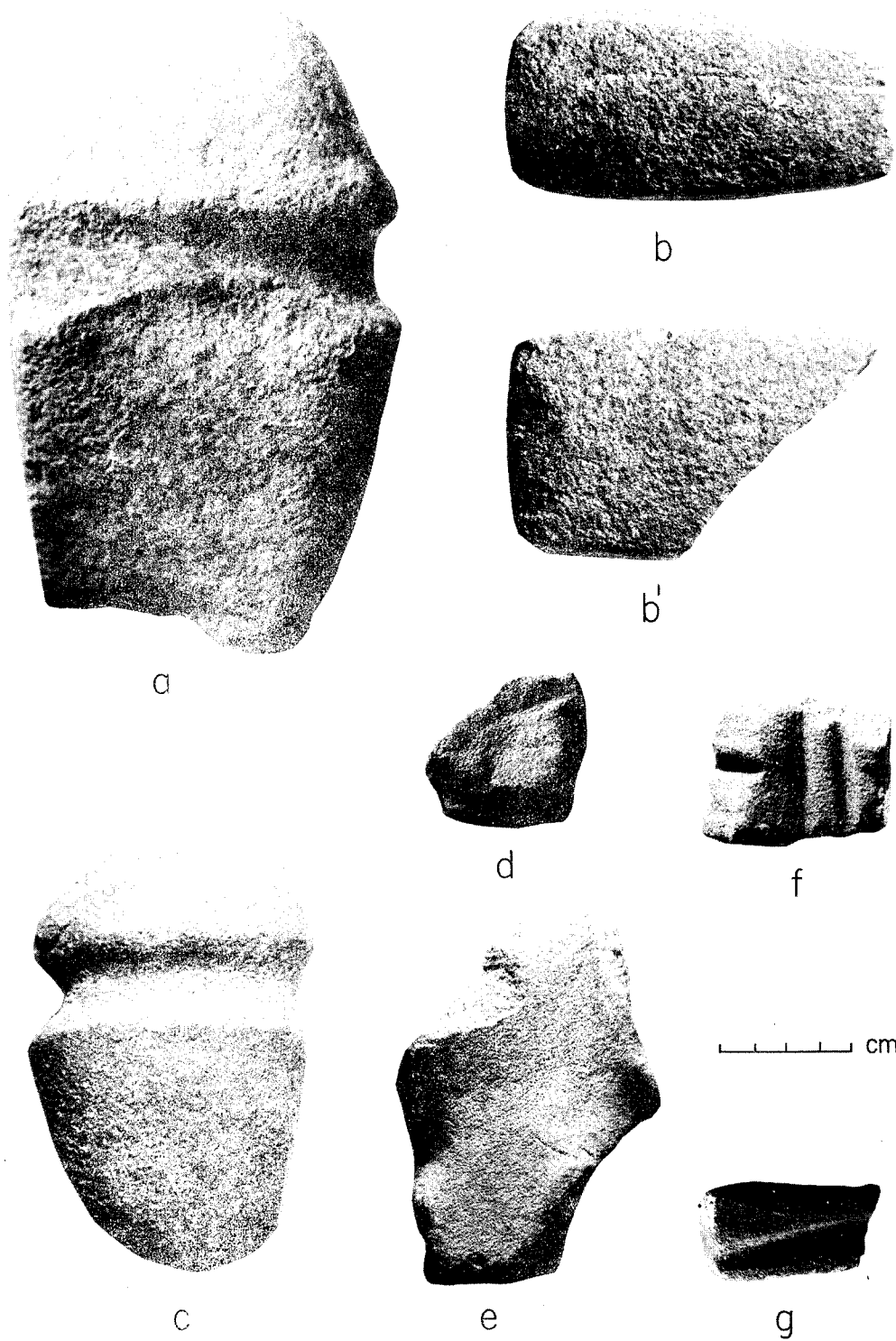


Fig. 19. Ground stone tools from site 23CL109.

19g). Table 19 shows the distribution and other data on these tools. Size data other than weight are not given because all these tools are rough pieces of sandstone used for a specific function and not formed into elegantly finished artifacts.

Pigments. Hematite, limonite and red ochre were all found at the site. There were 214 grams of hematite, 47 grams of limonite and 15 grams of red ochre. Table 20 gives provenience data.

Hematite Celt. One hematite celt was found at the site in 1967. It is 8.68 cm long, 4.7 cm wide and 2.3 cm thick (Fig. 19h).

Pebbles. Nineteen waterworn pebbles were found.

Flora and Fauna

Because the contents of the pits were water screened and floated, a variety of charred seeds were recovered. These will be sent to the Missouri Botanical Gardens in St. Louis, Missouri, for analysis. At present we can say that corn, acorn and hickory nuts, and possibly amaranth and chenopodium seeds are present.

No prehistoric animal bones were found in the midden. A number of very small unidentifiable fragments were recovered in the floated samples.

Historic Debris

A variety of 19th century Euro-American debris was found at the site. The bulk of it was within the plow zone. It consisted of: 182 fragments of White China; 38 fragments of Salt Glaze stoneware; 49 fragments of crockery; 37 fragments of glass; 37 fragments of iridescent bottle glass; 23 Crenodonta peruviana costata mussel shell fragments; 5 buttons; 20 pieces of flat iron--may be from pans and other containers, 1 washer; 1 pewter spoon or fork handle; 1 pocket knife; 35 coal clinkers; 5 pieces of wire; 74 various-sized square nails; 15 brick fragments; 10 miscellaneous pieces of strap iron; 10 chicken bones; 5 pig bones; 1 pig tooth; and 1 cow bone.

TABLE 19
Abrading Tool Data From 23CL109

Cat. No.	Provenience	Rock Type	Tool Type	Weight	Plate
8563	F.5	A	Awl: 1 groove	252	-
8504	F.6	A	{Awl: 3 grooves Flat: 1 side}	108	-
7806	A: 2S-16W/1	A	{Awl: 1 groove Concave: 1 side}	308	19e
7434	C: 0-2W/3	A	Awl: 1 groove	24	-
7774	A: 2S-16W/1	A	Awl: 1 groove	14	-
7647	C: 0-2W/3	A	{Awl: 1 groove Flat: 2 sides}	11	-
8504	F.6	A	Awl: 1 groove	17	-
7505	A: 0-2W/1	A	Awl: 1 groove	5	-
7412	C: 0-0/2	A	Awl: 1 groove	12	-
7504	A: 0-2W/1	A	Awl: 1 groove	11	-
7628	C: 0-2W/1	A	Awl: 1 groove	7	-
8563	F.5	A	Awl: 3 groove	12	-
7668	A: 0-18W/1	A	{Awl: 1 groove Concave: 1 side}	43	19d
7648	B: 2S-2W/2	A	Concave: 1 side	21	-
7870	A: 2S-16W/2	A	Concave: 2 sides	13	-
7734	A: 0-0/1	A	Concave: 1 side	15	-
7420	B: 0-2W/1	A	Concave: 1 side	17	-
7584	A: 0-12W/2	A	Flat: 1 side	9	-
7407	C: 0-0/1	B	Flat: 2 sides	1	-
8200	F.4	B	Flat: 2 sides	2	-
7505	A: 0-2W/1	A	Flat: 1 side	3	-
7550	A: 0-12W/1	B	Flat: 1 side	2	-
8003	B: 14S-10W/1	A	Flat: 2 sides	6	-
7703	A: 0-0/2	A	Flat: 1 side	17	-
7542	C: 0-2W/4	A	Flat: 1 side	24	-
7734	A: 0-0/1	A	Flat: 1 side	22	-
7420	B: 0-2W/1	A	Flat: 1 side	17	-
7647	C: 0-2W/3	A	Flat: 1 side	12	-
7750	B: 2S-2W/2	B	Flat: 1 side	12	-
7467	B: 0-0/1	A	Flat: 1 side	19	-
-	F.6	A	Flat: 2 sides	15	-
7675	C: 0-2W/2	A	{Flat: 1 side Arrow: 1 groove Awl: 1 groove}	35	-
8504	F.6	A	{Arrow: 2 grooves Flat: 2 sides}	96	19f
8204	F.4	A	{Concave: 1 side Arrow: 1 groove}	32	-
8504	F.6	A	{Arrow: 1 groove Convex: 1 side}	35	19g

TABLE 20
Provenience Data on Pigments From 23CL109

Provenience	Hematite	Limonite	Red Ochre
Feature 1	2	-	1
Feature 4	3	-	1
A: 0-10W/1	1	1	-
0-10W/3	-	1	-
0-12W/1	1	-	1
0-12W/3	1	-	-
0-12W/4	1	1	-
0-14W/1	1	-	2
0-14W/4	1	-	-
0-18W/2	1	-	-
0-20W/2	1	-	-
2S-16W/3	1	-	2
B: 0-0/1	1	-	6
12S-10W/1	1	-	-
14S-10W/1	-	2	-
16S-10W/1	-	5	-
C: 0-2W/3	1	1	-
North-Center Cut	1	-	-
Surface	-	-	1

Excluding the square nails, which indicate the structure was built before round nails came into general use ca. A.D. 1890 (Fontana and Greenleaf, 1962: 55), there are 3, green, feathered-edge pieces of china and 5, blue, feathered-edge pieces which are 19th century styles. Forty-eight highly fragmented decorated pieces of china were also found. One bullet was present.

The artifacts belong to the 19th century. The lack of any round nails would date it at pre-A.D. 1890, while the fact that the nails are of the square-head cut variety would date it no earlier than A.D. 1830 (ibid:54).

Radiocarbon Dates

Four wood charcoal samples from the Steed-Kisker pits were submitted to the Geochronology Lab, University of Georgia. The dates derived are:

UGA-1445	Feature 4	865 \pm 70	A.D. 1085
UGA-1446	Feature 5 (#1)	1260 \pm 90	A.D. 690
UGA-1447	Feature 5 (#2)	835 \pm 75	A.D. 1115
UGA-1448	Feature 6	659 \pm 100	A.D. 1255

The only date which is out of line is A.D. 690, all the others fall within the range of Steed-Kisker culture. It is difficult to believe that the site was used for 170 years by Steed-Kisker people because there are only three pits and especially because the rim sherds in two of the pits (F. 5 and F. 6) look as if they are part of the same vessel--unfortunately none of them could be glued together.

If we examine the sigma range on these dates, we discover the 1085 \pm 70 date would give A.D. 1015 or A.D. 1155. With the 1255 \pm 100 date we get A.D. 1155 or A.D. 1355. If we add a sigma to the 1115 \pm 75 date we get A.D. 1190, if we subtract it we get A.D. 1040. All three dates range around the 1100's; the first A.D. 1155, the second A.D. 1155, and the third A.D. 1115 or 1190.

Dates of A.D. 1155 to 1190 or A.D. 1115 to 1155 are all a reasonable range for this Steed-Kisker component.

Conclusions

Excavations at the Richardson Hulse site, 23CL109, established a number of things about the site and the occupation of the Smithville area. First, the site was multi-component, with the Early Archaic represented by Hardin Barbed (2) points. No other diagnostic artifacts of the period were found. It is assumed the points reflect hunting activity.

Middle Archaic, represented by the Nebo Hill complex, was the major Archaic occupation. Nebo points (14), Nebo drills (2), Clear Fork gouges (2), Nebo 3/4-grooved groundstone axes and Nebo flat, loaf manos and a metate were all recovered. These tools reflect hunting, wood-working and gathering activities.

The Late Archaic is represented by Gary points (2), reflecting hunting, and it is possible that the fully-grooved ax in Mrs. Orr's collection belongs to this period--thus reflecting woodworking activity.

No pits or hearths or domestic structures were found for the Archaic period! The presence of the large, hafted, side-notched blades at the site indicates that whatever their function (ceremonial--(?)), it was practiced at the site, probably in the Middle or Late Archaic. Based on percentage of artifacts, the site was occupied most extensively by Nebo Hill people.

The assignment of chert debris, of hammerstone debris and other non-diagnostic debris to these periods is not possible at this time.

Based on ceramics and projectile points this site was occupied by late Kansas City Hopewell peoples. No structures or storage/trash pits were found! This suggests that whatever the Kansas City Hopewell people were doing at this site, that it was not the same as the wild plant resource collection and storage functions of the Yeo site (23CL199) nearby. It is possible that the site was a hunting camp. The points attest to hunting, while the location of the site on a knoll overlooking the Little Platte River and the nearness to an excellent natural spring, would make it a natural area for game to collect.

Such a specialized camp site would be consistent with Johnson's (1976:12) model of ancillary and special function sites for the Kansas City Hopewell settlement system.

Based on ceramics and arrow points this site was also occupied by Late Woodland people. Again, no structures, pits or hearths were found belonging to that complex! This was especially disappointing because

this complex is the least known in the Kansas City area. As for the other components, hunting is an identifiable activity, but it is not possible to make other observations.

The final prehistoric occupation at the site belongs to Steed-Kisker. Indeed, it was hoped that by excavating this site it would be possible to obtain data that would allow the development of a model of community pattern for the Steed-Kisker Culture. Ironically, although the site was disappointing in respect to data interpretable as to occupation by the early peoples of the area, it is revealing of this aspect of Steed-Kisker.

As mentioned in the beginning, the site was graded to remove the plow zone to locate structures in the light yellow sub-soil. The entire surface of the site was removed, and the results revealed only the remains of three storage/trash pits for this culture. No houses or other structures were found. Since Steed-Kisker houses are well-made and relatively large they could not have been missed. This suggests a Steed-Kisker site whose only function was storage.

Clues to such a limited activity site, for the Steed-Kisker culture, are present at other sites in the area: the White site (23PL80) on Brush Creek, and site 23CL115 excavated during the summer of 1975 in the Smithville Lake area (O'Brien, 1976). A test of such a proposition by the removal of the plow zone, was not possible at these other sites as the land was in crops.

The final occupation of the site was in the 19th century. Artifacts of that period included square nails, glass, crockery, china and a variety of iron fragments. Also the fireplace and clinker area (F. 7), the postholes (F.2 and 3) and the "possible" sugar processing hearths (F. 8 and 9) indicate extensive domestic activity of the type associated with 19th century rural life.

Mrs. Frances Orr (personal communication) cannot remember ever seeing a house structure in this field. She states that her grandfather Richardson Hulse originally lived in a house west of present day Paradise, Missouri, but north of a road through the west part of this town. The Hulse site is south of this road by almost a half mile. Since her grandfather originally settled the land, the 19th century occupation could possibly have been left by an early squatter in the area. Mrs. Orr, herself, though, has suggested that the site could have been the location of slave quarters. Certainly, either of these explanations are possible.

In sum, the Richardson Hulse site was occupied for over 8000 years by Early, Middle, and Late Archaic, late Kansas City Hopewell, Late Woodland, Steed-Kisker and 19th century rural American peoples.

Chester Reeves Mound, 23CL108

The Chester Reeves Mound, 23CL108, was discovered during the 1967 survey and reported by Riley (1967:6). Initial excavation was begun in the summer of 1975, and the remains of six burials were recovered (O'Brien, 1976:6). Evidence of the use of the mound in the game of "fort" by Mr. Reeves' grandchildren was reported in the previous study (*ibid*:3) and will not be further discussed here. This report will focus exclusively on the prehistoric data.

The mound is situated on the western bluff overlooking the Little Platte River as is the Butcher site, 23CL118 (Fig. 1). Its legal description is the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 31, Township 53N, Range 32W.

The remains of at least 33 individuals were recovered. This does not include individual, isolated bone(s) or fragments thereof, found in the mound.

Finnegan, in the appendix to this report, gives a complete description of each burial along with a detailed analysis of osteological data derived from the material. He also examines the major research problem that excavation of the mound was to focus upon, namely, "Develop a model relating the nutritional and pathological condition of the Steed-Kisker peoples with that of their inferred environment."

This part of the report on the Chester Reeves Mound will detail excavation procedures, architecture, artifacts recovered, radiocarbon dating, and finally, an analysis and interpretation of burial practices of the Steed-Kisker complex, utilizing data from other mounds (Steed-Kisker, Avondale, Vandiver and Calovich).

Excavation and Architecture

An iron stake was driven in an area to the southeast of the mound, and, in 1975, sixteen 2-meter squares were opened in the northeastern quadrant of the mound. Using the same grid, those squares were reopened in 1976, and the remainder of the mound excavated--with forty-seven 2-meter squares. In addition it was discovered that burials extended south of the mound as far as the OW-line. Figure 20 shows the contours of the mound and areas excavated.

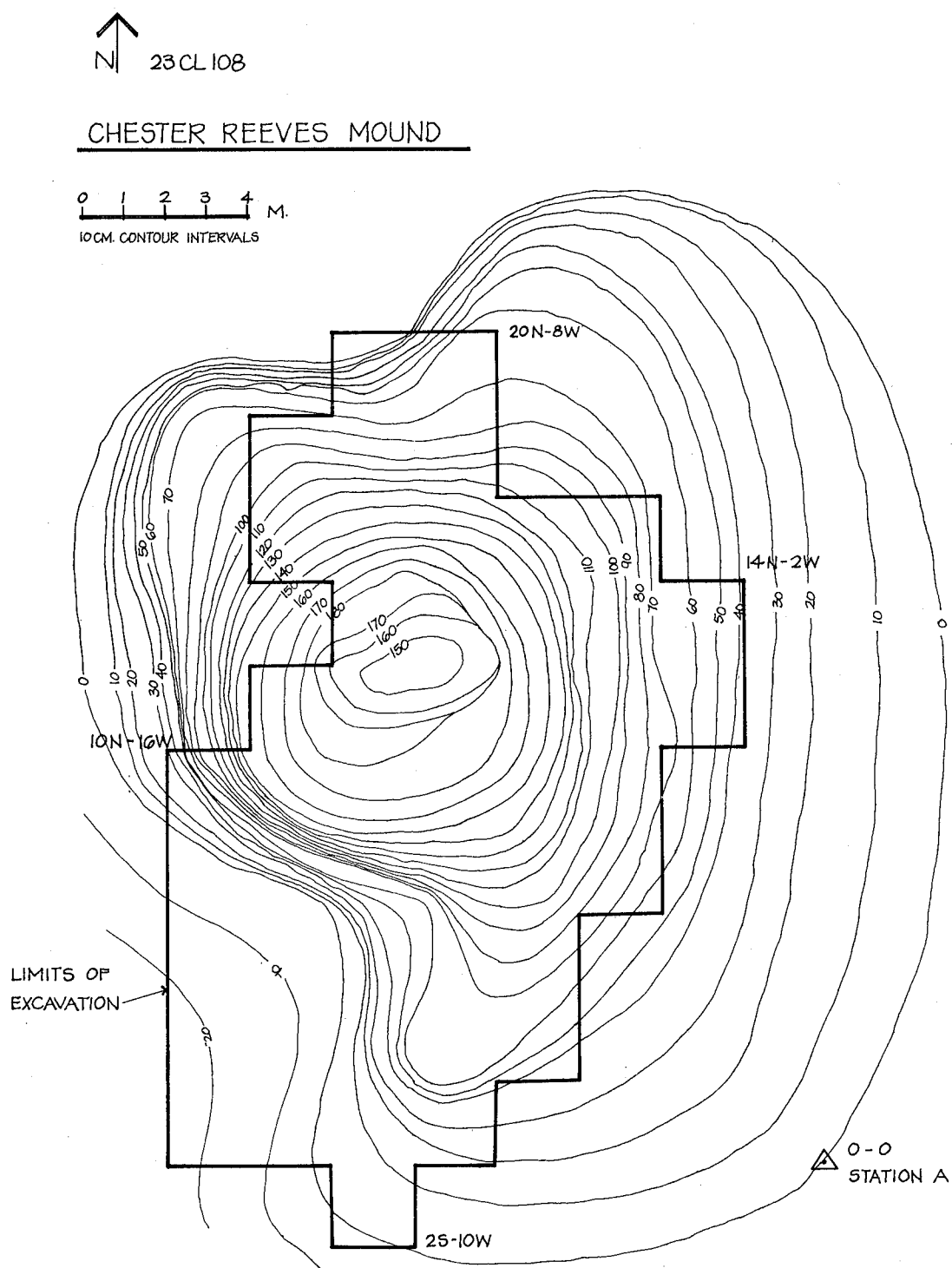


Fig. 20. Contour map of the Chester Reeves Mound, 23CL108.

As in 1975, the mound fill was excavated to a limestone slab level which was about 1.2 meters below the top surface of the mound. Burials occurred below the limestone slab level. Although there is not an exact one-to-one correlation, in general burials are found below limestone slabs. Figure 21 shows the superposition of the bulk of the limestone in relation to the location of the burials.

Figure 22 shows the profile of mound along the 10W line which bisected the mound on a N-S axis. The mound was excavated to sterile soil at its base. No old humus line was found. The mound fill was similar in color to the basal soil, and was distinguished from the basal soil by its texture. The basal soil was denser and more clay-like.

Burials were found distributed in an area north of the 0W-line, south of the 18N-line, east of the 14W-line and west of 4N, an area 18 by 10 m. The mound is about 12 m. in diameter.

Originally the burials were placed below the surface of a natural knoll and roughly capped with limestone slabs. Since there is no evidence of the mound being built in stages--it seems to have been built as a single unit at one time--it appears to represent a final construction before abandonment of the site.

It is suggested that originally the Reeves burials were placed in a cemetery on a natural knoll overlooking a habitation site (the Butcher site to the east) in the same manner as the original Steed-Kisker site and its burial ground (see Wedel 1943). Unlike the Steed-Kisker cemetery, however, the Reeves was then capped with a mound of earth. Since there is no evidence it was capped in segments, it is assumed the capping was done shortly before the Steed-Kisker population left the Smithville area. The Sheperd Mound to the south of Smithville also had a pronounced mound--90 feet in diameter and 9-10 feet high--built upon it (Wedel 1943: 137-138), and this may reflect local custom.

Because the mound cap on Reeves is located more over the north half of the burial area than the south it was thought the northern burials might be later in time and the southern early. Unfortunately, no artifactual evidence to test such an internal dating of the burials was discovered.

Because the soil color and type was similar to that of the soil of the bluff upon which the mound is situated, and because the bulk of the fill was basically clean (most of the remains in it above the limestone level were historic artifacts) it is assumed the soil was collected from the surrounding bluff area. All this soil is clean Pleistocene loess which covers the whole region.

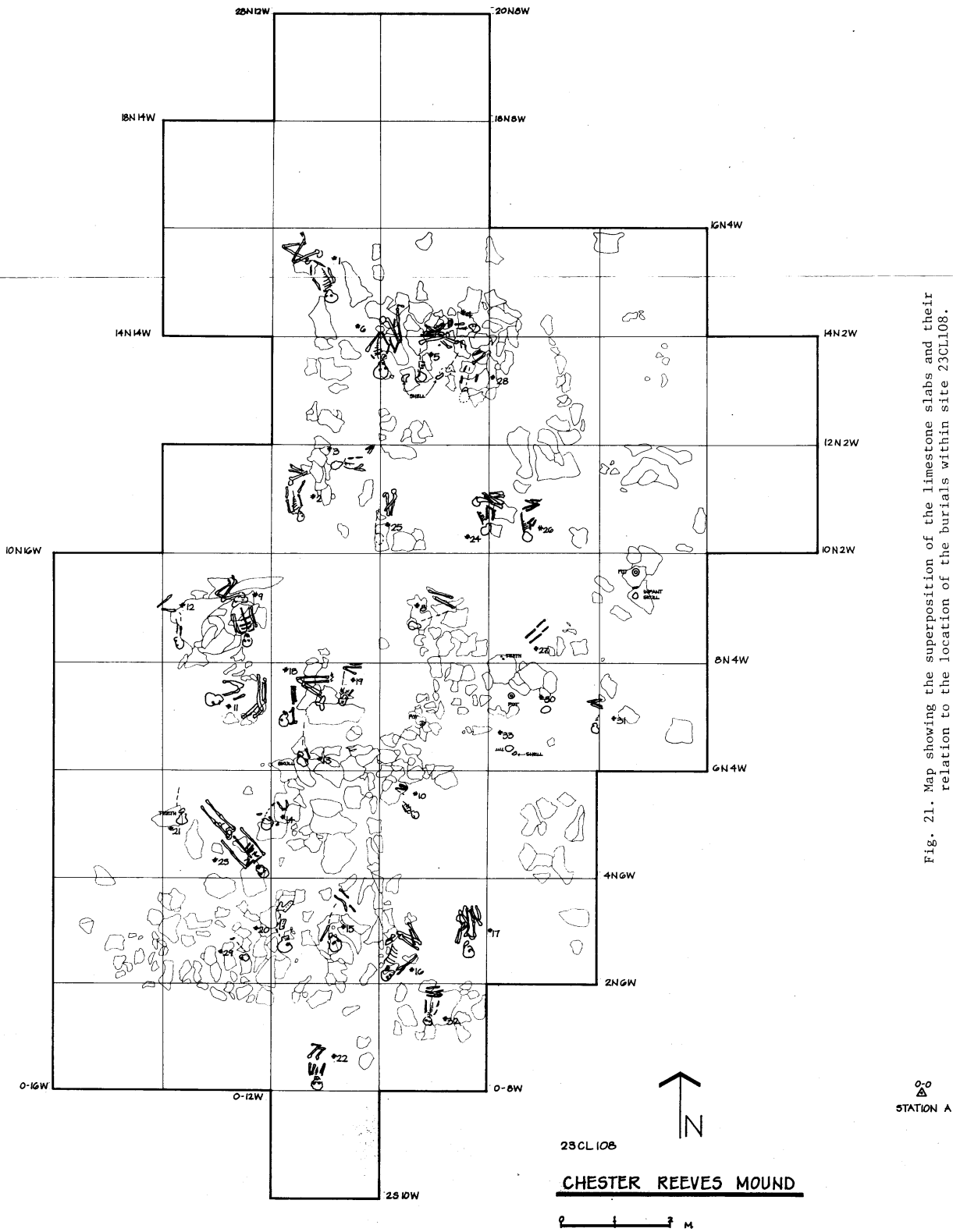


Fig. 21. Map showing the superposition of the limestone slabs and their relation to the location of the burials within site 23CL108.

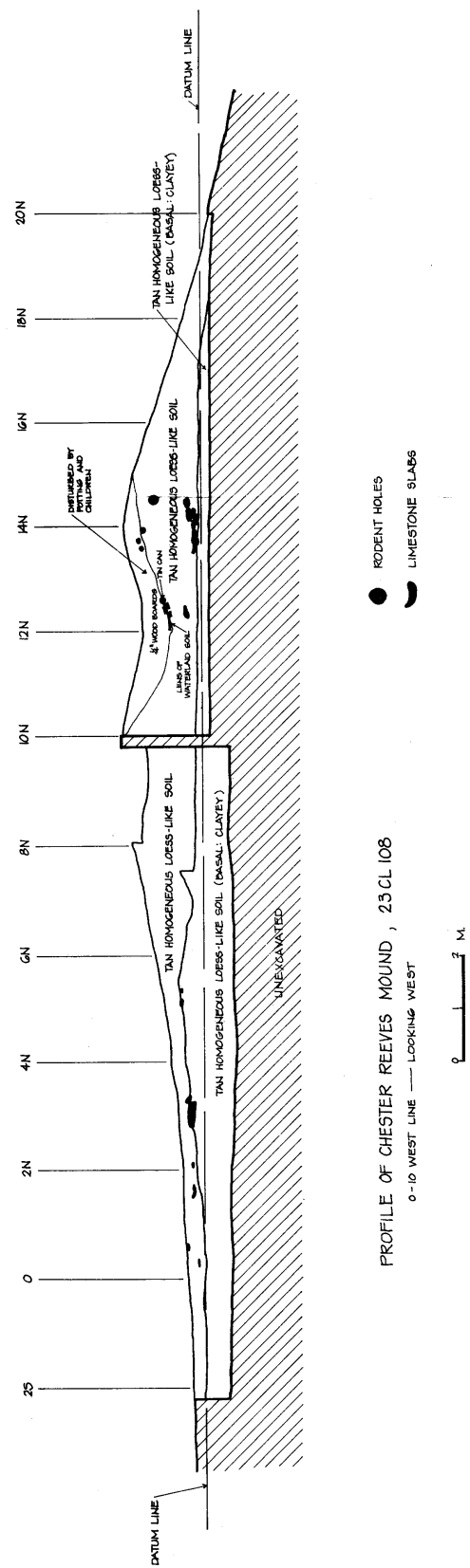


Fig. 22. Map showing the profile of site 23CL108: 0-10W line looking West.

In sum, the architecture of the site suggests that originally a low natural knoll overlooking the river was used as a cemetery. Later when use of it terminated, the owners of the cemetery capped the northern end with an earthen mound about 12 m. in diameter and approximately 1.5 to 2 m. height, presumably as a memorial.

Artifacts

Artifacts and cultural debris were found in the mound fill basically between the limestone level and the burials proper. Occasionally one was associated with a burial, but most were not. Six hammerstone fragments were found--four of red quartzite (6N-6W/140-160cm, 10N-4W/120-140cm, 6N-8W/120-140cm, 6N-8W/0-40cm) and two of granite (6N-4W/60-80cm, 10N-6W/120-140cm). One complete hammerstone of yellow quartzite was found in 8N-10W/0-20cm. It was 7.14 cm long, 3.68 cm wide, 3.35 cm thick and weighed 106 grams. Six grams of hematite were found (14N-4W/20-40cm, 6N-6W/60-80cm, 6N-4W/0-20cm), while 17 grams of limonite came from 6N-4W/60-80cm.

One contracting-flake side scraper of Burlington chert came from 6N-8W/120-140cm (8 gms), and four pieces of worked chert were found. Two, made of Spring Hill chert (22 gms), came from 12N-6W/150-170cm and 14N-4W/40-60cm. The other two are made of a light-grey chert (6 gms), and came from 6N-8W/40-60cm and Burial 22.

One side-notched projectile point tip was found associated with Burial 28 (Fig. 23a). It is made of a whitish chert (0.5 gms) and is 1.75 cm long (incomplete), 0.92 cm wide and 0.22 cm thick. A biface base fragment (Fig. 23b), made of Spring Hill chert (11 gms), was found in 8N-14W/ 60-80cm. It was 2.74 cm long (incomplete), 4.13 cm wide and 0.91 cm thick. A complete, crude, biface (Fig. 23c), made of heat-treated Spring Hill chert (34 gms) was found in 18N-10W/20-40cm. It was 7.1 cm long, 3.16 cm wide and 1.5 cm thick.

A number of chert chips were also recovered. There were 38 (267 gms) of Spring Hill chert, 2 (0.2 gms) of pink chert--maybe heat-treated and 2 (1 gm) of a white chert. Spring Hill chert would seem to be preferred!

Burials 5, 24 and 33 had mussel shell associated with them. Unfortunately they were almost as badly decayed as the bone itself making identification impossible. One though, from burial 5, was quite large and may have been a Crenodonta peruviana costata.

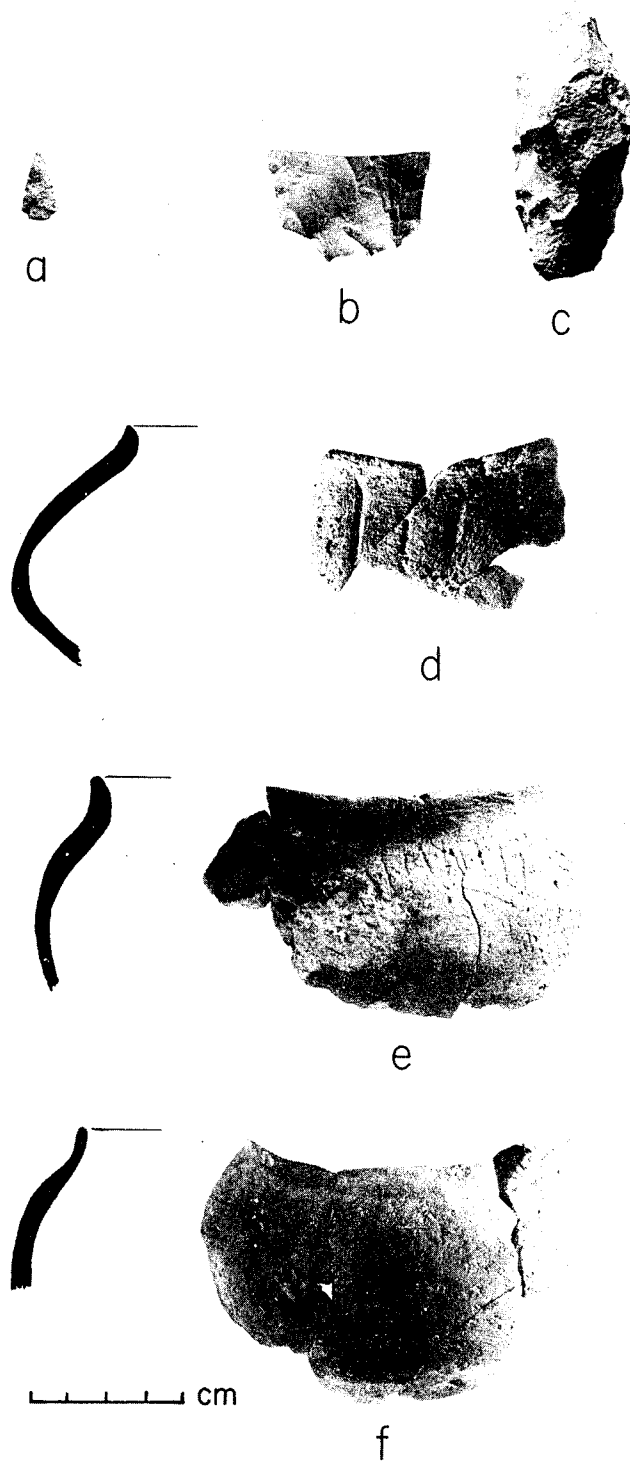


Fig. 23. Artifacts from site 23CL108: projectile point (a), biface (b), crude biface (c), and ceramic vessels (d-f).

Also recovered were potsherds including the incomplete remains of three small vessels. Forty-five sherds belong to Platte Valley Ware, as do the vessels.

Vessel 1. A small shouldered jar with a double-arc sunburst design on the shoulder (Fig. 23d). It is shell tempered, unslipped, with a 9.5 cm orifice diameter. The rim is extruded. It was found in 6N-6W/100-120 cm.

Vessel 2. A small shouldered jar with an incised design of individual lines radiating out from the rim to the shoulder (Fig. 23e). The design resembles a sunburst when viewed from the top. It is shell/grog tempered, is unslipped, and has two small strap handles placed opposite each other. The rim is extruded. It was found in 8N-4W/95-110 cm. The vessel has a 10 cm orifice and was 9 cm in height.

Vessel 3. A small, undecorated shouldered jar (Fig. 23f). It is shell tempered, has an extruded rim, and comes from 6N-8W/100-120 cm. The vessel has an 8 cm orifice and one segment of the rim shows the remains of a strap handle.

All the vessels are incomplete, and although they were in an area with burials, none was directly associated.

Radiocarbon Dates

Three wood charcoal samples were submitted to the Geochronology Lab, University of Georgia. The dates obtained are:

UGA-1149	S.E. quad, 8W-14N, below limestone	995 \pm 70	A.D. 955
UGA-1200	8W-14N, 60-70 cm	920 \pm 70	A.D. 1030
UGA-1201	S.E. quad, 6W-12N, 40-50 cm	980 \pm 65	A.D. 970

The dates are internally consistent, and a range of A.D. 955 to 1030 would be in keeping with the number of bodies in the mound. The Butcher site, 23CL118, just to the east and perhaps associated with the

mound had a date of 1170 \pm 150 (M-2179) or A.D. 780 (Calabrese 1969:215). That date when corrected for the dendrochronologic calibration error of radiocarbon dating (Damon, Ferguson, Long and Wallick 1974) is approximately A.D. 825. With its 150 year sigma range it could date approximately A.D. 975 which is right in the range of the three mound dates.

The presence of a double-arc sunburst design on a rim sherd, places the rim into phase 2 of a four phase ceramic design sequence (O'Brien, 1974). Thus, the mound would belong to the early half of the Steed-Kisker occupation (A.D. 1000-1100), which is consistent with the radiocarbon dates.

Analysis and Interpretation

This section will outline the basic cultural data on the mound, and then compare that data with equivalent data from other Steed-Kisker burial sites.

Table 21 summarizes the cultural data associated with the Chester Reeves burials. In this mound, 1 burial is extended, 12 are semi-flexed, 10 are flexed and 6 are secondary (bundled). Of the bundled burials, 83% of the secondary burials (5) were children (under 14 years) and 17% were adult (1). Of the flexed burials, 4 were children, the others were adults (14+)--2 female, 4 male and 1 indeterminate. Of the semi-flexed burials, 2 were children and the rest adult--1 female, 3 male and 5 indeterminate. The single extended burial was male.

For comparative purposes the most complete data come from the Steed-Kisker burial ground (see Wedel 1943:87-95, Table 8). Table 22 compares percentages of the four different burial types with age and sex groupings. It can be seen that all four burial types are found in both mounds, but the percentages and age groupings are different. These are even more marked when flexed and semi-flexed burials are lumped; then, most of the burials are flexed in the Reeves Mound and extended at Steed-Kisker.

This same pattern is found when other Steed-Kisker burial sites are examined. Table 23 gives data for the Calovich, Vandiver and Avondale mounds, as well as Reeves and Steed-Kisker. In each case there is always one dominant burial type, either extended or flexed.

TABLE 21
Cultural Data on Burials from 23CL108

Burial No.	Sex	Age	Head Points	Body Orientation	Burial Type	Red Ochre	Grave Goods
1	M	50+	S	SE-NW	sf	+	-
2	I	15	S	N-S	sf	-	-
3	I	4-5	W	E-W	f	+	-
4	I	3-5	E	E-W	sf	-	-
5A	I	25?F	S	N-S	f	-	Shell
5B	I	45?M	S	N-S	f	-	
6	M	22	S	N-S	f	+	-
7	I	10-11	-	-	-	-	W/5A-B
8	I	Adult	W	E-W	sf	-	-
9	M	25-30	S	N-S	sf	+	-
10	I	9	-	-	b	+	-
11	I	30-40	-	-	b	+	-
12	I	12+	S	N-S	sf	-	Biface w/bone & quart. chips
13	I	25-35	S	N-S?	-	-	-
14	I	4-5	-	-	b	-	-
15	I	9	S	-	b	+	-
16	M	25	S	SW-NE	f	-	-
17	F	23	S	N-S	f	+	-
18	F	28+5	S	N-S	sf	+	-
19	I	14	S	N-S	sf	+	-
20	I	6	S	-	b	+	-
21	I	12	S	N-S?	-	+	-
22	I	6-7	S	N-S	sf	-	-
23	M	35	S	SE-NW	e	-	-
24	M	50	S	N-S	f	-	Shell
25	{ Inf I	Newborn	S	N-S	sf	-	-
		Adult					
26	I	8	S	N-S	sf	+	-
27	M	Youth?	?	?	unk	-	-
28	M	30+	S	N-S	sf	-	-
29	I	11	S?	N-S?	unk	-	-
30	I	5	-	-	b	-	-
31	I	27	S	N-S	f	+	-
32	I	8	S	N-S	f	-	--
33	I	5	E?	E-W?	f?	+	Shell

f=flexed, sf=semi-flexed, b=secondary, I=indeterminate, e=extended

TABLE 22
Reeves and Steed-Kisker Burial
Data by Age and Sex¹

	Male	Female	Child	Unknown Adult
Semi-flexed	38% -	33% -	33% (100%)	83% (8%)
Flexed	50% -	66% -	66% -	17% (8%)
Extended	12% (75%)	- (94%)	- -	- (78%)
Bundled	- (25%)	- (6%)	- -	- (4%)
Flexed ²	88% -	100% -	100% -	100% (16%)
Extended	12% (75%)	- (94%)	- -	- (78%)
Bundled	- (25%)	- (6%)	- -	- (4%)

¹ Reeves percentage on top, Steed-Kisker in ().

² Semi-flexed and flexed combined.

TABLE 23
Steed-Kisker Culture Burial Data

	Steed-Kisker ¹	Calovich ²	Vandiver ³	Avondale*	Reeves
Male	22	8	-	-	10
Female	19	12	-	-	3
Adult	72	21	42	-	19
Children	10	25	15	-	14
Infants	1	27	3	0.5%	-
Extended	51	4	12	12%	1
Flexed	5	8	34	65%	22
Bundle	6	4	6	23%	2
Red Ochre Covered	0/83	0/73	1/85	1%	14/33
					42%

¹Based on Table 8 and pages 146-147 in Wedel 1943.

²Based on Table 3 (Barnes 1977:69).

³Based on J. M. Shippee (1958) unpublished field notes from 3 mounds

*Wedel (1943:146) reports Shippee as saying some of these burials were flexed; none were extended though.

The Avondale Mound, which seems to be an exception, cannot be interpreted accurately, since flexed and bundled burials were lumped (Wedel, 1943:146). The figures are included because no extended burials were found and in this respect the mound resembles Reeves.

Based on these data, three burial types can be recognized: extended, flexed and bundled. Implications will be discussed later, but first an important feature of the Reeves Mound should be mentioned. Of the 33 burials, 14 or 45% were covered with red ochre. Of these, 53% were children and 41% were adults. Of individuals without ochre, 47% were children and 59% were adults suggesting that age is not a determining factor in the use of ochre. Of the identified adults with red ochre, 60% were male and 40% were female, suggesting that sex is not a discriminating factor for the use of ochre. The only other Steed-Kisker burial site where red ochre was reported on a burial (1) is the Vandiver Mound (see Table 23).

These data suggest a duality of practice: red ochred and un-ochred. This practice, along with burial type, may be socially important in light of certain genetically-based characteristics discovered in the Reeves and Calovich Mounds.

Finnegan reports (see Appendix I) a higher than normal occurrence of shovel-shaped incisors and Caribelli's cusps for the Reeves population. These features are genetic in origin and their high incidence may be a product of the burial together of individuals by familial lines. This implies that Steed-Kisker cemeteries are family cemeteries!

Other data supportive of such a hypothesis comes from the Calovich Mound where Barnes (1977:164) reports, "The frequency of sacral anomalies among the adults appears relatively high and is suggestive of inbreeding that may reflect restricted marriage practices." The sacral anomaly in question is spina bifida--a genetic trait that follows family lines.

It is unfortunate in relationship to these osteological data that the bone from the Reeves Mound was in such a decayed state. Normally tests of the suggestive genetic relationships extracted from the dentition of the Reeves population could be further explored by an analysis of the post-cranial skeletons, especially their non-metric variation. These are the same techniques used in modern forensic medicine to identify skeletons found by the police. The establishment of a group of skeletons as being kinsmen has resulted in many a murderer being caught.

The poor state of the bone has also prevented any further examination of the nutritional state of the Steed-Kisker population which was brought to question by the Calovich Mound data.

Elsewhere, I have suggested (O'Brien, 1973, 1976) that Steed-Kisker habitation sites are farmsteads. If this interpretation is correct, then it can be suggested that family farmsteads with a family burial plot nearby were socially-functional units.

In the light of such a hypothesis it is interesting to examine the associations of grave goods with individuals within Steed-Kisker. Table 24 lists the number burials by age and sex (where possible) for four (Reeves, Steed-Kisker, Calovich and Vandiver) excavated Steed-Kisker burial sites.

At Reeves all the dead are treated in a similar manner since of the 33 burials only 4 had grave goods and those goods are minimal. They suggest no marked social status differences (other than the red-ochred/un-ochred dichotomy) between men and women. Nor are children treated in a markedly different way.

At Steed-Kisker more women than men have sherds or pots placed with them after death while the remaining artifacts (projectile points or chert chips) could be reflective of male oriented knapping or hunting activities. The only exotic item was a Busycon shell pin? fragment associated with a child (Wedel 1943:94).

At the Calovich mound we get a similar pattern except that males get more goods than females but children (including newborn infants) get more than females but less than males. In this mound both an adult male (59-61 years old) and a newborn were given an imported marine gastropod shell pendant (Barnes 1976:169-181).

While an analysis of the skeletal remains of the Vandiver mounds has not been done, an infant did receive the largest cluster of grave goods for any reported Steed-Kisker burial: 2 whole pots and a 25 bead conch necklace (Shippee 1958).

Finally, it should be noted that as one moves from the Smithville area down to the Platte and Missouri rivers nearer to Kansas City proper there is an increase in the percentage of grave goods associated with the burials: 12% at Reeves, 16% at Steed-Kisker and 25% at Calovich. The Vandiver mounds when analyzed may match Calovich. This trend suggests greater wealth was concentrated in the central area of the Kansas City region.

Since it is hypothesized that the burial sites are family cemeteries it is difficult to assess the implications of the few exotic, imported wealth items. Since they occur with adult males or young children or infants, even a newborn, they would seem to minimally suggest differences in wealth between families. Higher status relationships of these families

TABLE 24
Number of Burials with Different
Classes of Mortuary Goods

Age/Sex	Reeves	Steed-Kisker	Calovich	Vandiver
Adult Male	1 mussel shell	3 sherds 1 projectile point 1 chert chip	3 sherds 1 mussel fragment 2 chert chips 1 <u>Busycon</u> pendant 1 shell pendant	Other
Adult Female	1 mussel shell	6 pot fragments or sherds 1 stone	2 sherds 1 mussel fragment	Artifacts Cannot Be
Child	1 mussel shell 1 biface with bone and quartzite chips	1 <u>Busycon</u> shell pin ? fragment	1 dog tibia 1 mussel fragment 1 shell beads 1 chert chip 1 red ochre lump	Assigned By Sex or Age Yet.
Infant	----	----	----	2 pots 1 25 conch beads
Newborn	----	----	1 marine gastropod pendant 1 sherd	----
Grave Good/ Burial Ratio	4/33 12%	13/83 16%	18/73 25%	3+/85

is possible too. Whether wealth items with children also suggest that the status is ascribed by inheritance rather than achieved cannot be ascertained because a favorite child or a first-born could be marked out by its parents and relatives at death.

As mentioned earlier, the Reeves data suggest the presence of a red-ochred/un-ochred treatment of the dead. The exact meaning of this dichotomy is a problem, especially when we remember that the bodies are either extended, flexed or bundled and that these three modes of burial are cross-cut by the "ochred" pattern. Also cross-cut by the "ochred" pattern are age and sex lines. Therefore, a body will be red-ochred or un-ochred regardless of age, sex or mode of burial.

One possible explanation of this duality is the well-known red/white color dichotomy of the Indian nations of the Eastern United States in the historic period. Red was symbolic of war and white of peace. There were red towns and white towns, red villages and white villages (Hudson, 1976).

If the hypothesis that the Steed-Kisker settlement system is one of family farmsteads with family cemeteries is correct, then it is possible that we might have a dichotomy of red-white affiliated farmsteads too. Thus a burial mound with un-ochred dead would mean that that specific family was a "white" one and that its members married members of other "white" farm families. Those with mixed red ochred/un-ochred dead suggests mates were drawn from "red" or "white" families. This is possible since Hudson (1976:236-237) points out that the data on this dichotomy does not allow us to ascertain whether this "moiety" symbol system was exogamous or even tied into the marriage rules for every individual Indian nation.

Looking at the Reeves Mound though we find 3 adult males were red ochred, 5 were not; 2 females were, 1 was not; 3 indeterminate adults were, 4 were not, while 7 children were and 10 were not. If the indeterminates were females (assuming more gracile female bone decays faster than robust male) than 5 women were and 5 were not. In fact, we get no pattern! Thus, the meaning of this burial pattern eludes us.

If such moiety system existed, one can ask if they controlled specific drainages or segments thereof, or if the different social units were interspersed along the drainages of the Kansas City area. Such hypotheses could be tested by excavating specific mounds strung along a single drainage.

The only interesting pattern in the Reeves Mound, if it can be called that, is that if the indeterminates are female then the oldest female is not older than 40 years while there are three old men (50+, 45 and 50 years). A 3:1 ratio. One interpretation of this is that the families were patrilineal and maybe patrilocal in their descent system.

The Calovich Mound which is the only other Steed-Kisker cemetery where age designations other than adult are given, has 4 males aged 60+ years and only two females in that group. The other males are in the 20-32 year range. The females are either in the 41-47 range (3) or the 16-39 year range (6). This is a 2:1 male/female ratio for 60+ years but a 0:3 ratio for 40-50 year range. These data do not negate such a hypothesis.

In sum, as working hypotheses it can be suggested that Steed-Kisker burial mounds are family cemeteries, and that broader social units such as moieties or lineages are maybe reflected in the system.

SUMMARY AND CONCLUSIONS

At the beginning of this report it was mentioned that several problems were to be the focus of the research.

First, we were to develop "a cultural chronology for the entire area via radiometric dating." In this we were only partially successful. Since no datable materials for the Early, Middle and Late Archaic occupations at the Hulse site (23CL109) were recovered, no dates can be presented for these complexes.

The dating of the Kansas City Hopewell material in Smithville, based on the Yeo site (23CL199), suggests an eighth century A.D. placement. This is much later than expected (ca. A.D. 500 was expected), but since we know little of the transition from Kansas City Hopewell to Late Woodland perhaps eventually the dates will prove to be acceptable.

Late Woodland has been assumed to date from A.D. 500-900. We have no new data to confirm this range, although the presence of a Late Woodland complex, with grit-tempered pottery and corner-notched arrowheads, has been demonstrated. More work is needed on this complex, and excavation of a single-component site is essential.

Dating the Steed-Kisker complex to the early end of its temporal span (A.D. 1000-1100) for the Smithville area has been accomplished. Both radiometric and ceramic style dating support such a placement.

In sum, the Archaic and the Late Woodland have not been dated by this research.

The problem of developing "a model for the community patterns of the Steed-Kisker culture" was one of the rationales for excavating the Richardson Hulse site (23CL109). In this goal we have had some success for by the research, we have been able to isolate a new uni-functional Steed-Kisker site--a storage site. Presumably this type of site was located near agricultural fields or specific wild plant resources.

Data on a possible uni-functional hunting camp for late Kansas City Hopewell is also derived from the Hulse site. The presence of a late Kansas City Hopewell collecting storage/wild plant processing special site was also discovered through excavations at the Yeo site (23CL199). These data are in harmony with Johnson's (1976) hypothesized settlement pattern of ancillary special-function sites for Kansas City Hopewell.

The problem of developing "a model relating the nutritional and pathological conditions of the Steed-Kisker peoples with that of their inferred environment," was partially successful. Unfortunately the bone from the Chester Reeves Mound (23CL108) was in poor condition. This limited the number of pathological observations, and affected the collection of metric and non-metric data.

Nonetheless, porotic hyperostosis, as well as osteoarthritis, were present in the population. The significance of a high incidence of traits, such as Carabelli's Cusp and shovel-shaped incisors, towards revealing the familial character of the burials is important. The demographic distribution of the burials is: newborn-2.5 years--0%, 2.5-13.5 years--44%, 13.5-19 years--6%, and 20-60+ years--50%. The poor state of bone preservation has undoubtedly affected the representation of infants in this mound, but for the rest of the population a rather expectable distribution for a pre-industrial, agricultural, people is indicated.

Finally, the major second focus of this study: the development of "a demographic model describing the settlement pattern (i.e., small farmsteads, large village groups) associated with the Mississippian (Steed-Kisker) culture," is as follows:

In the past, I have proposed that Steed-Kisker sites have three different functions (O'Brien, 1973): farmsteads, human burial, and hunting/meat processing (see Wood, 1968). As a result of the excavations at the Hulse site (23CL109), we have evidence of a storage/plant processing site. Farmsteads, burial and storage sites have been found along Brush Creek as well as in the Smithville area (O'Brien, n.d.). Another site type, whose function is unknown at present has also been found; I have called them "trash sites" for they are represented by a small scatter of debris but no structures or pits are found in them below the plow zone (O'Brien n.d.). Site 23CL114 excavated in 1975 is an example of one in Smithville Lake.

Figure 24 shows the distribution of all known Steed-Kiskersites within Smithville Lake. A neat cluster of farmstead sites with burial mounds is apparent as is a clustering around those units of storage and "trash" sites.

Thus, the Steed-Kisker settlement system in the Smithville area is one of "farmsteads" with storage and "trash" sites part of a functioning whole, and with nearby family cemeteries. They are distributed at 4.5 to 6.1 km intervals over the valley.

One anomaly, not explicable by this model, is the location of a cluster of sites (23CL229, 231 and 232) at the upper-most juncture of Camp Branch. They are assumed to have a different function than the other sites and are considered especially significant for that reason.

EVALUATIONS AND RECOMMENDATIONS

The sites at Smithville Lake meet the criteria for National Register significance, since they have the potential for answering research questions relating to issues discussed in detail in the text of this report. They are more significant as a group than as individual sites. Taken together, the sites have potential research value for studies of site relations in time and space, and studies of the related issues of human interaction with the environment.

We need to acquire information about a number of time periods represented in the archeological record at Smithville Lake. First, we need data on the Archaic. It is true that Archaic artifact complexes found throughout the Kansas City area (Early, Middle and Late), are present in the lake area, but data on the settlement systems and community structures are lacking. A problem is that many of these sites are multi-component, thin and often plowed out. The Hulse site (23CL109) is characteristic of this problem. One site, 23CL117, located on the easternmost edge of Tract 105 (and perhaps out of the lake lands proper) is the only known site in virgin (unplowed) prairie. No diagnostic materials have been obtained from it, but it potentially, by its location, could be a Middle or Late Archaic site. This site is well above all flooding levels, and no construction is planned in this area. The long-term recommendation for this site is therefore preservation; very limited testing could possibly be carried out to define the time period, significance and extent of this site. It is also recommended that geomorphological studies be carried out to determine if buried Archaic sites are likely to be present.

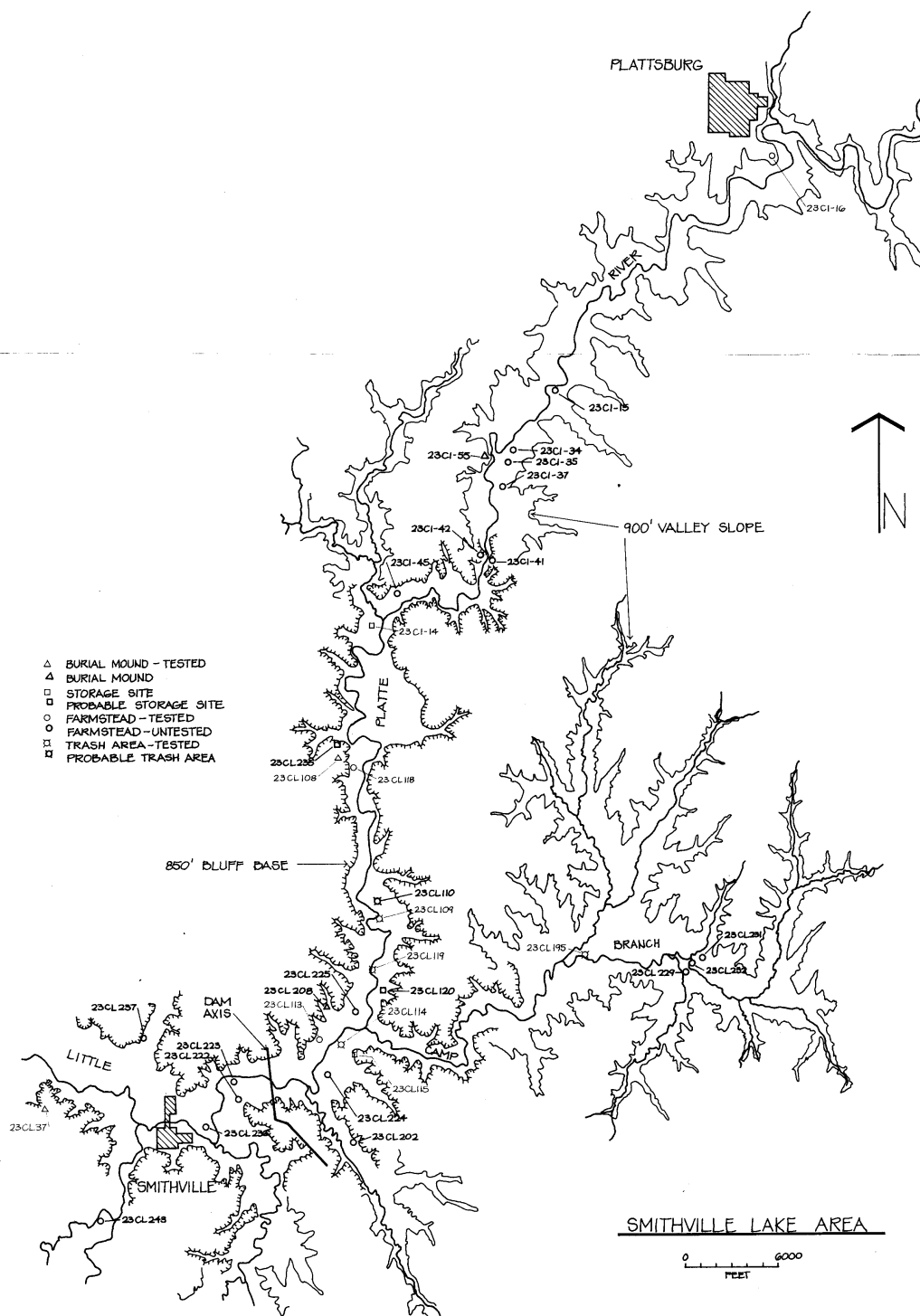


Fig. 24. Map showing the distribution of Steed-Kisker sites within the Smithville area.

Our ignorance of the Late Woodland continues. Unfortunately, most of those sites are also multi-component. One site, 23CL226, has only a Euro-American component, and since it would be easy to sort out the historic materials from the prehistoric, this site offers the potential of understanding some aspect(s) of Late Woodland in Smithville Lake. This site will be completely inundated, and extensive testing is recommended.

Finally, we have developed a model of the Steed-Kisker settlement system for the Kansas City area: a series of family farmsteads with nearby cemeteries and storage/plant processing loci. There are two problems with the Smithville data: (1) The anomaly of location of sites 23CL229, 231 and 232 at the end of Camp Branch. It is imperative that that these sites be excavated if they are in any way adversely affected by the project. Two of these sites, 23CL229 and 23CL232, are between multi-purpose pool level and flood pool level, and it is likely that they will be affected by erosion. These sites should be excavated. Site 23CL231 is above flood pool level. Because of its research potential, this site should be preserved; it should be closely monitored for indirect impacts in the future.

(2) Several sites have important information for testing the settlement system model. Site 23CL113 was excavated by Calabrese (1967); just to the north of it is site 23CL225--its seven clusters of daub/debris indicate it is a farmstead. It and 23CL113 are clustered with mound 23CL208. 23CL208 is described in Appendix IV. Both the mound and the farmstead will be destroyed by the lake (23CL208 is 39.2 feet below the permanent pool level and 23CL225 is 34.2 feet below that level). It is recommended that sites 23CL225 and 23CL208 be extensively excavated. The size of site 23CL225 and its association with 23CL113 suggests it will span the whole of the Steed-Kisker occupation in the Smithville area and will possibly complete the refinement of the chronological sequence. Mound 23CI55 would also contain valuable information relating to the settlement model; this site is situated 28.8 feet above the flood pool level and will not be destroyed by flooding, although its associated farmstead complex (23CI34, 23CI35 and 23CI37) will be affected. The mound should be protected, and monitored in the future to insure its preservation.

As indicated in the section on survey, approximately 85% of the land was covered. While it would be ideal to complete the total survey of the lake, operating with an 85% sample means that the broad outlines of the prehistoric settlement pattern would probably not be significantly changed by the completion of the remaining tracts.

In sum, it is strongly recommended that a Late Woodland site (23CL226) and a Steed-Kisker family farm and cemetery (23CL208, 23CL225) be exten-

sively excavated before their destruction by the waters of Smithville Lake. Two of the three sites of an unknown-function Steed-Kisker site complex (23CL229, 2323) are in the shoreline impact zone and should be excavated. By this data recovery we would help minimize the adverse impacts of the construction of Smithville Lake upon the prehistoric resources of this area.

ACKNOWLEDGMENTS

This program of research could not have been accomplished without the labor and support of many individuals. A very special thanks is due to those who labored in the sun: the students and staff of the Kansas Archeological Field School: Harold Beal and David Eck, the field foremen, Brain O'Neill, Daniel Pullen and Lynn Toburen, the site surveyors, Ralph Flowers and Jack Husted, the lab supervisors, and all the students--Terry Bolan, Sharon Brock, Jon Frizzell, Pamela Northrop, Sharon Parks, and Patricia Thompson of Kansas State University, and John Franklin, Albert Johnson, Stewart Johnson, Mel Johnson, George Johnston, Lisa McDonald, David Mougakos, John Northcutt and Hal Rager of the University of Kansas.

Of extreme importance to this study and therefore deserving of a special thanks are the local amateur archeologists in the Smithville area who kindly loaned us their collections and showed us the location of sites. They are Coy Bernard of Plattsburg and Roger Justus of Paradise. Due an even greater thanks is "Shorty" Harris of Smithville who not only showed us all the sites he knew about, but who also donated his collection to be incorporated into the master collection for the lake.

In the processing and analyzing of the materials recovered I was ably assisted by Terry Bolan, Leonard McDonald and Patricia Thompson. They also processed all the flotation samples--work which is not only slow and painstaking, but which requires a willingness to sacrifice one's eyesight in the name of archeology. To them, thanks.

This manuscript would not have been completed without the extra efforts of Lorraine Douglas who typed the text and Steve Hawks who drafted the maps.

Finally, and actually the most important, thanks goes to Karen Henderson, departmental secretary and her staff, for not only did they type all the tables--in the middle of final exam week--but without Karen we would not have been paid, the bills would not have been paid and more importantly, two bureaucracies could not have been kept happy!

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APPENDIX 1

OSTEOLOGICAL ANALYSIS OF SKELETAL REMAINS FROM THE
CHESTER REEVES MOUND (23CL108), A STEED-KISKER
MISSISSIPPIAN POPULATION

by

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INTRODUCTION

During the summer of 1975, the Kansas Archaeological Field School under the general supervision of Dr. Patricia J. O'Brien of Kansas State University excavated a portion of the Chester Reeves Mound (23CL108). On-site supervision was performed by the field foreman, Mr. Harold Beal, and he was in turn aided by a team of ten students who effectively excavated about two-tenths of the mound.

By the end of the 1975 field season, six burials had been identified and removed although one or more of the burials may have contained portions of more than one individual. The radiocarbon dates from this mound average A.D. 985 (UGa-1149, 1200, 1201). This time period and the meager cultural remains indicate it is a Steed-Kisker mound.

The skeletal remains from this site were returned to the Osteology Laboratory at Kansas State University for analysis. Preliminary analysis suggested the mound would have to be completed with an osteologist present to maximize the burial data due to the poor condition of the bone. To that end, a physical anthropologist was included in the contract for completion of the Smithville Lake Project with the U.S. Army Corps of Engineers, Kansas City District.

During the summer of 1976, Dr. Michael Finnegan accompanied Dr. Patricia J. O'Brien in the field to complete the excavation of the Chester Reeves Mound. As in the summer of 1975, Mr. Harold Beal was field foreman and students from the Kansas Archaeological Field School excavated the material under the supervision of Beal, Finnegan, and O'Brien.

By the end of the field season, a total of 30 numbered burials had been retrieved from the site. At the end of the school session, however, three squares had not been excavated. They were excavated in the spring of 1977 by Finnegan. Another 4 burials were found bringing the total number of individuals in the mound to 34.

All bone material was returned to the Osteology Laboratory at Kansas State University for detailed study and in-depth analysis of the skeletal material. What follows, therefore, is the analysis of this skeletal material. The conclusions reached from the skeletal analysis are presented in a later section of this report. However, the conclusions which affect the life style, architecture of the mound, and spatial relationships of other Steed-Kisker populations is given in the primary report of Dr. Patricia J. O'Brien.

THE BURIALS

Burial 1 is a male, age 50+ years. It was found in a semi-flexed position, lying on its back with the body axis from SE to NW with the head to the S. Red ochre was found near the skull and in the chest cavity area. It was located in Square 16N-12W at a depth of +0.33m above datum.

The bone is in rather poor condition for bone material in general, but in rather good condition relative to other material from this site. Bones present are primarily the long bones, both femora, tibiae, the left patella, portions of pelvis and the major portion of the skull, including the temporal bone. In addition, the mandible is present and in a good state of preservation, as is the alveolar portion of the maxilla. The teeth present are heavily worn, with some calculus build-up, but no obvious anomalies or carious lesions. A Stafne defect is present on the left side of the mandible anterior to the angle and directly inferior to the mylohyoid groove. A defect which looks like an earlier stage of the Stafne defect, just described for the left side, was present on the right side. However, it is more anteriorly located: directly below the M2. The central and lateral incisors on the maxilla are worn down below the normal crown level, while the canines and PM1's are worn down to within a millimeter of the end of the crown lingually and are worn past the crown buccally. Some deciduous teeth have been included with this burial although they do not go with the skeletal remains of this individual.

Burial 2. This individual of indeterminate sex is approximately 15 years old, based on the difference in dental attrition between the M1 and M2 and the diaphysis length as reconstructed on the right humerus. This individual was found in a semi-flexed position in a S-N axis with the head to the S. It was lying on its right side in Square 10N-10W at a depth of +0.73m above datum. This burial is extremely fragmentary, producing only four portions of bone of any length: the right humerus and parts of the right and left tibiae, and all that remains of the cranium is a portion of the dentition. In the case of the dentition, the crowns are generally present and in a good state of preservation while the roots are mostly absent. The lower M1s have a Y5 cusp configuration with the M2s displaying a +4 cusp configuration. No genetic anomalies are noted in the few teeth present.

Burial 3. This individual is a child of indeterminate sex, and is aged 4 or 5, based on the root spaces for the teeth. The body was found flexed on a W-E axis with the head to the W, lying on its back in Square 10N-10W. It was covered with red ochre and was found at a depth of +0.23m above datum. Only a few fragments remain of this individual.

The right petrus portion of the temporal bone along with a portion of the right sphenoid bone. A number of small fragments of the mandibular dentition with somewhat larger fragments of vertebra (indeterminate) and a number of unidentifiable fragments. In addition, this individual is represented by most of the bone of the cranial vault and in packaging a number of more adult bones appear to be intermingled with this child.

From the deciduous teeth present, extensive attrition can be seen, but no carious lesions are noted. On the forming crown of a permanent central incisor progressed shoveling is in evidence.

Advanced perotic hyperostosis is seen on the superior and lateral portions of the occipital bone exteriorly and on a parietal bone interiorly. Particularly on the parietal bone interiorly, a definite thickening of the diploë can be seen and it appears as if the inner table has receded in a number of well-defined earlier tables. Portions of the eye orbit are not available in order to see if cribra orbitalia was also present.

Burial 4. The extremely fragmentary remains of a child about the age of 3 to 5 years was found in a semi-flexed (?) position on an E-W axis with the head to the E, lying on the right side. The skull was found at a depth of +.035m above datum in square 14N-8W. This burial is essentially contained in two small plastic vials. One vial (having the bone material in it) is suggestive of cranial fragments of a young individual as aged previously. The other vial has small bones from both bird and small mammal, none of which is human.

Burial 5. Burial 5 is a complex situation with two adult and one adolescent (Burial 7) represented. The adults are listed as 5A and 5B. Both appear to be oriented generally in a S-N axis with the cranial portions to the S. Both appear to be in a flexed position and it is assumed by the excavators that this represents a primary burial. One individual was buried on its right side facing E, the other on its left side facing W. Mussel shell was found in the region of the head, and most of the skeletal portion between the pelvis and the cranium is deteriorated and lost. Based on the epiphyseal closure, both of these individuals are adult and based on identifiable dentition, one individual appears to be in the mid-20s. An estimated age of 25 would be made on the basis of dental attrition (Brothwell, 1972). The other individual is quite a bit older, displaying dental attrition in stage 4 or 5 and suggesting an age of possibly 45 years, again based on Brothwell (1972). From the long bones, particularly the distal angle in the femur and the proximal angle of the femur (neck-shaft angle), it is obvious that we have one male and one female individual. However, at this time we cannot ascertain which of these individuals was the younger and which the older. Although in each case major portions of the bone are present, they are badly eroded and much of the cortical bone has been gnawed away by rodents.

Burial 6. This individual was found in a flexed position on a S-N axis with the head to the S. Lying on its right side, with head and chest area covered with red ochre, it appears to be a male based on cranial morphology (Keen, 1950) and to be 22 years old based on the epiphyseal plates which are fused, and the dentition which shows a young adult in terms of dental attrition and wear patterns (Brothwell, 1972). This individual was found in Square 14N-10W at a depth of +0.070m above datum.

Burial 7. This burial was found commingled with burials 5A and 5B (see above). It is represented by a few bone fragments, most of the dentition and most of the supporting mandible.

Based on the dental eruption sequence and completion of the roots of developing and erupted teeth, an age estimate of 10 to 11 years can be made (based on the eruption of the PM1 and PM2--Stewart, 1968). Sex, of course, at this age cannot be determined. Shovel-shaped incisors are noted on this individual and the first mandibular molars have a dental cusp pattern of Y5. There are no long bones associated with this individual, therefore disallowing any idea of primary or secondary burial, orientation, etc. It was found in Square 12N-8W.

Burial 8 consists of cranial and legbones probably set only on an E-W axis with the head to the W. It was lying on its left side in Square 8N-8W at a depth of +.817m above datum. From the fragmentary nature of this material, an indeterminant sex is listed, although the individual is adult.

Burial 9. This individual is an adult male buried in a semi-flexed position on a S-N axis with head to S, lying on its back. Sex was determined on the basis of cranial morphology (Keen, 1950) and infra-cranial morphology (Bass, 1971). Based on dental attrition alone, this individual would appear to be in the mid to late 20s. The dentition is heavily worn, primarily on the anterior teeth, but this is somewhat suggestive of using the anterior teeth as a tool rather than general dental attrition. In the mandibular dentition, the left side has a supernumerary premolar on the lingual surface jammed in between and lingually to the PM1 and PM2. The M1 on the left side of the mandible appears to have decayed to the point where only the roots remain. The second molar on the left side shows the result of extensive carious lesions. The mandibular M3 on the left side displays a Y5 cusp pattern as does M3 on the right side. This skeleton is in better condition than any of the material reported above. Further analysis will be possible on this individual when the cranial portion has been reconstructed. Red ochre was found in the region of the upper chest near the clavicles.

Burial 10. This individual represents a secondary burial of a child, aged at 9 years, on the basis of the dental eruption sequence and loss of deciduous teeth. Sex, of course, remains unknown. This individual, covered with red ochre, was found in Square 4N-8W, at a depth of +0.182m above datum. While excavating this material, stained areas representing bone location were found as indicated in Table 25, however as the bone was excavated, we found that it was simply the stain of the bone and no bone was actually present (see Figures 25 and 26). The dental tissue, being much harder than bone, was preserved. The teeth were found in the matrix as they would have been in a child's mouth, i.e., the teeth were in proper position in the matrix as if we were seeing right through the maxilla and mandible of a child this age.

Burial 11. This is a secondary burial as seen by two parts of the burial: the long bones disarticulated and piled up in one location and the skull and a few ribs in another. This secondary burial would have an E-W axis, the skull lying on the right side and to the west of the lower limb bones. Much of this area was covered with red ochre. Sex is unknown but age, based on dental attrition, is in the neighborhood of 30 to 40 years. This material was found in Square 6N-12W, at a depth of -0.140m below datum.

Burial 12. This burial of an individual of indeterminate sex is aged at 12 ± 1 years, based on the occlusal surfaces of the molar teeth and their dental attrition, and also, the fact that the third molars have not yet erupted and the second molars show extremely little wear--mainly some polishing in some places. Very few boney parts were found with this individual, but they suggest a semi-flexed burial on a S-N axis with the head to the S, lying on the right side. A small concentration of bone chips, a broken biface, and some quartzite chips were found associated with this individual. It was found in Square 8N-12W at a depth of +0.106m above datum.

Burial 13. Exact positioning of this individual is not known. The cranium seemed to face downward and to the east. It is suggested that the body was on a S-N axis with the head to the S, resting on the right side. It was found at a depth of +0.485m above the datum in Square 6N-10W. Because of the condition of the bone (the lack of bone), the sex is indeterminate and the age is seen as adult. The teeth present show slight to moderate attrition and the occlusal surface of the M1 suggest an age possibly in the late 20s and early 30s. Nothing else can be said about this particular burial.

Burial 14. Burial 14 appears to be an individual of indeterminate sex, aged from 4 to 5, based on crown formation of the permanent dentition. It appeared to be a secondary burial, put in on its right side facing SE. It was found in Square 4N-12W at a depth of +0.220m above datum.

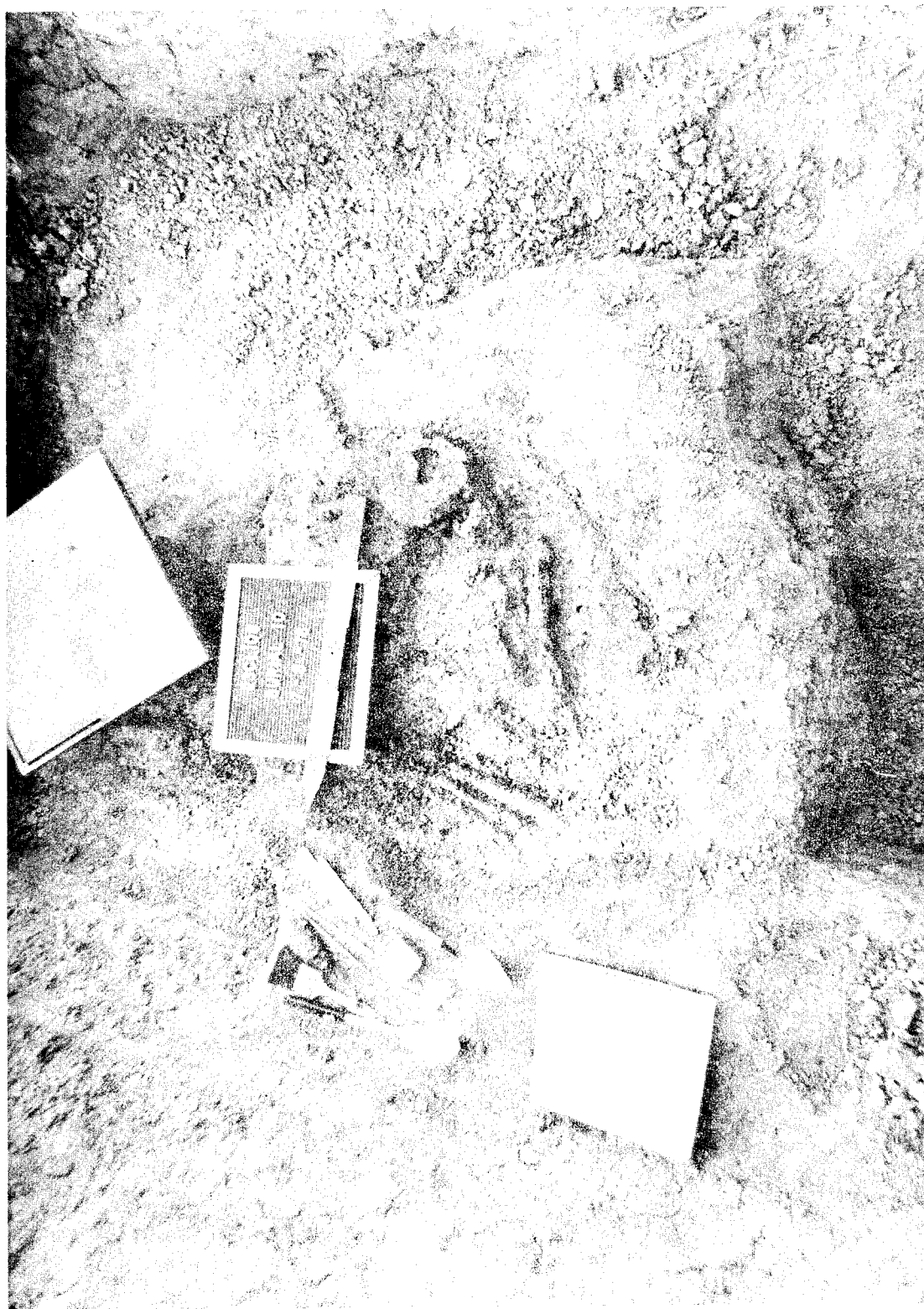


Fig. 25. Burial 10 displaying the extent of the burial. 1) Points out the stain of remains of long bones; 2) points out the stain from the vertebral column; and 3) points out stain of the mandible and enamel portions of tooth crowns. (See fig. 26)



Fig. 26. Close up of Burial 10 displaying the loss of all bone material, but showing the retention of deciduous and permanent teeth in the soil matrix.

One developing central incisor shows a modest development of shovel-shaping and one unidentified tooth (possibly a premolar) shows a single crown with a double root.

Burial 15. Burial 15 appears to be a secondary burial with the head to the S facing NE. This puts the burial on a S-N axis lying on its right side. The sex is indeterminate and the age is 9 years based on dental development. Red ochre was found associated with this burial, which was in Square 2N-10W at a depth of -0.498m below datum.

Burial 16. Burial 16 was flexed, lying on its right side with an orientation of SW to NE, with the head to the SW. It is a male on the basis of infracranial morphology--particularly the neck shaft angle of the femur and the maximum diameter of the femoral head. The cranial morphology supports this, particularly the right temporal bone, as it displays a prominent mastoid process. The bone which is present is in fairly good shape, although not all of the bone is represented. The mandible is in particularly good shape displaying male characteristics, and the teeth indicate an age, based on dental attrition, of about 25 years. The burial is primary and is located in Square 2N-8W at a depth of -0.261m below datum.

Burial 17. Burial 17 was found flexed on a S-N axis with the head to the S. It was lying on the right side facing E. The sex of female is assigned to this burial, based on the angle of the mandible, which is not the most diagnostic feature. The age is determined as 23 years, based on the state of dental attrition. The left mandibular PM1 has a twin root. The burial was found covered with red ochre in Square 2N-8W at a depth of 0.326m below datum.

Burial 18. Burial 18 was found semi-flexed, with the body on a S-N axis, head to the S, lying on the left side facing W. The burial is that of an adult female, based on the angle of the greater sciatic notch, and age by dental attrition is about 28 ± 5 years. It was found in Square 6N-10W, covered with red ochre, at a depth of +0.024m above datum.

Burial 19. Exact positioning of this burial is not known although the orientation is roughly S-N, with the head to the S. It would appear to be semi-flexed, lying on the right side, with the head to the S, facing SE. It is an immature individual so the sex is indeterminate. The age is 14, based on dental crowns present, the development of the 3rd molars, and the polishing to slight wear found on all second molars. A little ochre was found with this burial, which was found in Square 6N-10W at a depth of +0.102m above datum.

Burial 20. Burial 20 is probably a secondary bundle burial. The head was to the S, and body or bundle of long bones to the N. The skull is lying on the right side facing E. This individual is 6 years old, based on crown development of various teeth. Sex at this age is of course indeterminate. A little red ochre was found associated with this burial in Square 2N-10W at a depth of -0.077m below datum.

Burial 21. This individual is represented by the skull only and it is assumed that the skull was positioned S. At least, it is facing E with the base N. The age of this individual is about 12 based on crown development of the molars and some polishing on M2. The individual was buried with red ochre, the sex is indeterminate, and it was found in Square 4N-12W at a depth of +0.170m above datum.

Burial 22. This individual was found in a semi-flexed position with the body on a S-N axis, with the head to the S. It was lying partially on its back with the right side facing up. The individual is 6 or 7 years old and the sex is therefore indeterminate. It is a primary burial, with some long bone material present, but in a fragmentary condition. The cranium is almost complete, but again quite fragmented. It was found in Square 2N-10W at a depth of -0.196m below datum. The lower right central and lateral deciduous incisors have separate crowns and fused roots. Although the roots are fused up toward the crown, one can discern one root from the other.

Burial 23. This individual was quite different from others described in this section; it was buried in an extended position. As with the others, the orientation was SE to NW, with the head to the S lying on its back, face up (see Figure 27). It is an adult male, age 35 years on the basis of dental attrition (Brothwell, 1972). This individual would have a stature of 175.5 cm as measured in the ground. It was found in Square 4N-12W at a depth of -0.048m below datum.

Burial 24. This individual was buried on a N-S axis with head to the S, lying on the right side, facing E. It is an adult male based on the sciatic notch and his age is about 50 years, based on the dental attrition seen on the maxilla and mandibular dentition. This individual is in the best condition of any individual represented here, with rib bones fairly complete and the left femur complete to the distal end (see Figure 28). The heavier portions of the innominate bones are quite complete, and a number of vertebrae can be analyzed. The cranium is in good shape with the occipital, both parietals, and frontal bones complete and fused together. The fusion of the sutures connecting these bones also suggests an age of 50 or 50+ for this individual. There was one eroded mussel shell associated with the left innominate of this individual, which was found in Square 10N-8W at a depth of +0.115m above datum.



Fig. 27. Burial 23 showing the only extended burial from the Chester Reeves Mound.



Fig. 28. Burial 24, which displays the typical flexed position of burials in the Chester River Mound. This is also the best preserved skeletal material from this site. Contrast this with the bone condition (lack of bone) of burial 10 (Fig. 25)

Burial 25. This burial appeared semi-flexed, with head to the S and body to the N. It is represented by fragments of long bones, with the cranium presumed to be in the balk. Mixed with the long bones of this burial are the bones of a newborn infant. Both age and sex are indeterminate for the long bones represented, and a newborn age and indeterminate sex are given to the immature bones. The long bones are adult. This mass of bone was found in Square 10N-8W at a depth of +0.107m above datum.

Burial 26. This individual was found in a semi-flexed position, with the axis of the body S-N, and the head to the S. It was lying on its back, the skull was on the right side, facing E. The age of this individual is 8 years, based on the dental eruption sequence, diaphysis length of right femur and carpal length. For this age, sex is indeterminate. Red ochre was found covering much of the burial, and the bone appears to be in good condition, again relative to most of the material from this site. The individual was found in Square 10N-6W at a depth of +0.312m above datum.

Burial 27. Burial 27 is represented by a left and right femur, parts of two tibiae, a few phalanges of the hand, and the left talus. The bones were found in an extended alignment, but we cannot suggest that this represents an extended burial pattern. The bone is fairly lightweight and appears to be from a young male. Although we will consider it male, there is some question about this. It was found in Square 8N-6W at an elevation of +0.403m above datum.

Burial 28. This individual was found in a semi-flexed position lying on its back with the knees to the E, and head to the S. It is a male, based on the size and robusticity of the mandible. This sex is also suggested by the somewhat deteriorated right femur, which shows a neck-shaft angle of a male. Age is adult and probably older than 30 years, although this cannot be documented because of the destruction of the molar teeth. This individual was found in Square 12N-8W at a depth of -0.043m below datum.

Burial 29. This individual, represented by a skull, was found on its left side facing W. This would suggest the orientation of the body was northerly. The sex of this individual is indeterminate, and the age of approximately 11 years is based on the dentition. This individual was found in Square 2N-10W at a depth of ca. +0.47m above datum.

Burial 30. This individual is represented by a skull. The skull had no apparent orientation due to the extensive destruction it had suffered in the ground as a result of erosion. No other bones were found in association with this individual, which suggests either the possibility of a secondary burial or the possibility that the remainder

of the skeleton had deteriorated prior to the time of excavation. Based on the condition of the skull the latter explanation seems quite possible. This individual is aged at 5 years, based on dental eruption sequence. It was found in square 6N-8W at an elevation of +0.136m above datum.

Burial 31. Burial 31 is represented by a number of long bones, which disintegrated upon excavation, and a skull. It is a skeleton of a 27 year old individual of indeterminate sex. It was found in a flexed position with a N-S orientation, head to the S, lying on its left side facing W. There were red ochre stains slightly above and to the south of this burial. This individual was found in square 6N-8W with a portion of the skull resting in square 6N-6W. It was found at a depth of +0.76m above the 0.0 datum.

Burial 32. This individual was found in a flexed position on a N-S axis, lying on its back and left side, with the skull to the S facing N. The individual, of indeterminate sex, is 8 years old based on the dental eruption sequence. No artifacts were associated with this individual which was found in square 0N-8W at a depth of -0.265m below datum.

Burial 33. Burial 33 is represented by major portions of a skull and some ribs. The ribs were lying to the west of the skull which was on its base facing west. Although the ribs are oriented to the W they are badly deteriorated, and we cannot be sure that an E-W orientation is suggested by this burial. This individual is 5 years old, based on dental eruption and sex is, of course, indeterminate for this age. A shell was found above the skull, in a greatly deteriorated state, showing a pinkish stain in the soil. This individual was found in square 6N-8W at a depth of +0.136m above datum.

In addition to the burials scattered fragments of bone and teeth were found in the mound fill. These are presented in Table 25.

DEMOGRAPHIC ANALYSIS

Demographic criteria for the Smithville skeletal analysis are outlined as follows:

Sex. Sex was ascertained on each skeleton where possible. The primary criterion for sex was analysis of the pelvic girdle utilizing the greater sciatic notch, erosion of the pre-auricular sulcus, and the fine morphology of the pubic arch as outlined by Phenice (1969) (see also Bass, 1971). When the pelvis could not be observed or had completely deteriorated, other methods of sexing the skeleton were utilized. Secondary

TABLE 25

Bone material, teeth, and soil samples, not associated with
numbered burials from site 23CL108

125

F.I. surface	1 median symphysis fragment of mandible, 1 left palatine fragment, 1 left femoral diaphysis fragment, 6 small bone fragments.
10N-6W	5 small long bone fragments.
6N-6W	1 large left innominate fragment (acetabulum, ilium) 6 small innominate fragments.
6N-8W	Maxillary fragments with portions of 4 teeth--showing one enamel extension and three with an enamel pearl.
4N-6W	2 inner ear fragments, 1 deciduous incisor, 3 small tooth fragments.
10N-8W	2 innominate fragments (ischium).
12N-6W	Charcoal sample and erupting dental crown fragments.
10N-10W	1 large stain containing bone fragments and charcoal, and a portion of a right calcaneus.
12N-10W	Portion of right distal femur lateral condyle near condylar fossa.
6132	1 rodent gnawed fragment of a femoral diaphysis.
6198	1 radial fragment.
6214	4 small bone fragments.
6235	Numerous small bone fragments (long bones).
6236	7 portions of deciduous and erupting primary dental crowns.
6239	1 femoral head fragment.
Misc.	3 parietal fragments.

Soil Samples 23CL108

12N-6W	1 charcoal sample at 100-120 cm.
12N-8W	1 red ochre sample, 1 darkened ochre sample taken from directly above B.28. at 133 cm.
4N-10W	1 red ochre stain sample at 63 cm.
6N-6W	1 soil sample containing bits of hardened clay, 1 piece of unworked chert, at 80-100 cm.
10N-6W	34.7 grams of charcoal at 80-100 cm.
12N-6W	1 soil sample containing clay pieces, 1 soil/charcoal sample, 2 pieces of unworked chert at 120-140 cm.
2N-10W	1 burnt walnut shell at 0-20 cm.
10N-6W	1 mussel shell fragment at 175 cm.

Animal Bone

criteria were the morphology of the crania, after the work of Keen (1950), and the angles generated between the neck and shaft of the femur. Also, metric analysis of the diameter of the head of the femur was utilized in sex determination.

Age. Age for these individuals is based, for the younger individuals, primarily on the dental eruption sequence. I feel that this is adequate, particularly given the condition of the Smithville skeletal series, for those individuals aged from birth up to 18 years of age. The tables of Schour and Massler (1940, 1941) and Moorrees, Fanning and Hunt (1963) were used. Ages of individuals over 12 and under 18 can still be ascertained by an x-ray of the mandible or maxilla as root completion will continue to 18, after the methodology of Brues (1971). Where possible diaphysis lengths were measured in situ and applied to the tables of Merchant (1973), Merchant and Ubelaker (1977), and Hoffman (1977). For ages over 18, and where the dentition is not applicable, the pubic symphysis was utilized when present. However, again, the condition of this bone did not allow for the pubis to be utilized very often. More often older age (i.e., over 18 on up to 50 years of age) was determined by a combination of epiphyseal closure, suture closure, and dental attrition. It was found that dental attrition in this population follows that reported by Brothwell (1972:69) rather closely. Therefore, it was felt that his table could be utilized without noticeable correction. A microscopic method (Kerley, 1965; Erecksen, 1973, 1976a, 1976b) is available for the determination of age, but the additional ages which would result would probably not warrant the expense in obtaining the thin sections needed for this method.

Graphically the results of the demographic analysis can be seen in Table 26. By scrutinizing this table, we find that the average age at the time of death is 19.22 years with a standard deviation of 13.7 years. This is based on 31 individuals where age could be ascertained. It must be noted that where age was not ascertained (3 individuals), these individuals were adult. Our definition for adult would place these individuals in excess of the mean age of 19.22 years.

We can further subdivide age by looking at the 9 known males and the 3 known females. In the former, the mean age at death was 33.0 years with a standard deviation of 10.58 years. In the latter case, the females show a mean age of 32.00 years with a standard deviation of 11.53 years. The youngest individual in either the adult males or female category is 22 years of age and by comparing the average age of death of males and females, we find them to be quite similar, both in mean age and in the standard deviation supplied for each mean. This population is further divided into infants, newborn to 2.5 years (0%); children, 2.5-13.5 years equal 15(44.1%); adolescents, 13.5-19 years, equal 2(5.9%) and adults 20+ years equal 17 (50.0%).

TABLE 26

Summary of Demographic Information for the Chester Reeves Mound, Site 23CL108.

Burial #	Sex	Age	Stature	In Situ length (cm)	Primary or Secondary	Bearing Skull to Pelvis	Pelvis Knee to Knee to Foot	Elevation Relative to 0.0 Datum	Square Numbers
1	M	50+	162.76+3.8		P	SE-NW		+330	14N 10W
2	I	15			P	S-N		+560	10N 10W
3	I	5			P	W-E		+230	10N 10W
4	I	5			P	E-W		+035	14N 8W
5 (A)	M	25			P	S-N		+025	14N 8W
5 (B)	F	45+5			P	S-N			14N 8W
6	M	22	165.16+3.8		P	S-N		+070	14N 8W
7	I	10							12N 8W
8	I	A			?	40°		+817	8N 8W
9	M	27+5	161.80+3.8		P	336°	220°	+298	8N 12W
10	I	9		66.5	S	10°	106°	+182	8N 12W
11	M	35+5			S	64°	350°	-140	4N 8W
12	I	12+1			P	343°	70°/28°	+106	8N 12W
13	I	30+5			?			+485	6N 10W
14	I	5			S	48°	154°	+220	4N 12W
15	I	9	69.7		S	15°		-098	2N 10W
16	M	25+3	164.59+3.8		P	325°	140°	-261	2N 8W
17	F	23		108.0	P	356°	130°	-326	2N 8W
18	F	28+5	116.0		P	48°	300°	+024	6N 10W
19	I	14			S	14°	125°	+102	6N 10W
20	I	6	57.2		S	355°		-077	2N 10W
21	I	12			P	10°	50°	+170	4N 12W
22	I	7	78.2		P	330°	330°	-196	2N 10W
23	M	35+5	175.50		P	338°	123°	-048	4N 12W
24	M	50+10	173.0+3.8		P			+115	10N 8W
25	I	A			P	346°	113°	+107	10N 8W
26	I	8	71.9			108°		+312	10N 6W
27	M?	A	163.9+3.8			15°	45°	+403	8N 6W
28	M	28+7	123.0			355°		-403	12N 8W
29	I	11			?			+472	2N 12W
30	I	5			P	340°	200°	+136	6N 8W
31	I	27+5	58.0		P	025°	090°	+076	6N 8W
32	I	8	68.0		P	270°?	280°	-265	ON 8W
33	I	5	33.0		?			+176	6N 8W
Summary Statistics:									
N=31			N=7	N=13	N=22	N=16	N=13	N=32	N=34
X=19.22			X=166.7cm	X=86.25cm	X=5.95°	X=171.0°	X=349.2°	X=1249m	X=7.29
σ=13.71			σ=5.34	σ=37.10	σ=40.76°	σ=98.23°	σ=59.8°	σ=.2534m	σ=4.20

I = Indeterminate; M = Male; F = Female; A = Adult; P = Primary; sf = Semiflexed; S = Secondary; f = Flexed; E = Extended

BURIAL TYPE AND POSITION

If we look at the age of the individual and the dimensions of the burial remains, we find a crude correlation with age, particularly so with the 7 younger individuals, aged 6 through 9 (length of burial remains is 63.5 cm with a standard deviation of 14.9 cm). The older individuals, composed of five individuals, show a mean length of 123.66 cm with a standard deviation of 30.37 cm. This is roughly as it should be, given that most burials are in a semi-flexed to flexed position. The adults indeed would take up more space in the ground than would immature individuals. However, the total difference between the adult and immature individuals is a little obscure in that one adult individual, burial #23, was totally extended in the ground and not of the flexed or semi-flexed type. Of the burial types listed, 18 appear to be primary burials, 5 seem to be secondary burials, 2 burials are questionable, and for 9 burials, no determination could be made. Of the secondary burials, all are of indeterminate sex (except #11, which is male) and the mean age is 12.8 years with a standard deviation of 12.53 years. When comparing this to the average age for either male or female adults, it appears that secondary burials are primarily composed of immature individuals. Of those individuals which are questionable as to type of interment and those where type of interment could not be recorded, we find a mean age of 14.4 years with a standard deviation of 9.6 years. It must be noted, however, that 3 of these individuals are simply listed as adult, therefore over 20 years old, and this would tend to increase the average to some extent.

With reference to positioning of the burials, flexed, semi-flexed, or extended, the following sums are presented. Eight individuals (23.5%) showed semi-flexed positions, 14 individuals (41.2%) show a flexed position, 1 individual (2.9%) was totally extended and for 11 burials (32.4%) no orientation could be determined. It is noted here that the division of semi-flexed or flexed occurs as follows: the orientation of the axis of the body from head to pelvis is presented in degrees. The orientation from pelvis to knee is also presented in degrees. If the difference between the orientation of the axial skeleton and the orientation of the femur is less than 90° , the individual is considered to be flexed. If the angle between the axis and the femur is greater than 90° , the individual is thought to be semi-flexed. Again, in only one instance was the body actually extended. Those individuals which are semi-flexed are generally within 15° or 20° of the criterion for a flexed skeleton. Eight of the individuals which could be aged and were found in the semi-flexed position have a mean age of 22.37 years with a standard deviation of 15.47 years. This compares quite favorably with the 14 flexed individuals, mean of 21.00 years, and a standard deviation of 14.09 years. The extended individual is only one case and

therefore does not allow for comparison of this nature. However, of those individuals where no orientation is noted and an age is given, the number of cases is 8, the mean is 11.0 years and the standard deviation is 8.14 years. Although this is somewhat less than either the flexed or semi-flexed ages, this is understandable in light of the fact that most of these burials are secondary burials which are comprised of a younger age group. This may be suggestive of some age dependency relative to primary and secondary burials.

With respect to burial depth, relative to our 0.0 datum point, we find an average depth of +0.1249 m with a standard deviation of 0.2534 m. In terms of looking at the elevation relative to the 0.0 point and comparing it with either semi-flexed, flexed, or no orientation burials, we find the following. The semi-flexed individuals, $n = 8$, have a mean of +0.1188 m, and the standard deviation is .2593 m. For the flexed individuals, $n = 13$, mean = +0.0388 m, with a standard deviation of .2026 m. Those burials with no orientation, $n = 10$, mean = +0.2591 m, with a standard deviation of .283 m. From this we can see that the flexed individuals are set relatively lower than the semi-flexed individuals and those without orientation are set relatively higher in the mound. However, we also notice that the higher the elevation of the burial type in the mound, the greater the standard deviation. So much so, that we suggest there is virtually no difference in elevation based on these burial types. In addition, the burials without orientation tend to be secondary burials, younger, and are located more southerly relative to the architecture of the mound. This follows a natural rise in elevation of the area.

When looking at the plot of the burials and comparing them to the architecture of the mound, we find that the burials are more or less associated with a north-south axis running through square 10W (9.24W, standard deviation of 1.8). They extend from square 0N through square 14N. Relative to the architecture of the mound, the burials follow the center of the mound on the north-south axis but seem to extend south of the actual mound (mean of 7.29N, standard deviation of 4.2) and do not go as far north as the actual mound architecture does. There also seems to be excessive fill, both east and west, of the burials within the mound.

STATURE

Stature could only be obtained on seven adult male individuals from this particular series. The stature for burial number 23 was taken from the in situ measurement of 175.5 cm. This was the individual who was

totally extended in the mound. Two other individuals 9 and 16 were assigned statures based on direct, rather complete measurement of a long bone. The remaining individuals (burials 1, 6, 24, and 27) had statures ascertained by a slightly different method. For these individuals, measurements were made of fragments of the femur. These fragment measurements, corresponding with a segment from the method of Steele and McKern (1969), were utilized in a regression equation in order to estimate the maximum length of the bone from which the fragments came. Achieving this, the generated bone length was then utilized in the equation of Trotter and Gleser (1958: Table #12) and regressed for an estimate of stature. (Trotter and Gleser (1958) was chosen over Genovés (1967) based on reconstructed stature of Burial #23.) In each case (other than burial 23), the standard error is ± 3.8 cm. However, where the fragments of long bones were used, an additional error of from 1.09 to 1.31 cm has to be accounted for in terms of the error between the fragment length and the optimal maximum bone length.

Despite the difficulties in obtaining these measurements and reconstructing these statures, the mean stature for males from this group, based on an n of 7 is 166.7, with a standard deviation of 5.34 cm. Stature ranged from 161.8cm to 175.5cm.

UNIQUE ANOMALIES OF THE SKELETON

The skeletal material at the time of recovery and the continued erosion during processing, preservation and analysis has deteriorated it to a great extent. Because of this, very little actual skeletal material could be observed in great enough detail to pick up unique anomalies which are normally noted in skeletal analyses. We therefore cannot comment on how many unique anomalies were lost in this series of 34 skeletons. Despite this, two unique anomalies were found in this material.

Burial 1 displays a unique case of a well developed and a developing Stafne defect (Stafne, 1942; Malkin and Burg, 1974; and Keith, 1975) (see Figure 29). This defect was found both on the left side and on the right side of the mandible. The Stafne defect in this case was rather typical, being found on the left side of the mandible inferior to the mylohyoid line below the third molar. On the right side the Stafne defect appears to be in a developmental stage. It is found below the mylohyoid line on the inner surface of the mandible and somewhat more anteriorly located than on the left; in this case below the second molar. The left defect measures 16.4 mm in the anterior-posterior dimension and 6.4 mm in the superior-inferior dimension. The left defect, being oval, is made up of two lesser facets which are conjoined.

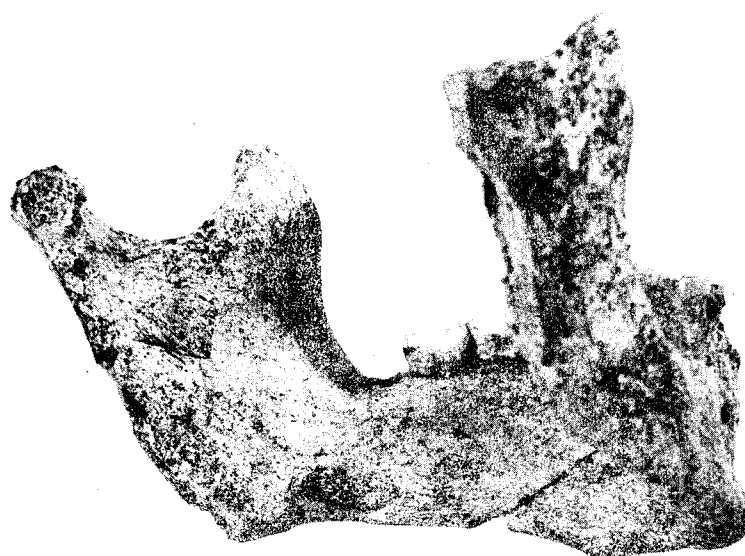


Fig. 29. The Stafne defect seen bilaterally on the mandible of burial 1.

The posterior facet is 5.0 mm deep from the surrounding bone and the anterior portion is slightly less than 1.0 mm in depth. On the right side the defect measures 7.1 mm in the anterior-posterior dimension, and 4.3 mm in the superior-inferior dimension. This defect, as mentioned, appears to be developing and is 0.5 mm deep.

This particular mandible is rather well developed and heavy, showing a number of teeth all greatly worn. No carious lesions appear to be present in the remaining dentition and, other than some rather slight alveolar absorption, no other pathological changes are seen on this mandible. This individual was aged, on the basis of suture closure and dental attrition, as roughly fifty years old. The defect on the left side is similar to other defects this researcher has seen, although, primarily in much earlier material; i.e., most of them have been found in the Late Archaic period and to a lesser extent in the Early or Middle Woodland periods (see Finnegan and Witty, 1977; Finnegan, 1977a; Lowe, 1973; Morse, 1969).

Although a number of researchers have studied this defect in vivo and in skeletal material specimens, the etiology still seems to elude us. It has been suggested that this defect is possibly the result of (1) a degenerated tumor; (2) a localized fibrous cystic disease; (3) a hematoma in the bone marrow; and (4) some response to localized infection (Phemister and Gordon, 1926).

Although we have seen a number of these cysts or defects in other populations, we are not entirely satisfied with any of the above etiologies. At the same time, we have no material to support the possibility of a different etiology and we have no way of knowing if this particular defect is a response of a genetic condition, or might be due to the environment, particularly in terms of the diet of the individuals or their eating behavior of certain food stuffs. This defect is mentioned here and described as an anomaly, and it is hoped that in the future, with a better understanding of this defect, we will be able to return to this analysis and add relevance to this early population.

A second anomaly is an exceptionally-large frontal sinus in burial 6. This individual is a male aged at 22 years. The frontal sinus is quite large, even with respect to the fact that male sinuses are typically larger than female sinuses. Also the sinus extends laterally more than half way across each eye orbit and the upper border of the sinus has a number of well developed scallops which are typically seen in females rather than in males. The presence of this sinus was seen due to the destruction of outlying bone in this area. From the outer table of the frontal bone, which does remain, there is no suggestion, due to bossing over the frontal torus, that this area might have a well developed sinus.

There is a relative lack of other material to look at in comparing the size of the frontal sinus in these individuals. It is somewhat important, however, inasmuch as Wells (1964) has suggested that enlarged frontal sinuses may serve as a reservoir for pus formation and general germ activity and act as a sump for disseminating this material lower down in the respiratory system. The suggestion here is that an enlarged frontal sinus might well correlate with respiratory disease suffered by this particular individual. It must be added that there is little good empirical evidence available to back up these theoretical suggestions on the part of Wells.

PATHOLOGY

Pathologies are seen throughout the skeletons of these individuals where portions exist which are large enough and which have not eroded to the extent where pathologies cannot be seen. Although three individuals show skeletal pathology, other than in the dental region, it must be noted that a great deal of pathology could possibly have been lost due to the condition of the material. In order to check for pathology, every large portion and fragment of bone was observed closely for changes in texture or surface type. Again it must be emphasized that due to the erosion of the surface of most of the bones present, pathology relating in inflammation of adjacent soft tissue, periostitis, porosis, and proliferation of the osteogenic layer of the periosteum in most cases could not be observed. With this caution and these limits in mind, and satisfying the critique on pathological evidence (Brues, 1974), skeletal pathology was however observed.

Burial 3 displays some porotic hyperostosis on both parietals and on the occipital bone. Burial 3 was aged at 5 years and the porotic hyperostosis seen was rather moderately developed. Changes were also seen on the endocranial surface (the inner table), but these pittings were seen as normal porosity which can be related to rapid growth at an age of 5 years. The cause of this disease cannot at present be known. However, most researchers suggest that it is due to some anemic or blood born situation (i.e., iron deficiency anemia, sickle cell anemia, thalassemia, or due to a nutritional disorder where the blood is involved in compensation attempts) (see Angel, 1964, 1966, 1967).

Burial #16, an adult male age 25, shows what appears to be healed porotic hyperostosis on the occipital bone and to a lesser extent on the parietal bones in the region of the lambdoid suture. The etiology of this is again like that of burial 3 above, except that whatever the etiology, it would appear that this individual had overcome the disease

state and that some healing had taken place given the condition of the skull mentioned. For further reference on this material, see El Najjar (1976) and Ortner (1975) for recent research.

Individual #24, a male age 50 years, displays the only case of documented osteo or degenerative arthritis in this sample. By this admission, we do not wish to suggest that arthritis was a rare entity in this group of 34 individuals, but rather that due to bone destruction and bone loss we are unable to tell of the amount of arthritis in this particular population. Burial 24 showed erosion of the anterior surface of the clavicles, which is probably due to some soft tissue irritation or inflammation at this locus and has nothing to do with the arthritis seen elsewhere in this skeleton.

The arthritic involvement in this individual is seen on the bodies of C6 and C7 where great erosion has taken place. The osteophytic activity at this location seems to be minimal with most of the destruction seen as pitting and erosion. Erosion of the right inferior articular surface of thoracic vertebra #8 and its adjoining surface on T9 is seen. The involvement on T9 is lesser and in each case the erosion and the arthritis are restricted to the articular surface and the immediate surrounding area. There is a slight osteophytic build-up around the inferior articular surfaces. The same condition is seen on the right inferior articular surface of T10 and its adjoining surface on T11. In each case, the erosion is fairly advanced but no eburnation is present on these surfaces. The joint space was probably not immobile because the remainder of the involved vertebrae are rather clean. On the same individual there is a probable display of arthritic involvement which has exceeded the normal case. Here we find a case where an ankylosed nodule is present between the twelfth thoracic and first lumbar vertebrae. This is seen by the ankylosing exostosis connecting the inferior border of the centrum of T12 with the superior border of the centrum of L1 following the margin of the anterior longitudinal ligament and proceeding posteriorly to the vertebral arch. This is a result of osteophytic activity working superiorly and inferiorly from the two vertebrae and joining in the middle. We do not know the full extent of this condition in that most of the bodies of both vertebra are lost due to ground erosion and deterioration. The fact that this ankylosed nodule did not disappear due to erosion is a result of the fact that the ankylosed nodule is made up of heavier cortical bone than the remainder of the vertebra.

A similar condition possibly existed between lumbar 5 and the first sacral segment. This is not as well documented in that much of L5 is deteriorated. However, the osteophytic activity can be seen on the promontory of the first sacral segment working upward toward the 5th lumbar vertebra. The full extent of this osteophytic activity cannot be seen because the superior portion has been eroded and therefore no

limiting case is seen. Based on the massiveness and the integrity of the portion which does exist, we can suggest that there might have been an ankylosed nodule between L5 and S1.

Again, it must be mentioned that this small amount of osteo arthritis is not necessarily indicative of good health on the part of these 34 individuals inasmuch as most individuals did not leave enough bone material for a display of arthritis to be seen. Also, we must note that with an average age of death at 19.2 years, most of the individuals would not have been old enough to show arthritis of a degenerative, age-dependent nature. Any arthritis observable in younger individuals would probably have been either of the rheumatoid type or due to traumatic insult.

Much more can be seen in the dental pathology from the 34 individuals in this population. The reason for this is primarily that dental tissue is harder and more resilient to deterioration in the ground and the enamel portion of the teeth remain when the surrounding bone and roots have deteriorated.

A total of 616 teeth were observed for this population. These teeth come from 28 individuals, a mean of 22.0 teeth per individual, with a standard deviation of 11.66. The mean age of individuals with teeth is 18.5 with a standard deviation of 12.9 years. Some individuals had as many as 43 teeth represented, although not all of these teeth would have been erupted at the same time. That is, we have not only the deciduous teeth with their roots resorbing, but also the crowns of the developing permanent teeth underneath. In many cases, a burial was completely identified on the basis of the teeth, which were found in anatomical position within a stain which was left from the bone of the cranium of that individual.

Of the 616 teeth present, 81 showed carious lesions, with as many as 4 lesions on one tooth. This averages 2.89 caries per individual or 0.13 caries per tooth. Most of these carious lesions were not large and most did not show extensive destruction of either the enamel area or the dentine or pulp beneath. In four cases, the carious lesions had progressed to the state of engulfing 25% of the volume of the crown of the tooth. In each of these cases, the tooth in question was a molar and a permanent tooth. In only one of these cases was there adjacent abscessing in the alveolar spaces adjacent to the roots of these teeth.

In these 28 individuals who display teeth only 6 abscesses are seen. These six abscesses can be distributed as 0.21 abscesses per individual where teeth were involved or a mean of 0.0741 abscesses per carious tooth, or .0097 per tooth. It must be noted that not all teeth or individuals are represented by alveolar bone material which would therefore increase the mean number of abscesses per individual and

abscesses per tooth. The abscesses present do not show advanced deterioration of the health status of individuals in this particular group.

These abscesses are distributed as follows. Burial #9, a male individual, 27 years of age, displaying 25 adult teeth produced 4 carious lesions in these teeth and showed two abscesses: one at the roots of the lower right M2, and one below the lower left M1. Burial #16, a male, 25 years of age, presented 31 teeth for analysis, and showed two carious lesions and one abscess, located at the roots of the lower left M2. The third individual displaying abscesses (burial #24) is a male of approximately 50 years of age. Eighteen teeth were present for the analysis and these teeth displayed four carious lesions and three abscesses. These abscesses are distributed as follows: one abscess on the left maxilla at the root of the M1, mandibular abscesses between the roots of M1 and PM2, which probably came as a result of the destruction of M1, and an abscess on the mandibular left canine root space. All abscesses seen in this material were not large and were contained within the immediate alveolar space of the roots of the teeth. It can be seen that most of the abscesses are associated with mandibular molars and the single maxillary abscess was not large enough to communicate with the maxillary sinus on that side.

Again, we must caution that these few abscesses are not necessarily indicative of the larger population inasmuch as so much destruction is seen in the bone material as to make these few statistics rather preliminary in terms of showing pathology in the dental area.

X-RAY ANALYSIS

X-rays were taken of some of the skeletal material from Site 23CL108 in order to supplement the gross inspection of cranial portions, long bone portions, and unique anomalies found on mandibles, and to identify the internal structures of the bone. Normal positions of bone in terms of clinical methodology are usually impractical, when dealing with osteological material and do not show the structural orientation that we would like to see. Consequently the bones were x-rayed in whatever position necessary to produce the best picture of the internal structure. This was both augmented and hindered by the fact that much of the bone was in poor condition.

The mandibles of burial 1 and burial 9 were x-rayed lying on the right and left body and ramus, producing a lateral view, with the central ray directed toward the second molar. The energy intensity for all exposures was roughly 86 KV, 100 ma, .003s. Although this was the basic

kilovolt, milliamp, and seconds exposure, the time had to be increased slightly due to infiltration of soil in the bony matrix. Although preservatives were utilized on this material, we have found no difference in x-ray exposure needed to film preserved or non-preserved bone material.

The x-ray film did not produce any hidden characteristics of structure or morphology which were not known from the gross maxillary specimen. The x-ray did, however, qualify and delineate the build-up of cortical bone around the Stafne defect on the left side of the mandible from burial 1, but did not delineate the right side of the same mandible and its Stafne defect. The cortical bone seen in the x-ray on the left side of burial 1 was just slightly thicker than the cortical bone on the ascending ramus. This suggests no overt bony build-up relative to the Stafne defect.

Although the root structure and socket for the accessory pre-molar on the left side of the mandible of burial 9 was seen and delineated it did not add to the etiology of this particular anomaly.

METRIC OBSERVATION

Basic standard measurements were taken on the cranial and infracranial skeleton where possible. The limiting factor in the measurements which could be taken is the condition of the bone at the time of excavation. However, those measurements which could be taken are recorded in Table 27 for the cranial metric data and Table 28 for the infracranial metric data.

NON-METRIC ANALYSIS

Non-metric analysis of skeletal material is becoming increasingly important in terms of a total osteological analysis. This has been particularly true in material from the Plains, during the past three to four years, and may provide extended data bases with which to compare other samples and other populations separated both temporally and spatially. For these reasons, the non-metric analysis is provided as seen in Table 29 for cranial non-metrics and in Table 30 for infracranial non-metrics. Problems in gathering non-metric data are similar to the problems associated with the gathering of metric data in this population and therefore a reduced amount of data is presented in this report.

TABLE 27
Non-metric cranial variations of males from 23CL108¹

	Burial 1		Burial 6		Burial 9		Burial 11		Burial 16		Burial 23		Burial 24		Burial 28		Frequency
	C	R	C	R	C	R	C	R	C	R	C	R	C	R	C	R	
	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	
Highest Nuchal Line													P	P			2/2
Coronal ossicles													A	A			0/2
Ossicle at bregma													A				0/1
Sagittal ossicles			A										A				0/2
Ossicle at lambda			A										A				0/2
Lambdoid ossicles			A	A									A	A			0/4
Os Inca			A		A								A				0/3
Parietal foramen			A	A									P	P			2/4
Parietal notch bone			A	A	A								P	A			1/5
Asterionic bone			A	A		P							A	A			1/5
Auditory torus			A	A									A	A			0/4
Malar tubercle													A	A			0/2
Os Japon													A	-			0/1
Pterion form													H	H			0/2
Epiteric Bone													A	-			0/1
Infra-orb. for.	S																0/1
Supra-orb. for.				C/M	C						G	G	C	C			4/6
Metopic suture			A								A		A				0/3
Mand. for.			S				S				S	S	S	S	S		0/7
Mylohyoid groove			C				O				O	O	O	O	C		2/7
Mand. torus			A						A	A	A	A	A	A	A	A	0/9
Mental for.			S		S	S		S	S	D	S	S	S	S		D	2/11
Palatine torus	A		A										A				0/3
Acc. lesser pal. f.													D	D			2/2
For. of Vesalius			P		A	A							A	P			2/5
For. Ovale	P	P	P	P	P	P							P	P			0/8
For. Spinosum	P	P	P	P	P	P							P	P			0/8
For. of Huschke	A	A	A	A	A	A	A	-	A	A	A	P	A	A			1/13
Condylar facet						S											0/1
Post. condy. for.									A	P							0/2
Ant. condy. for.					S	S			B	S			S	S			1/6
Mastoid for.											P	P	P	P			4/4
Mastoid f. Exsutural											P	A	A	P			2/4
Diagastic groove									S	S	S	S	S	S			0/6
Zygo-max. tuber.					P								A				1/2
Zygo-fac. for.					S								S				0/2

¹Traits listed are taken from Finnegan (1972, 1974) which can be used for reference.

A = Absent P = Present S = Single D = Double G = Grooved C = Closed
M = Multiple H = H-form O = Open B = Bipartite - = No observation

TABLE 28
Non-metric infracranial variation of males from 23CL108¹

	Burial 6		Burial 16		Burial 24		Burial 27		Frequency
	L	R	L	R	L	R	L	R	
Allen's fossa			A		A	A	A	A	0/5
Poirier's facet					P		P		2/2
Plaque			A		P		A	A	1/4
Hypothroc. fossa			A	A	A		A	A	0/5
Exostosis in troch foss.			A		P				1/2
Third trochanter	A			A	P		A	A	1/5
Supracondy. process					A	P			1/2
Septal aperature					A	A			0/2
Acetabular crease					A	A			0/2
Pre-aur. sulcus						P			1/1
Vastus notch		P							1/1
Vastus fossa		P							1/1
Os Trigonum							A		0/1
Med. talar facet							A		0/1
Lat. talar ext.			A				A		0/2
Inf. talar art. sur.							S		0/1

¹Traits listed are taken from Finnegan and Faust (1974:7) and Finnegan (1977b).

A = Absent P = Present S = Single

TABLE 29
Infracranial measurements (in mm) for 23CL108 males

	Burial		Burial		Burial		Burial		Burial		N	\bar{X}	σ
	L	R	L	R	L	R	L	R	L	R			
HUMERUS													
Maximum length													
A-P mid-shaft dia.													
M-L mid-shaft dia.													
ULNA													
Max. length													
Shaft length													
FEMUR													
Max. length													
Bicondylar lt.													
Max. head dia.													
A-P sub troch dia.													
M-L sub troch dia.													
A-P mid shaft dia.													
M-L mid shaft dia.													
TIBIA													
Max. length													
A-P nutrient dia.													
M-L nutrient dia.													

* = in situ measurement.

+ = generated length from fragment using Steele & McKern (1969).

TABLE 30
Cranial measurements (in mm) for 23CL108 males

	B6	B9	B11	B16	B23	B24	B28	N	\bar{X}	σ
<u>CRANIAL MEASUREMENTS</u>										
Maximum length						187				
Maximum breadth	155									
Biasterionic br.	112					105		2	108.5	4.95
Minimum frontal		112*			98			2	105.0	9.90
Upper facial ht.					72					
Nasal height					49					
R. orbital ht.					34					
R. orbital br.					36					
Inter-orbital br.										
(Bidacryonic chord)					24					
Ext. palate length						56 ⁺				
Ext. palate breadth						61 ⁺				
Frontal arc						112				
Parietal arc						110				
Frontal chord		112*			115	107		3	111.3	4.04
Parietal chord						109				
<u>MANDIBULAR MEASUREMENTS</u>										
Mandibular length						87				
Bicondylar breadth						120				
Bigonial breadth						100				
L. Ramus height						65				
Coronoid height		62	61		75 ⁺	66		4	66.0	6.38
Inter-foraminal br.		50.5		50.0	47.8	44.0		4	48.1	3.00
Symphyseal height	36.5*	34.6		36.5	31.8		38.1	5	35.5	2.41
Body thickness (M2)	16.6	14.1		21.5	18.8	15.1	21.3	6	17.9	3.14
L. Ramus min. br	31.4	35.8	35.7		39.0	41.2	35.0	6	36.4	3.39

* = in situ measurement

+ = Estimated measurement

Metric and non-metric comparisons will be made, where possible, with other populations in a later section of this report.

DENTAL WEAR AND ANOMALIES

Burial #1 shows severe wear on the lateral incisor, canine, and PM1--on the maxilla right side primarily on the buccal surfaces. Although this wear pattern is not normal it apparently cannot be attributed to any unique behavioral pattern of the individual and his dental use. (For contrasting dental wear, see Finnegan, 1976; Molnar, 1971).

Three individuals show some extent of dental hypoplasia: Burials #3, #10, and #16. In each case, the hypoplasia is seen on a canine or M1 and is rather mild. Dental hypoplasia is seen only on the deciduous incisors of one individual (burial #3) and this dichotomy of deciduous and permanent teeth suggests the following: On burial #3, conditions for dental hypoplasia occurred early in the individual's life. The conditions undoubtedly developed just prior to birth and continued to the first months of life. Whatever the cause of the hypoplasia, the cause had been removed by the time the adult teeth were forming. This might suggest the inter-uterine environment was lacking in some respects, but by the time of birth and suckling, the individual improved its nutritional response. For the two individuals that show mild dental hypoplasia on adult teeth, this represents some sort of trauma, probably during the first three or four years of their life. The fact that no other dental hypoplasia is displayed on these 616 teeth suggests relatively rare trauma of this nature. Dental hypoplasia can apparently be seen as caused by one entity or a combination of entities. Most productive of the etiologies are: 1) nutritional content relative to either calcium formation or vitamin D intake and vitamin D synthesis problems at the time of the developing crown; 2) unique substances in the diet, specifically high fluorine content in water; or 3) the possibility of some infectious situation (systemic involvement), which may have caused increased body temperatures seen in rather severe fevers for short periods of time which might have reduced the ability for enamel formation at that time (Wells, 1967). The result is that we can see these transverse lines on the crown of these teeth and cannot further suggest their causes.

Interstitial wear is seen on 6 individuals to a marked extent, burials 11, 12, 13, 16, 17, 18, and 23. The primary cause of interstitial wear is probably crowding of the teeth, and this is seen more in the mandible than in the maxilla. However, the use of the teeth as

tools working with either fibrous or other material could create wear patterns and stresses, again, particularly on the mandible which would show this interstitial wear (Finnegan, 1976).

Burial #10 shows lateral incisors with the occlusal surface quite serrated. This is seen to some extent on developing teeth and on deciduous teeth more than permanent teeth (Hanihara, 1963). In this case, burial 10, a 9-year-old individual displays these serrations, which are probably not long lived in terms of attrition of the occlusal surface.

Burial #11, a male age 35, shows extensive hypercementosis on a mandibular M3 and on a premolar which cannot be further identified (Anderson, 1962). Burial #15 displays a lateral central incisor missing a rather large chip, taken from the occlusal surface. This chip happened antemortem as the edges of the chip were smoothed due to wear prior to the time of interment.

Many of the teeth in this population show some sort of anomalous condition. In this group, Burial #14 shows two gemmate teeth, where there is but one crown and two roots (see Figure 30A). Both of these appear to be canines and in each case the teeth are deciduous, coming from a five-year-old individual. The lower lateral incisors on the same individual are quite serrated. The gemmate tooth condition has been discussed, in deciduous material, by Anderson (1962) and Alexandersen (1963).

A second individual, #22 has mandibular right central and lateral incisors fused at the roots (see Figure 30B). This again is a gemmate situation, and again the teeth involved are deciduous teeth. See Alexandersen (1963).

Individual #17 has two well-defined roots on the lower left PM1 but not a gemmate type structure. This individual, female age 23, also shows interstitial wear and shows an upper right lateral incisor with two deep grooves on the enamel surface. These grooves do not appear to be due to attrition or unique wear patterns on the tooth, but rather seem to be defects which occurred during the time the teeth were developing. These grooves should not be confused with the interproximal grooves seen by Ubelaker, Phenice, and Bass (1969) nor the task grooving as described by Schulz (1977).

The above analysis of unique wear patterns, interstitial wear, dental hypoplasia, etc., does not tell us a great deal about the health or nutrition of this particular population. This material is presented primarily for reference for comparisons with other material of the same time period with the same or near spatial regions.

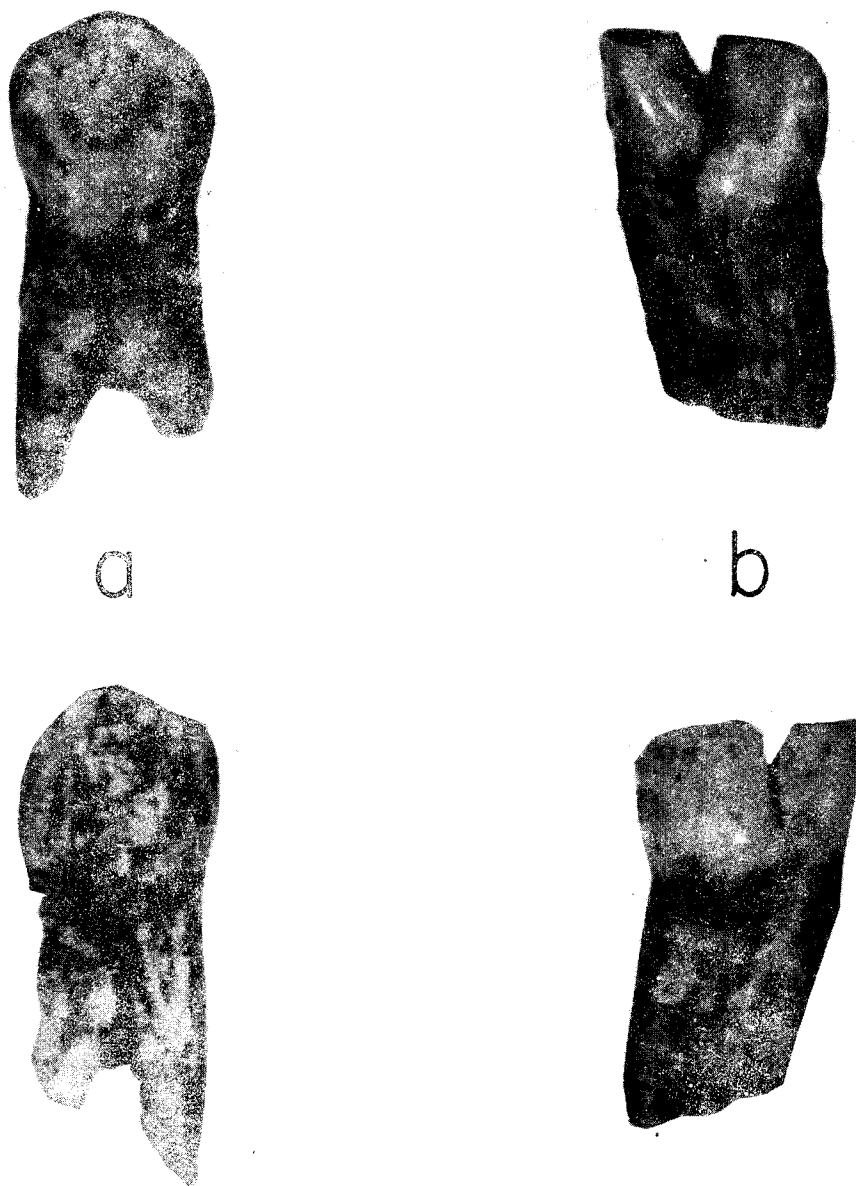


Fig. 30. Dental anomalies from the Chester Reeves Mound (23CL108).
A. A gemmate tooth in the canine position on the mandible of burial 14.
B. Right central and lateral mandibular incisors are fused at the roots in burial 22.

DENTAL ANOMALIES AND GENETIC INDICATORS

Shovel-shaped incisors were seen in many individuals with varying intensity running from slight through moderate to well developed (Dahlberg, 1951; Moorrees, 1957; Carbonell, 1963). Fifteen individuals, both children and adults, showed some degree of shovel-shaped incisors (Burials, 3, 6, 7, 10, 12, 14, 15, 17, 18, 20, 21, 22, 30, 32, 33). Among these 15 individuals (or 53.6% of the sample) the degree of shoveling represented 2.4, in a range of 0-3, with a standard deviation of .639. This is translated to mean that the average shovel-shaped incisors were roughly between moderate and severe for those who displayed some shoveling. Shovel-shaped incisors are expected in this population in terms of the Mongoloid incidence of shovel-shaped incisors. The usefulness of shovel-shaped incisors is possibly that the increased dental tissue built up on the lateral margins of the incisors, creating the shoveled-shape, might make a stronger tooth in terms of tool use and at the same time increase the surface area of the occlusal surface so that as the tooth starts to abrade and wear, it will wear more slowly because of the larger surface area.

Carabelli's cusp is seen in 10 (35.7%) of the 28 individuals who have teeth (Burials, 6, 7, 15, 19, 20, 21, 26, 29, 30, 32). The Carabelli cusp is located on the lingual surface, mesially, and can be displayed as either no cusp, a vestigial cusp which is called a pit, a small cusp, or a large cusp (scored 0-3) (See Dahlberg, 1951, 1963). By scoring the small pit as 1 and the large cusp as 3, the mean value displayed for Carabelli's cusp on the 10 individuals, who show the cusp, averages 1.2 with a standard deviation of 0.63. That is to say the pattern for this population is to have a pit or a small cusp on the maxillary molars. Cusps were not seen on any secondary maxillary molars, although cusps are present on first deciduous molars. Carabelli's cusp operates under high genetic control and seems to operate in a field. That is, whenever the cusp is present on a maxillary first molar, the other side should have the cusp as well. Also, if the first molar displays a large cusp, there is a possibility of the second molar displaying a less developed cusp and if present on the second molar, a possibility of a third molar displaying some sort of cusp or pit. The genetic patterning for Carabelli's cusp does not seem to be exceedingly heavy in this population due to the fact that the pit is the most frequent display of the cusp and the fact that it is not found on the second or third molars. Dahlberg (1951) reports relatively low percentages of Carabelli's cusp in American Indian populations.

With regard to the diet of these individuals and the general condition of the teeth, we have these comments based on the Carabelli's cusp.

When the cusp is present, it appeared, for those that displayed the cusp, the average number of caries per individual was 4.5 with a standard deviation of 5.29. This is somewhat higher than the average of 2.89 caries per individual, counting only those individuals where teeth were present. This would suggest that those who did not display Carabelli's cusp have a lower average number of dental caries per individual.

Also with respect to Carabelli's cusp and the increased number of carious lesions for those individuals who display the cusp, particularly when well developed, there would tend to be an increased area on the occlusal surface on those molar teeth. Roughly a 20% increase could be attained by having a large Carabelli's cusp. This should allow for the attrition of the occlusal surface to be relatively reduced and a relatively larger grinding surface present for the chewing of foodstuffs. On the other hand, and particularly in this case, where simply a pit is the most frequently observed expression of the cusp, the pit may simply increase the chances of carious lesions starting at that location. This seems true, even though the pit is located on the lingual surface and has the complete action of the tongue for the cleaning of the teeth.

Enamel Extensions. In this population 7 enamel extensions were seen (Anderson, 1962). This condition was observed for burials number 6, 9, 16, and 23. In all cases they are on molar teeth with 5 of them being on lower molars, primarily the buccal surface. Two of them are found on upper molars, again on the buccal surface. Dahlberg (1951) reports that the usual pattern is for enamel extensions to be found more frequently on maxillary molars. Thus a total of 4 individuals (who have teeth) or 14.3% have enamel extensions in this population. If we look at the 7 enamel extensions relative to the total number of individuals who had teeth that we can observe, we find an average of 1.75 enamel extensions per individual for these 4 individuals, or .25 enamel extensions per individual based on 28 individuals who have teeth. This also averages out to .0114 enamel extensions per tooth based on the 616 teeth observed in this population. It should be remembered that on many teeth only the enamel crown was present.

Enamel Pearls. Four enamel pearls (Anderson, 1962) are seen in this population. Burials that displayed enamel pearls are number 7, 9, 18, and 31. Notice that only number 9 also shares the enamel extensions described above. Burial 7 has its enamel pearl on an upper M2. Burial 9 displays its enamel pearl on the right first molar of the mandible on the buccal surface. Burial number 18 has an enamel pearl on the distal surface at the lower right M2. Burial number 31 displays this trait on an upper right M2. Four individuals showing enamel pearls represent 14.3% of the sample which had teeth, or .0065 enamel pearls per tooth

observed. Enamel extensions and enamel pearls are present on about 25% of the number of individuals who have shovel-shaped incisors and about half of the number in this sample that display Carabelli's cusp. With reference to shovel-shaped incisors, burial number 6 has shovel-shaped incisors as well as enamel extensions, and number 7, showing the enamel pearls, also displayed shovel-shaped incisors, as does burial number 18. Comparing enamel extensions and enamel pearls with Carabelli's cusp, we again find that burial 6 displays the enamel extension and Carabelli's cusp, while burial 7 displays an enamel pearl and Carabelli's cusp. Other than that, there is no repetition between the shovel-shaped incisors, Carabelli's cusps, and either enamel extensions or enamel pearls.

Supernumerary Teeth. One supernumerary tooth was seen in this population. Burial 9 displays a supernumerary premolar located lingually between PM1 and 2, both of which are normal premolars, on the left side of the mandible. This mandible was x-rayed and the resulting film showed no abnormalities other than the supernumerary tooth. Although the genetics are not fully known, there does seem to be a predisposition for this trait to be familial (see Figure 31; and Hrdlicka, 1910).

RODENT GNAWING

The bones of three individuals display rodent gnawing. These are individuals 5A, 5B and burial number 28. Burial 5A shows rodent gnawing on the right tibia and on portions of the cranium. Burial 5B shows rodent gnawing on cranial bone. On burial 28 the rodent gnawing is found primarily on the femur. We have listed both burials 5A and 5B as primary interments and we have not speculated as to whether or not burial 28 is a primary interment. Very often rodent gnawing goes along with secondary interment inasmuch as the bones are usually left on the surface of the ground or only slightly covered by a rock pile providing easy access to rodents. On the other hand, if the material is buried in a dirt-filled mound, the tendency of rodents getting to the bone material is greatly reduced. The Chester Reeves Mound has an architecture of this type, but also has some rather large rocks spread, to some extent, over the burials. While these rocks afford protection of the burial from larger animals, they also afford burrowing spaces for rodents. Therefore, it is not unlikely that given the extent of the mound, and the rock architecture, that 3 individuals (10%) would indeed display some rodent gnawing. This also would add credence to the speculation that the primary architecture of the mound or the soil fill was indeed an afterthought and may only represent a monument on top of graves which had been in the ground for some time.

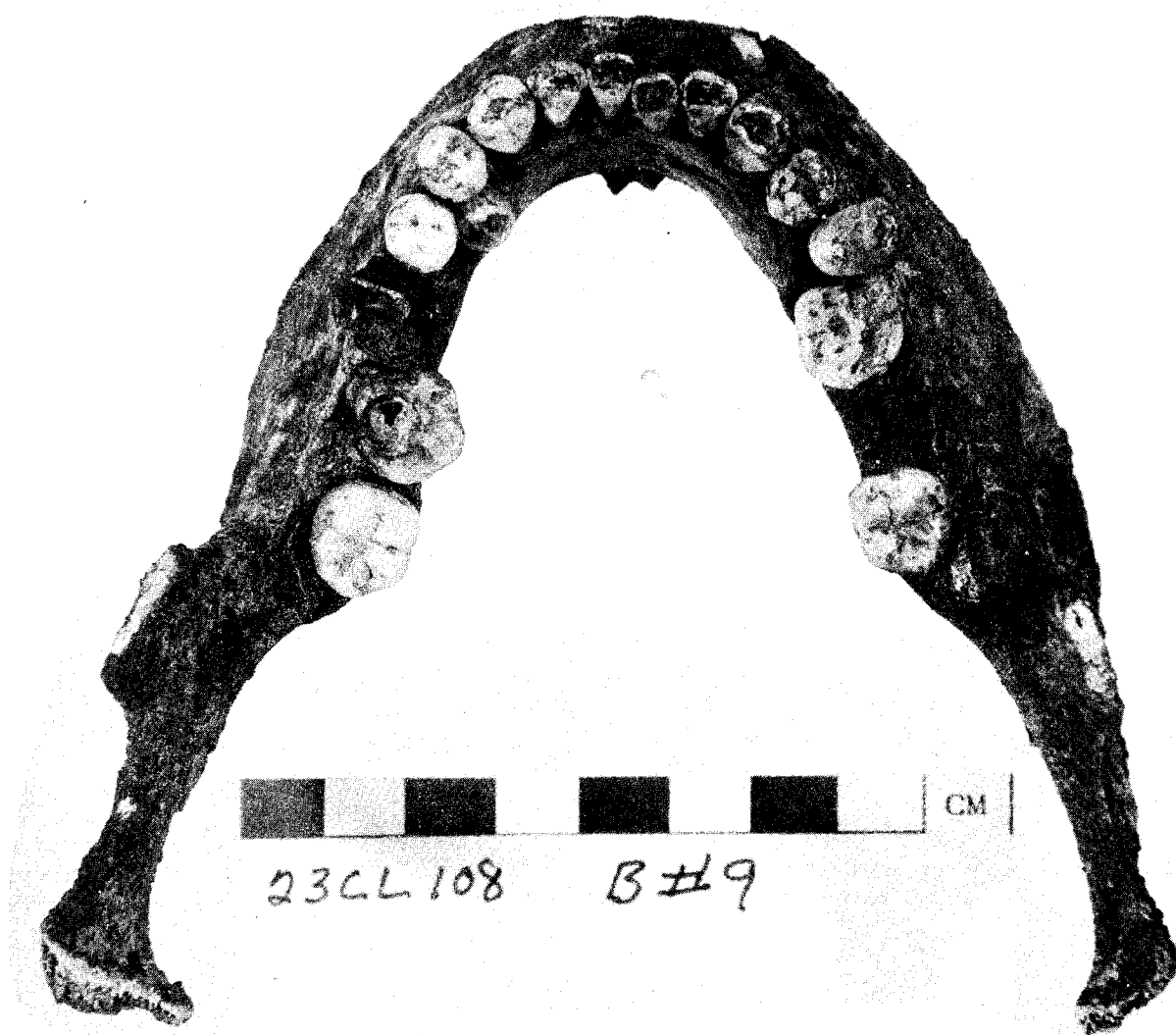


Fig. 31. Supernumerary premolar on the left side mandible of burial 9.

CRANIAL DEFORMATION

Burial 6 displays deformation at the occipital part of the cranium. This deformation appears to be centered at roughly the inion (although it is the occipital type of deformation, Morse, (1973)), is quite pronounced, and produces a shortening of the cranial length and probably adds to increased cranial breadth (see Figure 32). The flattening is quite vertical and is similar to what we find in other skeletal remains from Steed-Kisker groups (Barnes, 1977).

Burial 16 probably had occipital cranial deformation, but this is difficult to ascertain because of the condition of the vault bones of this individual. Those bones, which could be reconstructed, suggest a flat occipital region, again, seemingly located with a center at the lambda. The construct of these flattened bones appears very much as for burial 6. The remaining material from this cranium, which is extensive enough to show flattening, produces no incidence of this type of deformation.

COMPARISONS WITH OTHER MISSISSIPPIAN POPULATIONS

In order to look at the biology of the individuals from the Reeves Mound (23CL108) and place this biology in perspective, other sites have to be utilized for comparison. This includes not only sites of the same age or culture period, but also of earlier and later materials as well. However, considering the state of this material and the amount of metric, non-metric, and demographic data which is available we will concentrate on other populations of the Middle Mississippian period.

Of general interest is the material presented by Henning (1970, 1967), the work of Hall (1967), some of the material presented by Bass (1964) and certain of the materials presented by Glenn (1974) as they have bearing on the Middle Mississippian tradition which includes the Reeves Mound material.

Of primary concern for this analysis we have selected material from the following sites: the Steed-Kisker type site (Wedel, 1943)--skeletal material analyzed by Stewart (1943). In the same region material excavated by Fowke in 1907 (1910) primarily the Bruner Mound No. 2--skeletal analysis accomplished by Hrdlicka (1910).



Fig. 32. Cranial deformation of the occipital type, typical of the Steed-Kisker culture. This is seen on burial 6, and a similar deformation is suggested on burial 16.

The most recent work done on a Middle Mississippian population with affinities to Steed-Kisker is the report on the Calovich Mound (14WY7) by Barnes (1977). This particular reference, a masters thesis, was written under my direction and has excellent examples of the skeletal material from that mound which at this time represents 73 individuals. These individuals are in relatively good shape, particularly so when compared with the material from the Reeves Mound. Although provenience of some of the material leaves something to be desired, it nonetheless affords a type of analysis that the Reeves Mound does not afford. At the same time material from the Calovich Mound can be utilized to supplement knowledge gained from the Reeves Mound.

Two other sources are of use, but possibly to a lesser extent. The first is the work done near Madisonville reported by Hooton (1920), and the analysis of the skeletal material from the Sugar Creek Ossuary (23PL58) by Nickels (1971).

Site by site comparisons based on demographic and other variables are seen in various tables of a summary nature. Among these are the demographic reconstruction by age group criteria including infants, children, adolescents, and adults. This information is summarized in Table 31. From this table, it is somewhat apparent on the surface that the Reeves mound skeletal material is in much better physical condition and has a longer life expectancy than that of the Calovich mound. On the other hand, the life expectancies of the Dickson mounds and the Steed-Kisker populations seem to be somewhat longer than the Reeves mound. This interpretation should be taken somewhat lightly for the Reeves mound may have had many infants and newborns which did not show up due to the fact that bone preservation conditions were so bad. Although some small percentage is listed for Steed-Kisker and for the Dickson mounds in the infant series, I suspect some skeletal loss in those mounds particularly the Steed-Kisker mound. What this demonstrates, again with respect to the condition of the burials at the time of excavation, is that 50% of these populations did not live to be adults.

Stature estimation was possible for a number of Reeves mound individuals and is here compared with the above populations. This can be seen in Table 31 where the materials for the Dickson mound is somewhat sketchy and, of course, the remaining three mounds have a limited number of individuals for which stature was determined. It appears that males of the Reeves mound were somewhat shorter than males of either the Steed-Kisker mound or the Calovich mound. However, it must be noted that much of the Reeves material was reconstructed, and fragments were measured to reconstruct long bones using the Steele-McKern method (1969).

TABLE 31
Comparisons of Age Groups and Stature in Some Middle Mississippian Populations

Age Groups	Reeves Mound	Calovich ¹ Mound	Steed-Kisker ² Mound	Dickson ³ Mound
Newborn - 2.5 yrs.	0%	38%	1.2%	11.5%
2.5 yrs. - 13.5 yrs.	44%	34%	12.1%	27.9%
13.5 yrs. - 19 yrs.	6%	4%	--	--
20 yrs. - 60+ yrs.	50%	24%	86.7%	60.6%
Stature (in cm)				
Males No.	7	5	7	?
\bar{X}	166.7	177.6	169.6	165.0
S.D.	5.34	3.50	5.53	--
Females No.	--	6	5	?
\bar{X}	--	162.0	164.4	155.0
S.D.	--	3.79	4.34	--

¹Barnes (1977), p. 67; p. 71.

²Stewart (1943), Table 19, p. 271.

³Harn (1971), Table 1, pp. 28-31.

This might have an effect of 2 to 3 cm on the final stature means. No statures were estimated for females in the Reeves mound, but comparative material is presented to give a rough idea of what stature differentiation might exist between the sexes.

Table 32 compares the mean values of metric data from Middle Mississippian populations utilizing male material and left side only. As can be seen in this table, the metric measurements are more or less compatible between all groups, with Steed-Kisker showing the greatest difference, particularly in the femoral shafts. At this time, the sample sizes are not large enough to warrant any further summary statistics.

With respect to anomalies and pathologies, a similar situation exists as with the metrics among these populations. In the Calovich mound series, we have a number of dental anomalies--gemmate teeth, shovel-shaped incisors and Caribelli's cusps. The same is true of enamel pearls and enamel extensions. This is also the case for the Sugar Creek Ossuary material studied by Nickels (1971). In terms of skeletal anomalies, the Sugar Creek Ossuary also contains two displays of the Stafne defect, which are quite similar in gross morphology to materials recovered from the Reeves mound.

In terms of gross pathology, we expect the Reeves mound to be not too dissimilar from the Calovich mound. However, this will be difficult to show inasmuch as the Calovich mound material is in excellent condition and the Reeves mound material was found wanting. In terms of pathology, porotic hyperostosis is seen in a number of individuals from the Reeves mound and is quite frequent as well both in the Calovich mound material and in the Sugar Creek Ossuary material. This shows a broad interface with the ecology in terms of periodic nutritional deprivation or similar health standards and anemic conditions throughout all populations.

Also in comparing the Reeves mound with both Calovich mound and the Sugar Creek Ossuary, we find a fair amount of arthritic involvement particularly in the vertebral column. In each sample, the osteoarthritis is primarily age-dependent or traumatically induced and the site of involvement in the skeleton is comparable in all three samples. This display of osteoarthritis appears normal for these populations and does not suggest the extensive differential between these populations as seen elsewhere (Finnegan and Frayer, 1971).

With respect to non-metric variation, we have tallied all the material for the Reeves mound and it can be compared with the original material both in the Calovich mound study and the study of the Sugar Creek Ossuary. This material is not presented here for comparative

TABLE 32
Comparisons of Metric Data (in mm) from Middle Mississippian Male Mandibles and Femora

	Reeves Mound		Calovich ¹		Sugar Creek ²		Steed-Kisker ³	
	N	\bar{X}	N	\bar{X}	N	\bar{X}	N	\bar{X}
<u>Mandible</u>								
Coronoid height	4	66.0	3	64.0	7	66.3		
Inter-foraminal br.	4	48.1	3	46.0	-	-		
Symphyseal height	5	35.5	3	32.0	8	36.1		
Body thickness (M2)	6	17.9	3	13.3	-	-		
L. Ramus min. br.	6	36.4	3	36.3	-	-		
<u>Femora (left side only)</u>								
Max. length	4	431.8	2	445.5	6	448.8	6	460.0
Bicondylor lt.	2	424.0	2	444.5	6	444.8	6	455.7
Max head diameter	2	46.5	1	43.0	5	44.6		
A-P Sub troch. dia.	3	28.8	2	30.0	7	26.7		
M-L Sub troch. dia.	3	36.2	2	29.5	7	31.9		
A-P mid shaft dia.	5	31.2	2	29.0	7	30.0	6	31.2
M-L mid shaft dia.	5	27.5	2	27.0	7	26.6	6	26.2
								2.0
								2.3

¹Barnes (1977), Table 9, p. 92; Table 10, p. 95.

²Nickels (1971), Table 5, pp. 26, 27; Table 6, p. 29.

³Stewart (1943), Table 19, p. 271.

study in that the sample sizes are small, inter-observer error is probably great (particularly between the Reeves mound and the Sugar Creek Ossuary) and the sample sizes in any case are too small for further statistical analysis.

From the material presented above, particularly with respect to the anomalies of the skeleton and teeth and with some certain pathologies, we can add the following remarks and hypothesis. Although dental and skeletal anomalies and some pathologies seem to have a resident frequency in every population, these anomalies are, at the same time, primarily considered to be of genetic nature and seem to follow family lines. To the extent that this is true, we can suggest that these mounds represent some form of familial lineage or something similar. Although the evidence for this is not at the present time particularly strong, the suggestion can easily be made that a mound does represent some type of family grouping. This can also be seen in terms of the primary type of burial within the mound (i.e., primarily extended in some mounds, primarily flexed in other mounds). With the excavation of more skeletal material from the Middle Mississippian period, and particularly in the area of the Steed-Kisker peoples, we should be able to better elucidate this hypothesis that a particular burial mound represents some type of family structure. The skeletal material from another Steed-Kisker mound, Vandiver mound, Missouir, which is in good condition, should help to elucidate this particular hypothesis.

As more material is collected and systematically studied, the analysis of the Steed-Kisker peoples and their relationship to other Middle Mississippian people should become clearer. It is only with the continued detailed analysis of these groups that we will be able to form stronger hypotheses and test the results, one population against another, to achieve a better understanding of not only the pathological and health conditions of these people but to relate this to the nutritional and social environment as well. By doing this, we should gain a better knowledge of these earlier human populations.

ACKNOWLEDGMENTS

The author gratefully acknowledges the assistance, guidance, and continuous dialogue pertaining to the Chester Reeves Mound from the following individuals without whose help this report would not have been possible. First and foremost is the aid and assistance provided by Dr. Patricia J. O'Brien of Kansas State University and her continuous dialogue of the Steed-Kisker cultural patterns. The physical gathering of the skeletal material would not have been possible except for the help of the Kansas Archaeological Field School crews from 1975 and 1976, especially Mr. Harold Beal who was foreman of this site in the summer of 1975 and continued as foreman for the site during the summer of 1976. This gave a continuity and consistency over the two-year time spread for this project. Once the skeletal material was returned to the lab, two individuals were primarily involved with stabilization, preservation, and reconstruction of the skeletal material: Sharon Parks, who was also a member of the field school and helped excavate the material, and Larry Paris who added insight and his osteological expertise. I should also like to thank Dr. Mark Guffy for his help in taking and developing the radiographs utilized in the x-ray analysis.

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APPENDIX II

COMMENTS TO THE PEER REVIEWS OF THE CULTURAL RESOURCES SURVEY
OF SMITHVILLE LAKE, MISSOURI

VOLUME I: ARCHEOLOGY

by

Patricia J. O'Brien

Following the established procedures of cultural resources studies adopted by the U.S. Army Corps of Engineers, Kansas City District, a preliminary copy of this report was sent to three professional archeologists, all specialists in the archeology of Missouri and/or the lower Missouri River valley, for their peer review: Dr. Dale R. Henning, University of Nebraska, Dr. Alfred E. Johnson, University of Kansas, and Dr. Donna C. Roper, University of Missouri.

Their review letters follow and my comments on them are at the end. I shall start with Dr. Johnson followed by Drs. Henning and Roper with cross reference where criticisms are identical.

THE UNIVERSITY OF KANSAS

LAWRENCE, KANSAS

66045

DEPARTMENT OF ANTHROPOLOGY

Area Code 913, 864-4103

June 13, 1977

Dr. Patricia J. O'Brien
Department of Sociology/Anthropology
Kansas State University
Manhattan, Kansas 66502

Dear Pat:

Under separate cover I am returning your manuscript on the Smithville Lake. I have gone through it in detail and have made many editorial suggestions and marginal notes. I hope these will be useful to you in revising a final draft for the Corps of Engineers. Following are a few general comments:

1. All of our best data now indicate the Nebo Hill should be Late rather than Middle Archaic, included are the dates from Nebo Hill and Coffey and the similarities of Nebo Hill points to other Lanceolate points in the Prairie Peninsula dated to the Late Archaic (e.g. Starved Rock and Koster).
2. I wonder about the use of the term "unifunctional" in reference to an archaeological site. I doubt that human occupants of any location performed only a single function.
3. In Finnegan's section of the MS the expression "is seen" and the word "material" are both over used.
4. I feel a bit uncomfortable in trying to equate some of the problems you set out to solve with the results. Problem 2 required the development of a demographic model. Demography is the statistical study of populations as to birth, marriage, mortality, health, etc. I don't believe you have developed such a statistical model nor do I really understand how such a model can describe Steed-Kisker Settlement Patterns (see page 4). Another model was to relate data gathered from the Chester Reeves Mound Burials to the environment. Other than your initial introductory statements on the natural environment I do not see that you have developed a model of the natural environment at the time of Steed-Kisker occupation of the Smithville Lake area. Perhaps some re-writing of both the problem statements and the results might be appropriate.

Thank you for the opportunity to review this manuscript.

Sincerely yours,



Alfred E. Johnson
Professor

AEJ/bjb

THE UNIVERSITY OF NEBRASKA-LINCOLN
LINCOLN, NEBRASKA 68588

DEPARTMENT OF ANTHROPOLOGY

Division of Archeological Research

June 15, 1977

Dr. Patricia O'Brien
Department of Sociology, Anthropology
and Social Work
Kansas State University
Manhattan, Kansas 66502

Dear Pat:

I have read the entire volume I, Cultural Resources Survey of Smithville Lake, Missouri, including the appendix by Michael Finnegan. It has been an interesting and enjoyable task. The entire report is well organized and cleanly presented, suggesting that considerable thought and care went into the entire undertaking.

My principal concern is: precisely what was the scope of work and exactly what procedures were followed in implementation of that scope? Generally, projects of this kind are performed in "stages". Yours appears to include parts of at least three "stages", inventory, evaluation and some mitigation. You then conclude your manuscript with a section suggesting that more mitigation is necessary. The question can well be posed: Would you, upon thorough evaluation of the sites located and collected from in survey, still suggest mitigation on the same sites? I think that any reader will want to know precisely what reasoning led you to each of the sites excavated and will want to evaluate for himself whether or not such excavation was worth the time and money expended or...even necessary, in this day of conservation archaeology? A very tight, concise and testable research design would have aided my own evaluation immeasurably.

I have a number of questions regarding the procedures followed in site survey. You state that all tracts of land were covered on foot by at least a two-man survey team. This must include only plowed fields, because you go on to discuss the procedures followed where vegetation cover was dense. Where was dense vegetation encountered? Your map indicates that a very high percentage of the reservoir area was walked, but gives no indication of the conditions met by each survey team. The future archaeologist combing your report for field conditions and survey results will be left with many loose ends

Dr. Patricia O'Brien

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in this respect. Field conditions for each site should have been elaborated upon in each site summary. If someone wished to check such data, is it available in the site survey records and, if so, where are they filed? Where are the artifacts to be deposited? The procedures employed in walking the fields are also difficult to evaluate. What do you mean by "criss-crossed"? What procedures were employed in surface collecting? Were the sites gridded and collected from by units? Were all units collected from or was some form of unit sampling employed? What was taken from the surface, identifiable artifacts, materials of a certain size or...everything, including stones, cobbles, etc.? When a site was encountered, did your people perform some kind of random subsurface testing to determine site depth and other subsurface conditions? You found very few sites, all things considered, and some kind of testing on all should have preceded selection for intensive investigation.

I think that you offer too little information in your site descriptions which begin on page 7. Where are your U.S.G.S. coordinates for each site? Those of us who are interested in this area must know precisely what you found on each. Your identifications of Early, Middle and Late Archaic points without description, numbers and illustrations does not allow for any form of real evaluation of what you found nor does it allow for evaluation of how you classify the site. Otherwise, anyone, including yourself one of these days, will have to go back to the materials themselves for evaluation. You describe for the excavated sites, but not for the others. Why? I would include descriptive data or counts for all classes or artifacts, not just the "diagnostic" ones such as points and pottery. We may find that gravers, some kinds of scrapers and some kinds of pecked and ground tools are fully as diagnostic as those "index fossils" we use today. This is very basic, since you put a great deal at stake in terms of site "types" and percentages thereof and the reader has no way to check or evaluate your assignments to cultural "stage". You are very positive in your use of these assignments, but do not prove that they are correct nor do you offer the series of criteria whereby you make the assignments.

The above are my principal points of contention. Following are a series of comments which are made more or less in the order:

Page 40. Who did your faunal I.D.? Thirteen of 400+ elements is not a very good ratio. Surely some of the unidentifiable fragments could have been sorted into fish vs. mammal vs. avifauna. Is the river otter really an indigene? You should also include the latin names as a matter of form.

Dr. Patricia O'Brien

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Page 42. These radiocarbon dates are awfully loose in terms of standard deviation. Were the samples small? How long were they counted? I would gain the help of a statistician in manipulating dates. If I recall, averaging dates would be frowned upon. The later dates (those following) are much tighter. I think you are justified in inquiring of the laboratory the reasons for this and should impart this information to your reading audience.

Page 43. I really do not believe that your site 23CL199 was a simple storage site. If so, what function did any projectile points, scrapers, spokeshaves, drills have on the site? Also, what kind of sense does it make for a group to walk to this location, collect nuts, seeds and berries, dig pits and store the fruits of their labors, leave, and then walk back to collect them at a later date? Such materials can be completely or partially processed and carried by a very small group back to their principal base camp or village site. Indeed, you do have a food-processing site, judging from all the ground stone tools, but I cannot believe that it functioned simply as a storage site.

Page 63. A Steed-Kisker storage site, too? Judging from what you say about the subsoil on page 45, is it not possible that there could have been a house, most evidence of which (aside from pit bases) had been destroyed by plowing and erosion? There could have been two houses, judging from your map. Again, the fact that you do not find house floors and postmolds does not force you to assume that you have a Steed-Kisker component which functioned only to contain storage pits. The range of artifacts recovered mitigates strongly against this, and, besides, why establish a storage facility at some distance from an established farmstead? That just does not make sense to any group, aside from some nomadic groups following a patterned movement set. Such a pattern is not in the ethnographic literature in this region, if I recall properly.

Page 64. Did the Chester Reeves mound have to be excavated? If I understand your figures correctly, it is well above possible inundation and might have been far more valuable in the long run if recommended to the National Register and preserved.

Page 73, 74. Obviously, I do not agree with your conclusions regarding your two storage sites. Referring back to page 71 and your conclusions stated explicitly there that the shovel-shaped incisors and Caribelli's cusps in high percentage imply a pattern of family cemeteries; again, I question your logic. Finnegan states in the appendix that the shovel-shaped incisor is generally found in high percentage among those of Mongoloid stock. Further, he states that the Sugar Creek Ossuary offers

Dr. Patricia O'Brien

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a "good show" of Caribelli's cusps. He also (page 41) tends to draw the Calovich mound into a pattern similar to Reeves and Sugar Creek. On pages 41-42, he does discuss the possibilities for some type of family grouping, but does not view it at the present time as particularly strong. Has your innate enthusiasm carried you away in this interpretation? I do not personally disagree with the idea of family cemeteries, but do not think your data is strong enough to make very positive statements in that regard.

Pages 75-79. Should the Corps of Engineers, in concert with the Office of Historic Preservation, deem it necessary to fund further mitigation as suggested, my recommendations would be as follows: 1) Geomorphological studies should be done before mitigation or simultaneously. Terrace sequences should be known and possible subsurface sites tested for with coring devices or backhoe. Following this procedure, you should lose no important subsurface sites you might otherwise miss. 2) No work on possible village or campsites should be performed without the consultation of a competent soils analyst, preferably one experienced in the region who will work in the field with the archaeologists. A soils scientist should be able to determine the amount of erosion which has taken place on a site and should be of great value in reaching final conclusions about site function.

General comment: A number of the maps do not tie into a benchmark or any kind of permanent reference point. This should be corrected.

The appendix: Should not the page numbers from O'Brien through Finnegan be consecutive? Should not the maps and figures be included in consecutive numbering even though the numbers do not appear, as on pages of text?

Was the Reeves mound completely excavated? The map suggests that part of it may remain, but nothing in this regard is documented.

I read the appendix as it pertains to interpretations of the Reeves mound which preceded it. A few comments were forthcoming, however:

Page 9. Burial 16; which elements are represented? *None*

Page 14. Should the criteria for aging and sexing not precede the part entitled The Burials? *no*

Page 20. Why not briefly describe the Stafue defect? *no*

Dr. Patricia O'Brien

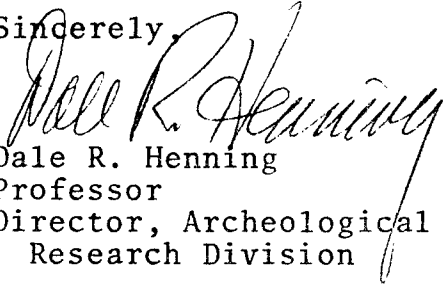
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June 15, 1977

I have written far more than planned or expected, but did much of it because of interest in the region. I hope my comments are not regarded as supercritical; I am interested in the region and want to be able to understand what is written about it.

I have appreciated this opportunity very much.

Sincerely,


Dale R. Henning
Professor
Director, Archeological
Research Division

DRH:mfg
encl.

PEER REVIEW OF
CULTURAL RESOURCES SURVEY OF SMITHVILLE LAKE, MISSOURI
VOLUME I: ARCHAEOLOGY

by

Donna C. Roper
University of Missouri-Columbia

Inasmuch as I was not provided with a specific scope of work for this review, I will partially direct my review toward the two questions suggested to me by O'Brien (personal communication):

1. Does the report, and hence the research, meet contract requirements?

2. Are the recommendations reasonable?

These are both general and highly reasonable questions, but they suffer from one shortcoming, viz., they are cultural resource management questions. That is, while they tell the agency whether or not, in one person's professional opinion, the document under review does indeed fulfill contract requirements, they do not address the wider issue of whether or not both the contract requirements and the report produced in response to those requirements fulfill the requirements of modern professional archaeology. In view of the recent arguments put forward by Schiffer and House (1977), as well as others, that contract archaeology must assume an approach that is in accordance with modern

professional archaeological standards, I feel that peer review must also address this question. The purpose of a review it would seem could then be not only to inform the agency as to whether the document being reviewed fulfills contract requirements, but also to render to the agency the opinion of a cross-section of professional archaeologists as to whether or not the profession feels the agency is making reasonable requests of the archaeologists with which it contracts. I will therefore also address this question in this review.

The first point should be to evaluate whether or not the contract requirements do indeed fulfill the requirements of modern professional archaeology. In my opinion, they only partially fulfill these requirements. Four problems are stated:

1. The development of a cultural chronology for the area.
2. Development of a demographic model describing the settlement patterns of Steed-Kisker culture.
3. Development of a model relating the nutritional and pathological conditions of Steed-Kisker peoples with that of their inferred environment.
4. Development of a model of Steed-Kisker community patterns.

I was pleased to see a commitment, in problem 1, to culture history as an integral part of the research program.

The study of culture change is a strong point of archaeology, but to carry out such study requires the construction of temporal sequences along which to measure change. In spite of rejection of culture-history by some, in fact a viable part of archaeological research is concerned with the refinement of chronological methods for just such purposes. Chronology is important in archaeology and therefore the inclusion of the development of chronological sequences as a problem area is in keeping with modern professional archaeological practice.

The second problem at first glance sounds reasonable, but on second thought becomes highly confusing in its statement. Research on settlement patterns and settlement systems is a major concern in North American archaeology at the present time and in this respect this research problem is very much responsive to the practice of modern professional archaeology. The phrase "demographic model describing the settlement patterns" is something of a nonsense phrase, however. Demography refers to the study of populations and characteristics of populations, while the study of settlement patterns is the study of the distribution of archaeological sites. I suspect that what is meant is to say settlement system model - settlement system being used in the sense of Struever (e.g., 1968), Winters (1969), and others, as the functional relationships among a group of contemporaneous sites.

The third problem is related to an area of archaeology

with which I am somewhat less familiar, and it is therefore somewhat more difficult for me to assess its adequacy. I feel, however, that it too is poorly stated. The relation of nutrition and pathology to environment, if this makes any sense at all, would seem to presuppose basic information about the population before meaningful interpretations can be made. I suspect that what is meant by this problem statement is more like description of the skeletal population with emphasis on pathology.

The last problem, that of modelling the community patterns of Steed-Kisker culture is also adequate. I must assume, however, since it is not stated, that the term "community pattern" here refers to the internal structure of a site. One infers, from O'Brien's expectations for the Richardson Hulse site (p. 46) that this is her intended meaning of the term.

Evaluation of the adequacy of the problem orientation, however, must take into account not only the adequacy of the stated problems, but also whether as an aggregate they are adequate. In regard to this point, I feel they are not entirely adequate. I was particularly disturbed by the lack of a problem orientation for the survey. The second listed problem - that of a Steed-Kisker settlement system model - is the only statement of problem orientation using survey data and it is limited to about 300 years of a 10 millenium cultural continuity. There seems to be a common misconception that an archaeological survey, especially one

that will potentially cover an entire area, need not have any particular problem orientation since, somehow, walking an area will find and inventory all sites present and anything can be done with the data later. Such is, however, most decidedly not the case. For example, a persistent problem in archaeological survey is that of the definition of a site. With no problem orientation, it is difficult to decide whether small light lithic scatters, for example, should be called sites or disregarded. Certainly, they are normally products of some sort of past human behavior; however, if one is interested only in large, complex (relatively) sites, such sites are of little value, if they are regarded as sites at all. Further, some archaeologists would even question the utility of the concept of "site" (e.g., Thomas 1975). How one chooses to handle this very basic decision therefore is conditioned by the research orientation of the investigators.

In the future, I would urge the Corps of Engineers to either: 1) formulate problem orientations for archaeological surveys, or 2) urge the formulation and explicit statement of such research designs by investigators prior to the actual survey.

I now turn to whether or not the report, and hence the research, meets contract requirements. This can perhaps best be done by considering the report problem by problem.

O'Brien indicates that the results of the work at the Richardson Hulse Site (23CL109) were very disappointing in terms of yielding data on the chronology problem. That it

is so, however, particularly for the Archaic period, is no fault of the investigators. A definite attempt to address the question was made.

Strangely, there is less evidence in this report of an attempt to address the problem of a Steed-Kisker settlement system model. I know full well that in fact O'Brien has constructed such a model, using data from not only Smithville Lake, but other parts of the Kansas City area as well, but it is not discussed very fully in this report. Certainly in the treatment of the survey data the Steed-Kisker material does not receive major emphasis. The reader who is unfamiliar with O'Brien's research interests and previous work could have a hard time discovering that Steed-Kisker is important to her and how the Richardson Hulse Site excavations relate to Steed-Kisker research.

The reader would probably have an even worse time trying to discover why the Yeo Site was excavated, other than the fact (p. 28) that it is the only single-component Kansas City Hopewell Site in Smithville Lake. No stated problem orientation calls for analysis of a Kansas City Hopewell site and there seems to be some difficulty in integrating the information with existing models of Kansas City Hopewell settlement systems.

The Richardson Hulse Site excavations were also to relate to the fourth problem — that of the development of a model of Steed-Kisker community patterns. A valid attempt

to address this problem was also made. That it too was not totally successful was obviously a great surprise to the investigators. Significant information for a settlement system model was generated, even if not much was learned about the internal structure of a Steed-Kisker community. Such surprises are in the nature of science and are a valid part of the research process.

It is somewhat more difficult for me to evaluate the adequacy of the approach to the third problem. If my above restatement of the problem is approximately correct then Finnegan's osteological analysis reasonably well meets contract requirements. In fact, the amount of information generated from fragmentary burials is amazingly thorough, if basic. The suggested comparisons with skeletal assemblages from other Steed-Kisker mortuary sites coupled with the settlement system models for Steed-Kisker should make this complex one of the most thoroughly studied in the Central Plains. As an aside therefore, it would be interesting to see a detailed study of mortuary practices carried out using recently developed approaches to the study of the burial of the dead (e.g., Brown, ed. 1971).

In general, therefore, the Smithville Lake report can be characterized as a theoretically low-key report that for the most part adequately fulfills contract requirements by virtue of its descriptive completeness. This applies to both the archaeology — most particularly the excavations

rather than the survey - and the osteological analysis.

The recommendations are certainly most reasonable. The recommendation that another attempt at gaining some temporal control over the Archaic is certainly warranted - if it seems that the data base is available. It is unfortunate that the speculation on page 76, that 23CL117 could be Archaic, becomes fact in the last paragraph of page 77. If this is the only site that can potentially yield information on the Archaic period then it might be preferable to carry out limited testing only before any decision on excavation is made. It might also be warranted to hire a geomorphologist to evaluate the potential of the landscape for containing the kind of sub-surface deposits necessary for the study of the Archaic.

Since the Late Woodland period is one of the great enigmas of the Midwest, the recommendation that a Late Woodland site be tested would seem reasonable on the face of it. However, mere excavation of more sites, resulting in accumulation of more material, will not solve the problem. Only when conscious attempts are made to construct trial explanations for the Late Woodland will excavation of yet another site be truly profitable.

While expressing some reservations, at this point, concerning the recommendations for the Archaic and Late Woodland periods, I do agree wholeheartedly with the recommendations for further work on the Steed-Kisker material. It is the best-studied complex in the lake area, which simply means

that more questions can be generated. Smithville Lake can potentially yield data to further test and refine the cultural model of Steed-Kisker. I would urge that O'Brien's recommendations be seriously considered.

In ending this review, I should note a number of specific comments that I had as I read the report:

1. It probably would have been more useful to have the "archaeological background" section (pp. 17-18) placed before the discussion of the "sites located" since the cultural identifications draw on this discussion.

2. Some of the site descriptions (e.g., 23CI29, 23CI30) do not list the criteria employed for identification of their cultural affiliation. Similarly, the use of "lack of pottery" as a diagnostic criterion for Archaic (p. 6) is a highly risky interpretation of negative evidence. If such a criterion were to be employed in the Truman Reservoir, for example, we would have to conclude that only Archaic populations inhabited that area in prehistoric times. Such is far from the truth. Both poor preservation of ceramics and probable use of nonceramic limited-activity sites result in apparently non-ceramic sites which are post-Archaic.

3. On both page 25 in the survey discussion and several times in the excavation discussion, reference is made to sites being "uni-function" sites of some type. Exactly what constitutes a single function is unclear, as is the basis for the functional interpretation of these sites.

4. Chert type names are frequently used, but they are neither discussed in the report, nor is a reference given to where such a discussion might be found.

5. On page 55, similarities in percentages of cherts at the Richardson Hulse and Yeo sites are noted. Only a single possible explanation is given - one that the investigator finds hard to believe (as do I). Consideration of several possible alternative explanations might give some interesting insight into procurement processes in general. For example, has the relative availability of Spring Hill, Westerville, and Winterset chert within a 10 km (for example) radius of each site been examined? Is it possible that in both cases cherts are being taken in proportion to their availability? Alternatively, has a comparison of the flaking properties of these cherts been done? Is it possible that some cherts are preferable to others because of their superior flaking properties?

6. Is the data given in Table 21 (p. 59b) a tabulation of counts or weights?

7. Many terms used by Finnegan need some sort of explanation or definition in order to make the report intelligible to most archaeologists. I would suggest simply appending a glossary to this section of the report - briefly describing terms such as Stafne defect, Carabelli's cusp, porotic hyperostosis, and listing references for the interested reader to consult.

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First, I would like to thank Dr. Johnson for completely editing the total original draft. His years as editor of the Plains Anthropologist have made him an accomplished editor and almost all his suggestions were followed, enhancing the final report.

I will follow a point for point procedure excluding point 3 which is well taken but was corrected by Dr. Johnson.

POINT 1.

The assignment of Nebo Hill to the Middle Archaic period (dating ca. 5000-2500 B.C. by Johnson's 1974 chronology) was done for two reasons. First, to make comparable the Smithville and Brush Creek data, but second, because based on the present dates available I am still not convinced Nebo Hill should be dated to the Late Archaic (ca. 2500 B.C.-A.D. 1).

It is true there is a date of 1605 B.C. from the Nebo Hill site which would seem to require such a re-assignment. But the 16 dates from Tuttle Creek's Coffey site (14P01) all assign Horizon III-8 to a period before 3100 B.C. (see Schmidt 1976:17). The Coffey dates all have amazing internal consistency and the projectile point from Horizon III-8 is stylistically related to Nebo Hill.

The chronological assignment of Nebo Hill on the basis of stylistic similarities to other lanceolate point bearing traditions is accepted archeological procedure. The problem though is their reliability. For example, the Koster site lanceolates (found in Horizon IV) are dated to the Late Archaic because that horizon "is perhaps associated with the 'Titterington Focus' burial complex identified in the lower Illinois and adjacent Mississippi region (Titterington 1950). The Titterington Focus has not been dated (emphasis added) but is apparently Late Archaic on the basis of associated artifact types" (Houart 1971:48).

The Starved Rock site in Illinois which has lanceolate points is also undated. Mayer-Oakes (1951:322) suggests the complex dates 5000-3000 B.C. and that it is related to the Plains Archaic pattern. That pattern includes the Nebo Hill and Graham Cave lanceolate traditions (ibid:320). Also side-notched dart points are found associated with these lanceolates.

At Modoc Rock Shelter in Illinois, Fowler notes (1959:67) lanceolate points are found below the 15 foot level and above the 23 foot level. Those levels are carbon dated at 3650 B.C. (level 15 feet) to 7900 B.C. (levels 23.8-26 feet).

Klippel (1971:41) notes that lanceolate points (category 2) run through the whole sequence at Graham Cave. Level 1 has 1, level 2 (3), level 3 (4) and level 4 (1). Dalton material is found in levels 3 and

4. The Dalton materials are dated in his Zones II-III (ibid:65) at 7630 \pm 120 B.C., 7610 \pm 140 B.C., 7360 \pm 125 B.C. and 6800 \pm 120 B.C. Thus, by association the lanceolate points in levels 3 and 4 must date to that time zone.

At Rodgers Shelter lanceolate points and side-notched points occur in unit G, (Wood and McMillan 1976:Fig. 10.1, 1-q). Lower G is called Late Archaic and dated 2500-3000 B.P. while upper G is called Woodland/Late Archaic and dated 1750-2500 B.P. That is, 500-1000 B.C. and 500 B.C. - A.D. 250 (see Table 12.1). Unfortunately, it is noted those dates are not secured by carbon dating but are estimates (emphasis added). A carbon date of about 4300 B.C. is given for unit F just below unit G, but it is admitted as having little occupation and is culturally unknown (ibid).

For all the above given reasons, I remain unconvinced of a change of Nebo Hill from Middle to Late Archaic as those periods are defined for the Kansas City area.

Finally, if we make Nebo Hill date Late Archaic, what then, is its relationship to the contracting-stemmed point tradition (Gary and Lantry) which was assigned to that period in Johnson's original definition of the chronology of Kansas City. Those points are found as a recognized complex and are not associated with Nebo Hill!

In Kansas City I could see a re-dating of the Middle Archaic downward from 5000-2500 B.C. to 5000-1500 B.C. and a re-dating of the Late Archaic from 2500 B.C.-A.D. 1 to 1500 B.C.-A.D. 1. Such an arrangement would certainly accommodate the erratic dating and would maintain the known integrity of the contracting-stemmed point tradition of the originally defined Late Archaic.

After all, there is nothing culturally sacred about the original 2500 B.C. breaking point date that it cannot be re-defined upward or downward.

Finally, since I have maintained Nebo Hill's identity it can analytically still be re-assigned to whatever is the appropriate period once the dating is more clearly established.

POINT 2.

The use of the term "uni-functional" for sites received reaction from all three reviewers. Johnson and Henning doubted any site has only one function while Roper felt the term was unclear. The intent of the term was to suggest the basic raison d'être for the sites. This is not to imply that other everyday activities did not or could not occur at the site but rather that the determining parameters for it

focused on a single function. To illustrate my point (with a bit of a crusher), all American churches have toilets, many even have kitchens, but their raison d'être still remains religious worship.

Roper (personal communication) informs me that a more common term for such sites is "specialized, limited activity sites" and I have incorporated that terminology in a few places.

POINT 3.

The comments on a demographic model are well taken and Johnson's comments that demography is a statistical study of populations as to birth, marriage, mortality, health, etc., is true when one is studying a living population as is done by the U.S. Census Bureau. But it is equally true that the establishment of survivorship tables, the analysis of disease, pathologies and skeletal anomalies, etc., is used by the physical anthropologist to come to some understanding of the demographic character of a past population.

An examination of the essays dealing with osteological data in "Population Studies in Archeology and Biological Anthropology: A Symposium" edited by Swedlund (1975) illustrate this as does Weiss' (1973) "Demographic Models for Anthropology" or even the most recent issue of Science in the paper "Paleodemography of the Libben Site, Ottawa County, Ohio." by Lovejoy, et. al. (Vol. 198, pp. 291-293, 21 Oct. 1977).

While it is true that no new innovations of analysis were discovered by Finnegan, in all fairness it is difficult to innovate when your data is disintegrating under your brush.

Finally, as Johnson and Roper have suggested there has been some re-writing of the Problem section of the report to clarify what we interpreted our problems of study to be.

POINT 4.

Henning's comments on the lack of a large scope of work with its stages of implementation can only be answered with the fact that none was developed. Inventory, evaluation and mitigation are being done simultaneously not because it's the best scientific procedure but because it is the most practical one. Smithville Lake was well over half completed when the Federal legislation protecting cultural resources was passed. Thus the Corps of Engineers has of necessity been forced to "play catch-up" on this project. Sites excavated in the summers of 1975 and 1976 were, with the exception of the 23CL195 and 23CL199, all recommended for testing and excavation when archeological work was done under the auspices of the National Park Service in the late 1960's.

Such work as is well known was incredibly under-funded and under-staffed (it was usually done by graduate students) and if a testable research design was developed it was done by the student himself usually after the work was completed, being derived from it.

It is my hope that such a "tight, concise and testable research design" has been developed by our work on Steed-Kisker in the area and it is my hope that we will be able to test it before the lake covers the sites.

Such a broad design has not been developed for the other cultural periods because except for Kansas City Hopewell (as a product of Johnson's researches in the Kansas City area), we are hardly able to define their artifact assemblages let alone articulate intelligent questions considering their settlement systems, etc.

Since it is impossible to do all the work necessary to save all the important cultural data with the time and money available and since other Federally funded projects are occurring in the Kansas City area, it would seem to me most practical for the Corps to focus on one or at the most two cultural periods, and develop a series of research designs for them at each given project. If we do not do this, I fear we will end up testing one or two large sites for each cultural period (since they are so large and important) on each project and the result will be a kind of "hit or miss" archeology not very different from the past, just better funded.

POINT 5.

All the data on the tracts: how they were surveyed, state of the land, etc., was collected and is reported in the background data. That data includes the official site survey forms as well. It is not included in this report because it is not specifically pertinent to the questions discussed. Five copies of the tract descriptions, maps, survey forms, etc., have been submitted and they are available to scholars at the Missouri Archeological Society offices in Columbia, at the Missouri Historic Preservation Officer's Office in Jefferson City, at the Corps of Engineers office in Kansas City, and at the National Park Service offices in Denver.

The official site survey forms have all the data mentioned on Henning's page 2 including a listing of all artifacts recovered on the survey--by established types where possible.

It is true that not all this data is presented. This is because it is not possible to write a report describing all data to answer all questions. What is important is to collect and store as much data as one can, and by so doing preserve it for future questions and research. This we believe has been done.

POINT 6.

The faunal identifications were done by myself. The 400+ fragments were the contents of a couple of 10 dram vials. The individual fragments are not more than a couple of millimeters long or in thickness and are completely unidentifiable. They are a product of the use of flotation techniques. The latin names have been added to the table.

POINT 7.

The radiocarbon dates from 23CL199 are most problematic. Their large standard deviation is a product, I understand, of a low carbon content. Unfortunately, nothing can be done about re-running them because we sent in all the charcoal we had available.

In the averaging and discussions of the range of the dates from sites 23CL108 and 23CL109, they are tight enough not to present difficulties. My various attempts to make sense of the 23CL199 have been revised but may still not be convincing.

POINT 8.

This is covered in point 2.

POINT 9.

We did not get just the bottoms of the Steed-Kisker storage pits at 23CL109, we got the bulk of the pits. Also we didn't find the full range of Steed-Kisker tools and other artifacts. The soil was so yellow at this site there is no way we could have missed any Steed-Kisker house. Also no sub-surface features of the other five pre-historic complexes were represented at the site and since Kansas City Hopewell, without question, is known to have sub-surface storage pits at least as deep as Steed-Kisker ones, erosion and removal by plowing are not satisfactory explanations. I think we have to face the fact that the pre-historic cultures of the region (and I suspect the U.S.) were structurally much more complex than we have heretofore believed and that this will be reflected in a variety of "uni-functional" (per point 2) sites. Ethnographically farmsteads have been reported for the Caddo (Preston Holder, personal communication) and "storage sites" i.e., corn crib facilities near cornfields are reported for the Kickapoo (Walter Klippel, personal communication). While neither are Kansas City tribes, the ethnographic literature on the Kansa and Missouri are certainly not detailed enough to know many particulars of their settlement system.

POINT 10.

The Reeves site was excavated because of recommendations made in the National Park Service reports, and the Corps of Engineers used those recommendations as the basis for making decisions on the archeological work to be done at Smithville. Since the site is also located at the northernmost end of the Little Platte Public Use area it would be endangered by vandals.

POINT 11.

It is possible my innate enthusiasm has run away with me, but I believe that the "farmstead with family cemetery pattern" I am proposing is a very testable hypothesis and I believe I have stated it as such enough in the report.

POINT 12.

I agree it would have been useful to have had a geomorphologist on the project especially for the studies on the Archaic, but unfortunately there was not enough money for one nor was there any for a soils scientist either.

POINT 13.

Roper, like Johnson and Henning, notes the ambiguity of some aspects of the Problem Statement section, and I hope I have corrected those difficulties in the revisions for the final report.

Roper also points up a common problem of cultural resources management research, namely that the archeological survey itself is not problem oriented. As she notes, I attempted to give it some, and in candor I was originally hoping to do a site catchment analysis similar to what she had done herself on the Sangmon River in Illinois. It was not done because I did not have the time. This brings me to what I believe is a most important aspect of these contract studies--TIME. My experience with these large scale projects is limited to Smithville, but I doubt it is different from others. I consider myself to be a reasonably efficient worker and yet I was pushed for time to the very end. If in addition to analyzing excavated sites, these studies are going to include (and I would agree they should) sophisticated analyses of the survey data itself then more time must be given to complete such work. As it is now a report is due one year from the date of the contract. Thus if the contract is signed March 15, 1976, the final report is due March 14, 1977; but if fieldwork starts June 1st and ends August 1st, then one actually has seven and one half months to write up the data collected. If such studies are going to be done then one year for survey analysis and one year for the excavation analysis in a project like Smithville would be more reasonable.

POINT 14.

Roper's point that a more detailed analysis of the Steed-Kisker mortuary practices as in Brown (ed. 1971) should have been tried, is well taken. I did attempt to take the data further than I had in the first draft but unfortunately have had a very difficult time finding patterns, partially due to the inadequacy of the comparative data (either osteologically or archeologically or both) for Steed-Kisker. Some of this may be resolved when other collections, most notably the Vandiver Mounds, are analyzed and when the Calovich Mound excavation is completed.

POINT 15.

Roper's numbered comment 1. The archeological background section was moved as suggested.

POINT 16.

The site criteria were added and it was noted that the non-ceramic sites could belong to all periods.

POINT 17.

I hope I have cleared up what is meant by "uni-functional."

POINT 18.

Chert types are now given in the environment section.

POINT 19.

The relative availability of these different cherts is probably the reason for these ratios and I have added that explanation. A study of the flaking properties of the cherts would be useful and might be related to these ratios but data on that question is not available.

POINT 20.

Table 21's tabulations are counts.

POINT 21.

A glossary of terms has been added.

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APPENDIX III

ARCHEOLOGICAL EXCAVATIONS SMITHVILLE LAKE PROJECT

A Final Report

Accomplished Under Purchase
Order No. DACW-41-76-M-0063

with the

U.S. Army
Corps of Engineers
Kansas City District
Kansas City, Missouri

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April 1976

Introduction

In June, 1975 Kansas State University and the U.S. Army, Corps of Engineers, Kansas City District entered into an agreement (Purchase Order No.DACW-41-76-M-0063) which authorized the Department of Sociology-Anthropology to conduct an archeological testing program to evaluate site significance of sites 23CL114 and 23CL108 which lie within the proposed boundaries of the Smithville Lake project.

The fieldwork accomplished in conjunction with the Kansas Archeological Field School beginning June 9, 1975 and ending August 1, 1975 consisted of an excavation team of ten students and a field foreman, Mr. Harold Beal, under the general supervision of Dr. Patricia J. O'Brien, Kansas State University.

The following report outlines the results of this testing program. Specifically, sites 23CL114 and 23CL108, but also sites 23CL115 and 23CL195 (Fig. 1). These latter two sites were tested when 23CL114 proved to be practically sterile and when it was impossible to get access to excavate 23CL109.

Site 23CL109 is owned by Mrs. Frances Orr, and after several long discussions with her, she agreed to allow the site to be tested. Unfortunately, negotiations were unproductive when her lawyer and the Corps Real Estate personnel could not resolve their differences. As Mrs. Orr put it, since she "was paying good money for her lawyer's advice: she felt she should follow it. Because of these complications, 23CL109 will have to be excavated at a later date.

Environmental Setting

The Smithville Lake which is being constructed by the U.S. Army Corps of Engineers is located on the Little Platte River, and its tributary Camp Branch just east of the town of Smithville in Clay County in northwest Missouri.

That region of Missouri is situated within the Dissected Till Plains of the Central Lowland province of North America. The area is a Prairie/Forest. For human occupation the oak-hickory forest resources--nuts and wood (fuel and building)--would have been of extreme significance. The prairie grasses though used for some constructional purposes, was most important for the bison herds it supported. Although a variety of small animals were available, deer and bison were the most important prehistoric protein sources.

Undoubtedly, they were supplemented by fish, some mollusca, roots and wild fruits.

These resources were distributed throughout three zones: the uplands, the forest border, and the river bottoms. More detailed descriptions of these zones have been given in reports by Calabrese (1969:18-21), and Riley (1967:2-4), while Johnson (1974:108-114) present detailed data on the character of the environment just as the Euro-Americans were entering the area in the 17th and 18th centuries.

23CL108, The Chester Reeves Mound

Site 23CL108 is a burial mound situated on the western bluff top overlooking the Little Platte river. It is located in the SE 1/4 of the NW 1/4 of the NW 1/4 of Sec. 31 T54N, R32W (Fig. 1). It was found by Rolland Pangborn in the 1967 survey and was recommended for testing. Because the site was not owned by the Corps of Engineers, I contacted the family of Mr. Chester Reeves, the owner, in Trimble, Missouri, for permission to dig. It was granted. The mound was reported by Riley (1967:6) as being approximately 40 feet in diameter and six feet high with a marked depression in it (both a pot-hole and also a "fort hole--dug by Mr. Reeves' grandchildren).

The site when found was heavily covered by dense brush which was cleared. The mound was staked in 2 meter squares with the 0-0 datum stake placed south and east of the mound. The 10N line thus, bisected the mound on an east-west axis while the 10W line bisected it on a north-south axis. Fifteen 2 meter squares were opened (see Fig. 2). Six on the 10N line and five on the 8W line (squares were identified by the southeast stake). Two additional squares were opened on the 10W line and on the 6W line while two such squares were dug on the 4W line. The result of these excavations were, essentially, the opening of the northeast quadrant of the mound. These tests were all dug to the limestone slab level (Fig. 2) encountered in all squares except 10N-2W, 12N-4W, 16N-8W and 18N-8W. The limestone level occurs at approximately 1.2 meter level from the mound top. The mound was excavated to its base (no old humus line was found indicating the sod was stripped off before the burials were interred) in seven squares: 10W-10N, 10W-12N, 10W-14N, 8W-14N, 6W-14N (in which burials were found), 8W-16N and 8W-18N (in which neither limestone slabs nor burials were found). The burials discovered are shown in Figure 3.

Cultural Debris

Artifactual materials, excluding the human bone, was not plentiful

in the mound fill, but what was there can be divided into two cultural classes: modern materials and prehistoric. The modern materials were the result of the Reeves' grandchildren playing "fort" in the top of the mound. They include such items as knives and forks, pliers, screwdriver, wood strips, soda pop caps, broken glass, etc. The dancing mice tea cup and sugar bowl (Fig. 4a-b) are examples of this archeological "horizon."

The prehistoric materials consisted of numerous pieces of limestone and broken rough rock in the mound. There were also 46 chert chips, 12 body sherds--plus 11 body sherds found at the limestone slab level of 12N-6W and 64 body sherds at the 40-50 cm level in 12N-6W. The sherds are Steed Kisker Platte Valley Ware types. Also found was part of a small bowl with a missing handle and part of a larger jar with a strap handle (Fig. 4e-f). The bowl was at the 10-30 cm level in 12N-8W but the jar was at the 40-50 cm level in 12N-6W.

Two chipped stone artifacts also were recovered in the fill. One was a unifacial side scraper in 10N-10W at 100-110 cm level. It is 5.04 cm long and 2.6 cm wide (Fig. 4c). The other was a small biface 5.12 cm long and 1.79 cm thick, found in 14N-6W at the 30-40 cm level (Fig. 4d).

In sum, all the prehistoric materials are Steed-Kisker in affiliation. Three charcoal samples recovered from the limestone level have been submitted for radiocarbon dates. The results were A.D. 955 \pm 70 (UGa-1149), A.D. 1030 \pm 70 (UGa-1200), and A.D. 970 \pm 65 (UGa-1201).

Burials

Six definite burials were found in the mound. Except for burial 5, they all seem to represent single individuals. Burial 5 may have two (or more) individuals present--suggesting seven individuals in this area of the mound. However, there is an articulated femur-tibia near burial 3 suggesting another child as well as a femur east of burial 4 suggesting another burial--implying nine individuals in this area of the mound. The actual determination of burials is very difficult because of the poor condition of the bone. Only a complete osteological analysis of it, plus the presence of a trained osteologist in future work can help insure the recovery of this type of data from the mound. A description of the burials excavated follows.

Burial 1--semi-flexed, head to South, body on NW-SE angle axis, lying on back (?); Adult: age and sex unknown; red ochre near skull and on chest; depth 92 cm at skull 12W-16N, 100 cm at feet 12W-16N.

Burial 2--semi-flexed, head to South, body on N-S axis, lying on right side; Adolescent: 14+ years; 87 cm deep at skull, 93 cm at feet in 12N-12W.

Burial 3--flexed, head to West, body on E-W axis, lying on back(?); Child: 4-6 years; covered with red ochre; depth 137 cm at skull to 153 at feet in 12N-12W.

Burial 4--semi-flexed(?), head to East, body on E-W axis, lying on right side; Child: 4-6 years(?); depth 114 cm at skull in 16N-8W.

Burial 5--probably flexed, heads to South; two bodies--upper is on right side facing East, lower is on left side facing West with a mussel shell near head; probably adults: age and sex unknown; except for legs, most of upper bodies are decayed away (Fig. 5).

Burial 6--flexed, head to South, body on N-S axis, lying on right side; Adult: probably male, 20-30 years; head and chest covered with red ochre; depth: skull 118 cm, 126 cm at feet in 12W-16N.

Conclusions

The data on site 23CL108 suggest it is a Steed-Kisker burial mound in which the dead were placed, in turn, with each body covered with limestone slabs for protection. Since only about an eighth of the projected limestone areas has been excavated to mound base (with maybe 9 burials) it is believed that anywhere from 30 to 40 burials remain within the mound.

Preliminary cultural analysis suggest that the adults are aligned on a north-south axis while the children are placed on an east-west axis. All the adult's heads point to the south the children either east or west. One child (B.3) is covered with red ochre as are the adults in Burials 1 and 6. The other burials lack it. All burials are flexed or semi-flexed. This is different from the typically extended pattern reported by Wedel (1943: Fig. 11) at the original Steed-Kisker site (23PL13).

The completion of the excavations of this mound cannot be too strongly advocated. It is the only upland area mound of this culture known--let alone excavated scientifically--and should give invaluable data on the demographic, nutritional and pathological character of these people.

23CL114

Site 23CL114 is located on the northern edge of the second terrace of the Little Platte river. It is situated in the NE 1/4 of the NE 1/4 of the SW 1/4 of sec. 18, T53N, R32W (Fig. 1). The site was found by Rolland Pangborn in the 1967 survey, and the only diagnostic materials were pottery: one Steed-Kisker sherd and two grit tempered sherds. The site covered about 7500 square feet. No diagnostic chert artifacts were found.

The site was excavated in 2 meter squares and twenty-one and a half squares were opened (Fig. 6). Squares 6W-8N and 8W-8N were tested to the 60 cm level and except for a rodent nest (F. 1) where cultural debris was present, the levels below 20 cm had scant material. Squares 0-10N, 10N-12W, 18N-12W and 18N-14W were opened to the 40 cm level--without success. A second rodent nest (F. 2) was found in square 12N, 14N-16W. Except for the rodent activity, no features (pits or postholes) were found. Very little cultural material was recovered at all and most of it was in the plow zone (0-20 cm).

Cultural Debris

The scant cultural materials are tabulated in Table 1. Pottery found at the site falls into several groups based on temper and surface treatment. It is either grit-sand or grog (also shell present) tempered. The grit-sand tempered sherds are either plain surfaced (5) and possibly incised or brushed (2) (fig. 4i-k). These potsherds are Kansas City Hopewell in affiliation. The final group of sherds including the only rim, are grog tempered (with occasionally lenticular holes from shell). Four are plain surfaced while two seem smoothed-over cord-roughened (Fig. 4 l-m). These sherds are probably Steed-Kisker in affiliation.

The only projectile point found (from the surface) was a Steed-Kisker type triangular point with a basal notch. It is made of white chert and is 2.4 cm long, 1.4 cm wide and 0.15 cm thick (Fig. 4h). One projectile point tip--probably Steed-Kisker, was found in square 16N-12W/1. One biface was found in square 16N-12W/1 (Fig. 4g). It is made of mottled tan-gray chert, and is 5.1 cm long, 2.24 cm wide and 0.76 cm thick.

Four hammerstones were found; they are round (3) or rectangular (1) in shape (Fig. 4n). Three are made of quartzite and one of basalt. Twelve hammer fragments were recovered as were two metate fragments (see Table 1). One irregular piece of sandstone which was flat on one side and had a slight groove on the other

TABLE 1

Materials Recovered from 23CL114

Chert Debris	Worked Chert	Hammer Stone Frag.	Hammer Stones	Rough Rock	Metate Frag.	Lime- stone	Pottery
	1	3	4	33	2		1 Surface
2				11			1 F.2
				13			1 0-6N/1
		1		10			1 0-10N/1
							0-10N/2
1				6		1	0-4W/1
4				15			6W-8N/1
				3			6W-8N/2
				6			1 6W-8N/3
				13			1 8W-8N/1
							8W-8N/2
							8W-8N/3
2		2		8			1 8W-4N/1
2	1			11		1	1 0-10W/1
				16			1 4N-10W/1
				15			1 2N-12W/1
				8			1 10N-12W/1
				1			1 10N-12W/2
1				13			3 12N-12W/1
1		1		8			1 14N-12W/1
1	1			8			1 16N-12W/1
							18N-12W/1
							18N-12W/2
1				4			1 12N-14W/1
3		1		11		1	14N-14W/1
				4			16N-14W/1
				1			18N-14W/1
							18N-14W/2
3		1		8		1	12N-16W/2
							14N-16W/1
		2		8			16N-16W/1
		1		6			1 18N-16W/1

was found in square 0-10N/1. Also present were four pieces of limestone, twenty-one pieces of chert debris, three pieces of worked chert and 240 pieces of rough (broken) rock--most of it is quartzite (45%).

Conclusions

As can be seen by the previous enumeration, scant materials were found from the site. The pottery is both Woodland and Steed-Kisker. The projectile point was Steed-Kisker. There are no features--excluding the rodent nests--at the site (neither hearths, pits or postholes). There are however, two peculiar aspects of the site: 1) the low incidence of chert debris and 2) the very large amounts of rough (broken) rock. Since there is no way of identifying whether the rough rock was used by the Woodland or Steed-Kisker peoples, we cannot determine which culture used it. But both cultures obviously did not leave any great amount of chert debris. Thus, indicating that knapping was not a significant activity here for either culture.

In sum, we can say that site 23CL114 was occupied by Kansas City Hopewell and Late Woodland people and then by Steed-Kisker people. In no case was the occupation extensive nor of long duration--indeed the Steed-Kisker materials are so scant that they may represent only a trash dumping area from site 23CL115 several hundred meters to the southeast.

23CL115

Site 23CL115 is located on the highest knoll of the second terrace of the Little Platte river. It is situated in the SE 1/4 of the NE 1/4 of the SW1/4 of sec. 18, T53N, R32W. This site is several hundred meters south-east of 23CL114 (Fig. 1). It too was located in the 1967 survey by Rolland Pangborn. The only diagnostic materials were two shell tempered Steed-Kisker sherds. The site covered an area of 225 x 50 feet.

Because the cultural debris was thinly scattered over that area, it was difficult to decide which areas to concentrate on for excavations, but those areas with a slightly higher density of broken rock (there were five) were selected (Fig. 7). The areas were designated A through E, and four (A, B, C and E) were opened up. Area D was started but only one unit: D4 (a 2 meter square) was opened. Nothing was found and the area was not opened further to accommodate plowing by the tenant. Therefore it was not mapped.

Area A was opened in all four 2 meter squares, with units 1 and 2 tested to the 20 cm level, and 3 and 4 tested to the 40 cm level. The only culturally significant remains found were a Nebo Hill point, an iron nail, a piece of modern crockery and eleven chert chips. Forty-seven limestone fragments were found, and five fragments of rough rock.

Area C was tested: unit 1 (a 2 meter square) was not opened, unit 2 and 4 were tested to the 20 cm level and unit 3 was opened to the 40 cm level. Like area A, area C had scant materials: 109 limestone fragments, ten chert chips, a piece of modern crockery and a potsherd, and two fragments of rough rock.

Area E had three 2 meter square units opened; 2 and 3 were carried to the 20 cm level, 4 to the 40 cm level while unit 1 was not tested. Ten pieces of limestone, five of rough rock and six chert chips were among the more interesting finds.

Area B consisted on 14 two meter units. Numbers 1, 2, 4, 9 and 13 were tested to the 20 cm level; 3, 6, 7 and 10 to 30 cm; 12 to 25 cm and 8, 9 and 14 to the 40 cm level. Area B was the location of a 19th century homestead and we discovered the old well as well as the possible location of a chimney area. Also a Steed-Kisker affiliated storage pit was found (Fig. 8). It should be noted here that most of the limestone fragments found scattered in all the test areas probably came from the historic house.

Features

The features found at the site were all located in test B (Fig. 8). Feature 1 was first located in the northeast corner of B-7 and was found to extend east into B-6. It was roughly oval and was about 2.1 meters long (E-W axis) and 1.6 meters wide. It was about 10 cm deep and seemed to be a burnt area. Shell, broken limestone, carnival glass and three iron nails were scattered in the north-central area and two broken brick fragments--with a grey-speckled glaze (Fig. 9g) were found. It is thought the feature might be the base of a historic hearth area.

Feature 2 was located in B-8 and B-9 and was first identified by a cluster of limestone in an arc. It was later discovered that the limestone formed the walls of what we thought was a cistern. The outer edges of the limestone were about 1.5 meters in diameter. The inner shaft area was 57 cm (N-S axis) by 48 cm (E-W axis) across. The feature was excavated to the 1.89 meter level and although it continued on, the depth of the feature and the difficulties of dirt removal made it an unsafe situation to work. It appears the feature is a well as a cistern should have begun to bell out at that depth. It is an historic feature.

The final feature (#3) was the bottom of a Steed-Kisker storage pit and was located in units B-2 and B-12. It was approximately 80 cm in diameter and 12 cm deep, and was found 16 cm below the surface. Since such pits are normally about a half meter or more deep, the upper parts have been destroyed by erosion and plowing.

Cultural Debris

Although this site, like 23CL114, did not have a lot of sub-surface features, it did have more culturally diagnostic material. The chert artifacts consisted of three projectile points (Fig. 9 m-o). One was a Nebo Hill point of whitish chert, from square A3, which was 10 cm long, 2.2 cm wide and 1.0 cm thick (Fig. 9o). It had been used in such a manner that the flake scars had been worn smooth over much of the surface. This is a Middle Archaic point according to Johnson (1974:114). The second point of tan chert, a small corner-notched one, from the surface, is 3.5 cm long (the tip was missing), 3.0 cm wide and 0.3 cm thick (Fig. 9n). This is believed to be a Late Woodland type (*ibid*). The last point, actually only a base, is made of grey, slightly banded with light grey, chert. It was found in square B 13. The length is 1.37 cm and is obviously incomplete, the width is 2.5 cm (base stem only while the thickness is 0.6 cm (Fig. 9m). This point is probably the stem end of a large Kansas City Hopewell corner-notched point.

Three bifaces are in the collection, only one is complete, the others are bases. The complete one (Fig. 9p) is made of ochre colored chert, and is 6.14 cm long, 3.4 cm wide and 0.76 cm thick. It came from the plow zone of square B9. The second one (Fig. 9q) is made of tannish chert and is 2.74 cm long (incomplete), 4.37 cm wide and 1.2 cm thick. It was found in square B11 at the 20-30 cm level. The final base (Fig. 9p) is made of grey banded chert and is 1.73 cm long (incomplete), 3.68 cm wide and 0.5 cm thick. It was found in square B3's plow zone.

The last chipped stone artifact is an end scraper (Fig. 9s) of pink heat-treated chert from the plow zone of square B6. It is 2.94 cm long, 1.53 cm wide and 0.43 cm thick.

Sixteen fragments of worked chert were recovered: 2 in test A, 1 in test, C, 10 in Test B and 2 from the surface. One hundred and twenty-two chert chips were found; eleven from test A, five from C and three from E. Eighty-seven were from test B with fifteen of them from features 1 and 2. Sixteen were surface finds. As at site 23CL114, chert debris is very scant.

Two sandstone abraders were found (Fig 9t) and descriptive data on them is given in Table 2 as is such data on the four hammerstones and six hammerstone fragments. Daub also was found at the site. Three pieces in test A and 63 pieces in test B. Rough (broken) rock was recovered at the site too and Table 3 gives the provenience data on it.

TABLE 2

Tabulated Raw Data on Abrader and Hammerstones at 23CL115

Sandstone Abraders

<u>Provenience</u>	<u>Length</u>	<u>Width</u>	<u>Breadth</u>	<u>Weight</u>
F.3	4.3 cm	2.4 cm	2.3 cm	16 grams
B-7	5.8 cm	2.4 cm	2.8 cm	28 grams

Hammerstones

<u>Prov.</u>	<u>Depth</u>	<u>Length</u>	<u>Width</u>	<u>Breadth</u>	<u>Weight</u>	<u>Rock Type</u>	<u>Rock Color</u>
B-3	0.20 cm	7.8 cm	7.3 cm	5.4 cm	465 g.	Granite	Pink
B-4	0.20 cm	10.6 cm	7.3 cm	6.2 cm	923 g.	Granite	Pink
B-8	0.20 cm	8.0 cm	5.5 cm	4.7 cm	291 g.	Basalt	Black
B-11	0.20 cm	7.6 cm	6.4 cm	4.2 cm	371 g.	Unknown	Lt. Brown

Hammerstone Fragments

<u>Provenience</u>	<u>Depth</u>	<u>Type</u>	<u>Weight</u>
A-2	0.20 cm	Quartzite	624 grams
B-3	0.20 cm	Basalt	119 grams
B-13	0.20 cm	Giniese	336 grams
B-14	0.20 cm	Quartzite	88 grams
D-4	0.20 cm	Granite	368 grams
E-2	0.20 cm	Quartzite	510 grams

TABLE 3
Distribution of Broken Rock at 23CL115

<u>Provenience</u>	<u>Depth</u>	<u>Amount</u>
A-2	0.20 cm	1
B-2	0.20 cm	1
B-3	0.20 cm	3
B-4	0.20 cm	2
B-6	0.20 cm	2
B-7	0.20 cm	3
B-8	0.20 cm	2
B-9	0.20 cm	1
B-10	0.20 cm	5*
B-11	0.20 cm	2
B-12	0.20 cm	2
B-13	0.20 cm	4
B-14	0.20 cm	1
C-3	0.20 cm	1
C-4	0.20 cm	2
E-2	0.20 cm	4
E-3	0.20 cm	1
E-4	0.20 cm	1
B-11	20-30 cm	1
B-14	20-40 cm	2
F. 1		3
F. 2		17
F. 3		3

* Burnt

Only shell and animal bone fragment were found in unit B. Four unidentifiable fragments of shell came from F. 1 along with 13 fragments of bone. F. 2 had 8 unidentifiable pieces. Four pieces were in squares B-6 and B-9. Three identifiable fragments were found: a pig's tooth in B-9, and in B-1 a bird bone, possibly chicken, and one turtle fragment.

Prehistoric ceramics from the site fall into several groups. The bulk belongs to Calabrese's (1969:72) Platte Valley Ware: 37 body sherds and 4 rims (all smoothed surface). But in addition we found 7 shell tempered body sherds that were cord-roughened (Fig. 9i-j). Other sherds are a problem in that they seem to be grog (crushed sherd) tempered but also have the same paste characteristics as the Platte Valley Ware. There are 10 body sherds and a rim, all cord-roughened, and 3 body sherds and a rim that are plain surfaced. Finally there are two plain body sherds which are grit tempered like the Woodland shreds at 23CL114 (Fig. 9k-l) and are probably Kansas City Hopewell.

Modern glass and crockery (Fig. 9a-f) was found at the site (see Table 4 for a listing of the different kinds). Unfortunately, this material was so fragmentary and lacking in maker marks that dating beyond the general 19th century is not possible. Also found were several square iron nails--whose form suggests dates between 1830 and 1870 (Michael Heffner, personal communication). A brick fragment with a glaze was found (Fig. 9g). The most interesting artifact was a brass eagle's head (Fig. 9h). It is a sword pommel. Examinations of sources on American officer's swords resulted in no perfect match. Dragoon officer sabers had eaglehead pommels from 1820-1830 while Militia officer's swords from 1800-1825 also had eaglehead pommels (Belote 1932:35, 27). Presumably the sword dates to that period from 1800-1830.

Conclusions

From the above discussion of the artifacts from the site we can make the following observations. First, the presence of the Nebo Hill point suggests a possibly Middle Archaic use of the area. The Kansas City Hopewell sherds and the corner notched point indicate a Woodland visitation. The storage pit and extensive Steed-Kisker debris point to a more extended use of the site by Mississippian people. Finally, the historic debris point to its use in the 19th century, presumably as a farmstead.

In checking the historical records, the following abstract¹ for the land (ownership and dates) was found:

¹Abstract under the name of Frank McFall, McDaniel Title Co., Liberty Mo.

TABLE 4

Modern Glass and Crockery from 23CL115

<u>Quantity</u>	<u>Type</u>
13	Clear Glass - basic blue green tint with Rainbow pattern like Carnival glass (some has been identified as from Eagle Flask whiskey bottles ca. 1850-1870)
4	Clear Glass - Purple tint
73	White porcelain
1	Pink cross-hatch Porcelain
1	Pink speckled on white Porcelain
1	Red on white Porcelain
2	Blue on white Porcelain (Shell - or feather - edge ware)
1	Blue Porcelain
5	Gold Glaze Porcelain (Moche ware?)
3	Gold Glaze Porcelain with brown and white stripes (Moche ware)
4	Gold Glaze Porcelain with brown stripe (Moche ware)
15	Clear Glass
20	Canning Crockery with green-grey glaze

1. The United States to James Duncan, May 26, 1827.
2. Bequeathed by Duncan to his daughter, Juliette, March, 1841.
3. Juliette and Joseph Duncan sold to William Sparks, Sept., 1957.
4. Sold to William Davenport, January 28, 1860.
5. Sold in sheriff's sale to James Winn and John Lincoln, April 30, 1864.
6. Lincoln to Winn, May 11, 1865.
7. Winn to Amanda Smith, March 2, 1866.
8. Smith to David Youtsey, January 2, 1866.
9. 1/3 southwest 1/4 and 1/3 west 1/2 of southeast 1/4, Section 18 from David Youtsey to James Youtsey through inheritance and sold to William Henson, September 15, 1877.
10. Southwest 1/4 and west 1/2 of southeast 1/4, Section 18, to William and Mary Creekmore through inheritance and sold to Thomas J. Brown, January 9, 1878.
11. Part of west 1/2 of southeast 1/4 and part of southwest 1/4 of Section 18 to Peter Youtsey and William Henson through inheritance and sold to John Youtsey April 16, 1878.
12. Part of southwest 1/4 of Section 18 from T.J. Brown to George Youtsey, May 1878.
13. Part of southwest 1/4 of Section 18 to John, Ann, Peter, and Mary Youtsey and William Henson through inheritance and sold to George Youtsey, April 6, 1878.
14. All of a part of Section 18 sold by George Youtsey to John Youtsey, May 22, 1878.
15. Bequeathed to Mary Shavesdall, May 1, 1916.
16. Sold to Frank McFall, November 16, 1916.

The first owner, James Duncan was a captain in the Civil War and started the first Post Office in Elm Grove at his residence (this may be site 23CL209 which is reputed to be an old post office and next to which is found a pre-Civil War cemetery [23CL210] in which both Luisa A. Duncan and Letita Davenport were buried). William Davenport was also an officer in the Civil War. The legal records in the abstract are very sketchy about the proceedings of the lawsuits leading to the sheriff's sale. Since these events fall within the period of time given by the square nail date, we suspect they might have had something to do with the building of a house on the site. Unfortunately, obtaining complete records of the legal matters surrounding the sheriff's sale was impossible since they were in storage and could not be recovered in time to be used for this report (see History of Platte and Clay counties, 1885).

23CL195, The Arthur Site

The Arthur Site (23CL195) was located in a curve on the east side of Camp Branch creek in the NE 1/4 of SW1/4 of Sec. 10, T53N, R32W (Fig. 1). The site was found during the 1975 survey of Camp Branch, and because of the diversity of materials present on the surface

(Archaic, Woodland and Steed-Kisker), it was recommended for testing.

The site (Fig. 10) was excavated in two meter units which were centered over those areas where the surface debris was the densest. The major area was gridded and 10 squares were opened: 0-0, 0-8W, 0-4N, 0-6N, 2W-6N, 6W-6N, 2E-14N, 2E-16N, 4E-16N, and 2E-18N. Additionally two squares A and B were excavated (to the 20 cm level) to the east of the gridded area. Squares 0-8W, 6W-6N, and 0-4N were excavated to the 20 cm level while squares 0-6N, 2E-14N, 2E-16N, 2E-18-N, and 4E-16N were excavated to the 40 cm level. Square 2W-6N was tested to the 65 cm level while unit 0-0 was carried down to the one meter level in its northeast quad. In all of these squares no materials were found below the 40 cm level and in most, nothing was found below the plow zone (i.e. 20 cm).

In an attempt to locate structures, two narrow exploratory trenches (about 20 cm wide and 45 cm deep) were excavated, parallel to each other, over the longitudinal axis of a rise in the field extending northeasterly from the main test area. Nothing of any significance, except one potsherd was found. Also, a series of auger holes at 2 meter intervals were made paralleling the trenches. They too, revealed nothing. The south row of holes were 45 to 55 cm deep while the northern row were 20 to 42 cm in depth. Twenty-one holes were in the northern row and only nine were in the southern one.

Excavations at this site were very disappointing given the diversity of surface materials. Unfortunately, the bulk of the site debris was in the plow zone and has been turned over through plowing for almost a century. The site also has been extensively surface collected. The rest of this report will discuss both the materials recovered during testing and also those in the Eugene Arthur collection.

Cultural Debris

Table 5 presents in tabular form the basic data on the lithic materials from the site. Ten projectile points were recovered, all but one from the surface. One is a contracting stem type (Langtry?, probably a Late Archaic type) made of dark grey chert (Fig. 11a). Five are small triangular projectile points, one is just a tip, but the others are either complete or the base is present. All these are side notched with three having a basal notch (Fig. 11b-d). One is a corner-notched Kansas City Hope-well point (Fig. 11e) while another would seem to be a Hardin Barbed type of the Early Archaic (Fig. 11f). The ninth point appears to be an end of a broken Nebo Hill Middle Archaic point while the last is just the broken tip of a dart point. One crude bifacial chopping tool was found. Two parallel sided unifacial side scrapers were surface finds as was a contracting flake side scraper. One broken expanding base drill (Fig. 11g) was recovered from the surface. Six end scrapers or fragments thereof were recovered; they are unifacial (Fig. 11h-i), two are incomplete.

TABLE 5

Tabulation of Lithic Tools from 23CL195

<u>Tool Type</u>	<u>Provenience</u>	<u>Length</u>	<u>Width</u>	<u>Thickness</u>	<u>Chert Type</u>	<u>Remarks</u>
Projectile Point	Surface	5.97 inc.	3.13	0.69	Gray	Contracting Stem (Langtry?)
Projectile Point	Surface	1.95	1.02	0.39	Pink	Small Triangular
Projectile Point	Surface	2.20	1.1	3.2	Lt. Pink	Small Triangular
Projectile Point	Surface	1.72 inc.	1.22	0.3	White & Gray Streaks	Small Triangular Base Bottom Missing
Projectile Point	Surface	1.34 inc.	0.95	0.25	Cream	Small Triangular, Tip
Projectile Point	Surface	1.41	1.41	0.3	Pure White	Small Triangular, Base
Projectile Point	Surface	5.21 inc.	3.25	0.64	Varied, Gray Blue Cream	Corner-notched Dart
Projectile Point	6N-2W/1	5.15	2.36	1.1	Brownish Gray White Flecks	Hardin Barbed
Projectile Point	Surface	3.66	1.98	0.85	Gray Streaked	Incomplete, Broken Nebo Hill
Projectile Point	Surface	2.33	2.19	0.62	Varied Gray & White Flecks	Dart Tip
Rough Chopper	14N-2E/1	7.5	4.15	1.9	Gray & White	Rough
Side Scraper	Surface	4.65	2.4	0.8	Brownish Gray	Uniface, Parallel Flake
Side Scraper	Surface	5.41	2.7	0.70	White	Uniface, Parallel Flake
Side Scraper	Surface	3.78	2.22	0.48	Beige	Contracting Flake
Drill	Surface	6.31 inc.	0.9 shaft 2.16 base	0.75 shaft 0.98 base	Gray	Tip is Missing
End Scraper	Surface	3.72	2.3	0.77	White & Lt. Gray	Uniface
End Scraper	Surface	2.9	2.18	0.6	White	Uniface
End Scraper	Surface	2.95	1.85	0.65	Cream	Uniface
End Scraper	Surface	1.55 inc.	2.05	0.58	Cream	Uniface (base only)
End Scraper	Trench 2	4.12	2.21	1.05	White	Uniface
End Scraper	6N-6W/1	2.65 inc.	2.1	1.00	Gray	Uniface
Biface	Surface	4.3	2.35	0.95	Dark Tan	
Biface	Surface	1.22 inc.	3.39	0.75	Brownish Gray	Base
Biface	Surface	2.5 inc.	2.8	0.85	Tan	Fragment

All measurements in cm.

Four biface tools (one complete) were found. All are from the surface and one is a segment. Two have a square base. The other one could also be the contracting base of a projectile point. Finally, there are twenty-eight pieces of worked chert, one from test square A and the others from the surface. One hundred and fifty-nine chert chips were found, most from the surface.

Groundstone tools from the site consisted of a diorite celt poll. Three pieces of hematite--one highly polished (Fig. 11j) and many have been a pendant (3.6 cm long, 1.56 cm wide and 0.45 cm thick)--were found on the surface. Abrader fragments were found in test square B-3 and a broken segment of an arrow shaft abrader was found on the surface (Fig. 11k). It is mid-section made of Dakota sandstone and is 4.56 cm long (inc.), 2.78 cm wide and 2.77 cm thick. There is evidence of shaft abrading on its bottom, but the main shaft groove would have polished shaft 1.0 cm in diameter.

Numerous fragments of broken rock (58 of quartzite, 13 of granite, 7 of basalt) were found. Many were probably hammerstone fragments. Over 1769 grams of limestone were found along with 46 pieces of sandstone and six small pebbles.

The groundstone tools of interest excluding the abraders, were several grinding tools. One is a fragment of pink quartzite which is part of a metate (Fig. 11p). The other is a rectangular block-like tool of greenish basalt that was ground flat on top, bottom, and both ends, but only pecked on the side (Fig. 11q-r). It is 12.31 cm long, 8.9 cm wide and 7.95 cm thick.

The pottery recovered from the site is almost all shell tempered (Platte Valley Ware). Eighteen were from the surface, one from 2N-8W/1, one from 6N-2W/1, one from 16N-2E/1 and one from test trench 2. Three shell tempered rims were found--all from the surface--two were from a jar and one from a bowl (Fig. 11n-o). Three other shell tempered sherds were present but they had cord-roughened rather than plain surfaces (Fig. 11m). The final three potsherds from the site are grit-sand tempered, plain surfaced, ones (Fig. 11 l), two from the surface and one from 6N-2W/1. These last sherds are Kansas City Hopewell and the other sherds are Steed-Kisker.

In sum, the cultural debris recovered from the site indicate that it was in use in Early, Middle and Late Archaic (based on the points), Kansas City Hopewell (points and pottery), and Steed-Kisker (points and pottery) times.

Conclusions

The dearth of subsurface features and the thinness of cultural debris within the plow zone of this site is especially disappointing in the light of the diversity and long use of the site. This is reflected in the materials recovered by the testing but also in the artifacts in the collection of Mr. Eugene Arthur.

Figure 12 shows some of his artifacts. The points illustrated are only a poor sample of his collection since the best ones are mounted in an oval frame. In Figure 12: points a-b are probably Middle Archaic while points c-e are Late Archaic, and point f is Kansas City Hopewell. Within Mr. Arthur's framed collection is possibly two Hardin Barbed and maybe an Agate Basin point--both Early Archaic. He also has four contracting stem (Langtry?) types and several stemmed dart points which are probably Late Archaic. In addition there are about six corner-notched dart points of the Kansas City Hopewell variety. Six Steed-Kisker small triangular side notched points round out the collection.

Mr. Arthur has a number of groundstone artifacts including one complete diorite celt and one poll end (Fig. 12g, l), as well as two ground and polished, hematite celts (Fig. 12h-i). There is a spherical hammerstone (Fig. 12j), a loaf mano (Fig. 12k), and three oval heavy chipped stone bifaces (Fig. 12m).

The polished hematite celts are Kansas City Hopewell as is the spherical hammerstone. The points are Early and Late Archaic, Kansas City Hopewell, and Steed-Kisker. In total all the artifacts from this site cover the whole of the Archaic, Middle Woodland and Mississippian times.

It is an unfortunate truism that the bulk of this site is now in the living rooms of the Smithville area collectors.

Evaluation and Recommendations

The test excavations at sites 23CL114, 23CL115 and 23CL195 point to the sites being thin, and that their integrity has been compromised for over a hundred years by plowing and relic collecting. Significant data on occupational characteristics and site function has been irretrievably lost and the covering of these sites by Smithville Lake can in no way harm them.

Site 23CL108, the Chester Reeves Mound, is a different matter. It is the only known Steed-Kisker mound this far into the upland reaches of the Missouri River valley. Although the bone is badly decayed and very delicate, important data on demography, nutrition, disease and general pathology of Steed-Kisker peoples can be derived from the mound.

For those reasons it is important that the excavations started in the summer of 1975 be completed. It is further recommended that the services of an osteologically trained physical anthropologist be employed to minimize data loss due to bone fragility.

Although the mound is out of the reach of the normal lake waters, it is in flood pool. Its prominence on the bluff, and the now general knowledge of its contents, would ultimately lead to its looting and destruction. For these reasons all reasonable efforts should be made to complete the excavation of the mound.

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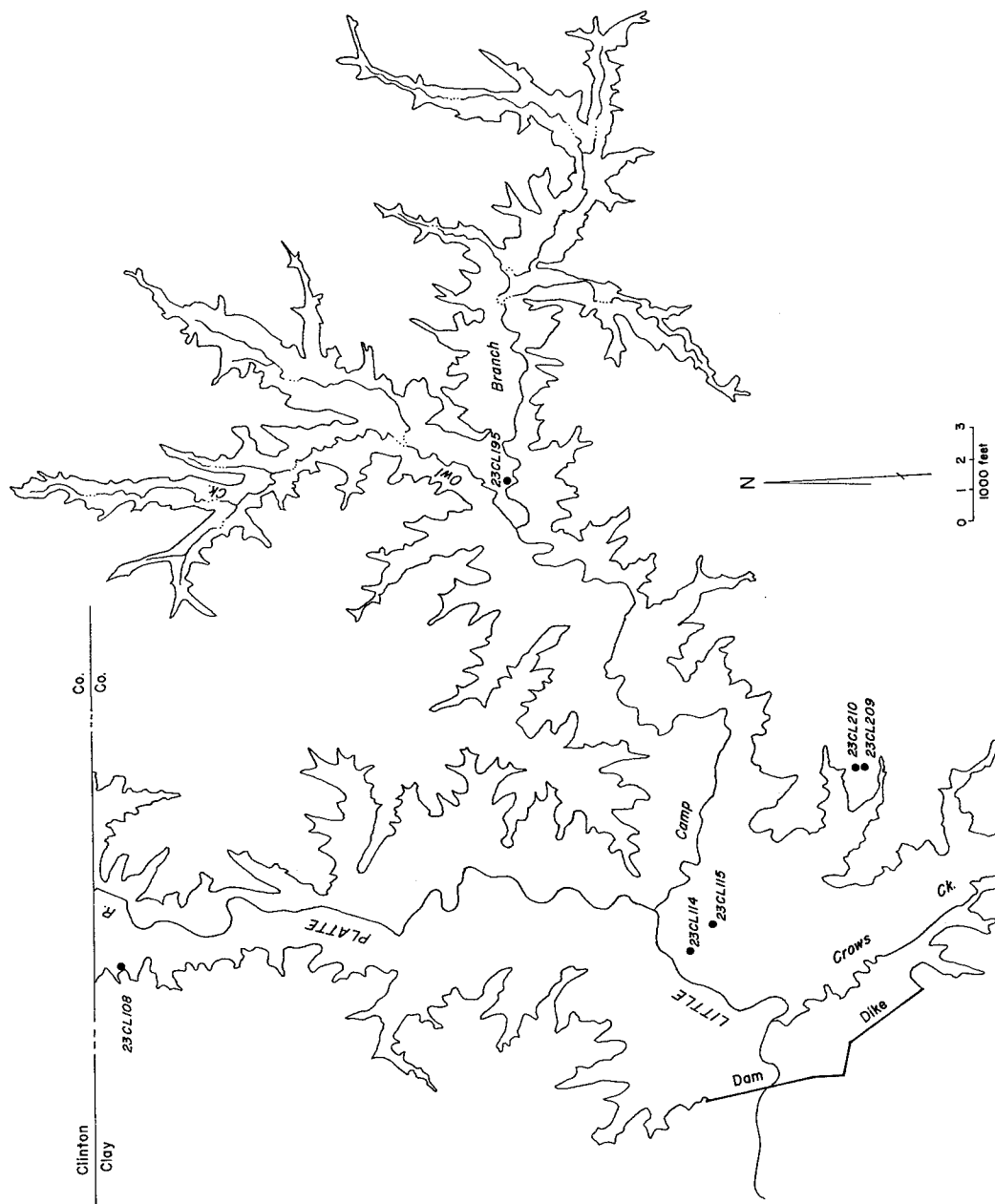


Fig. 1. Map showing the location of all the archeological sites mentioned in this report.

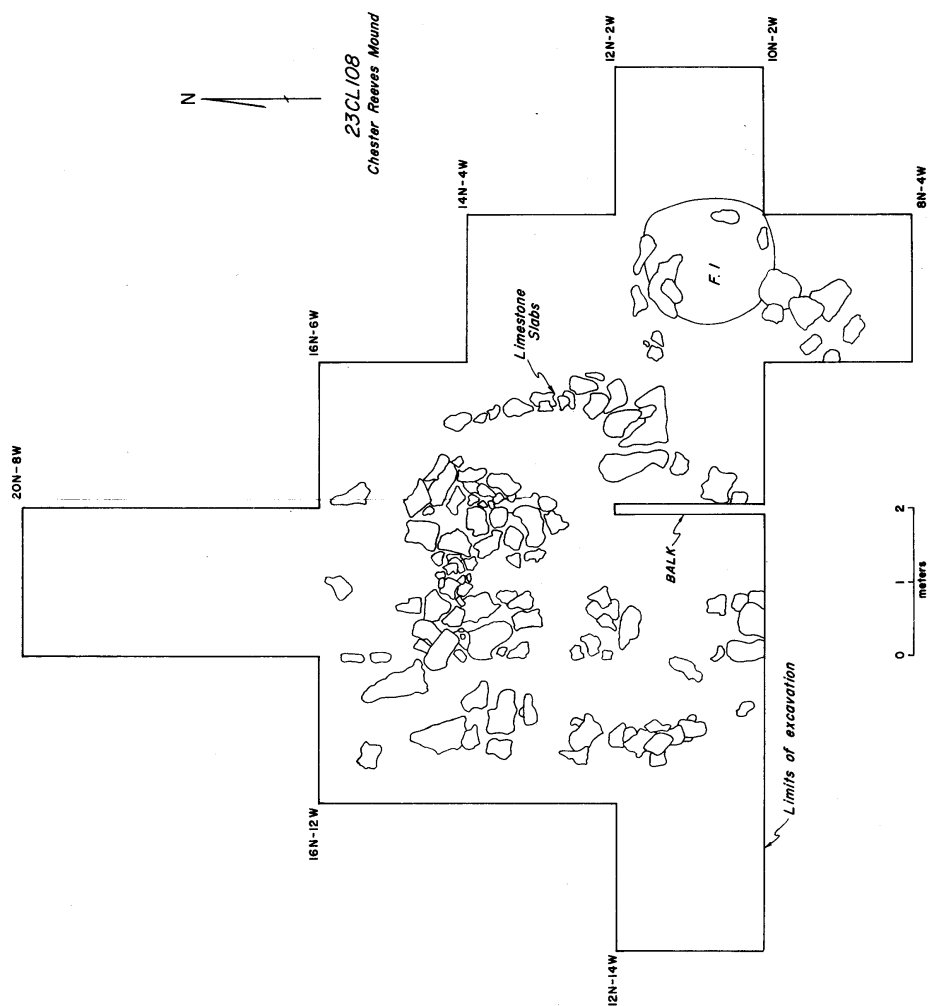


Fig. 2. 23CL108 site map showing the area of the mound excavated to the limestone slab level.

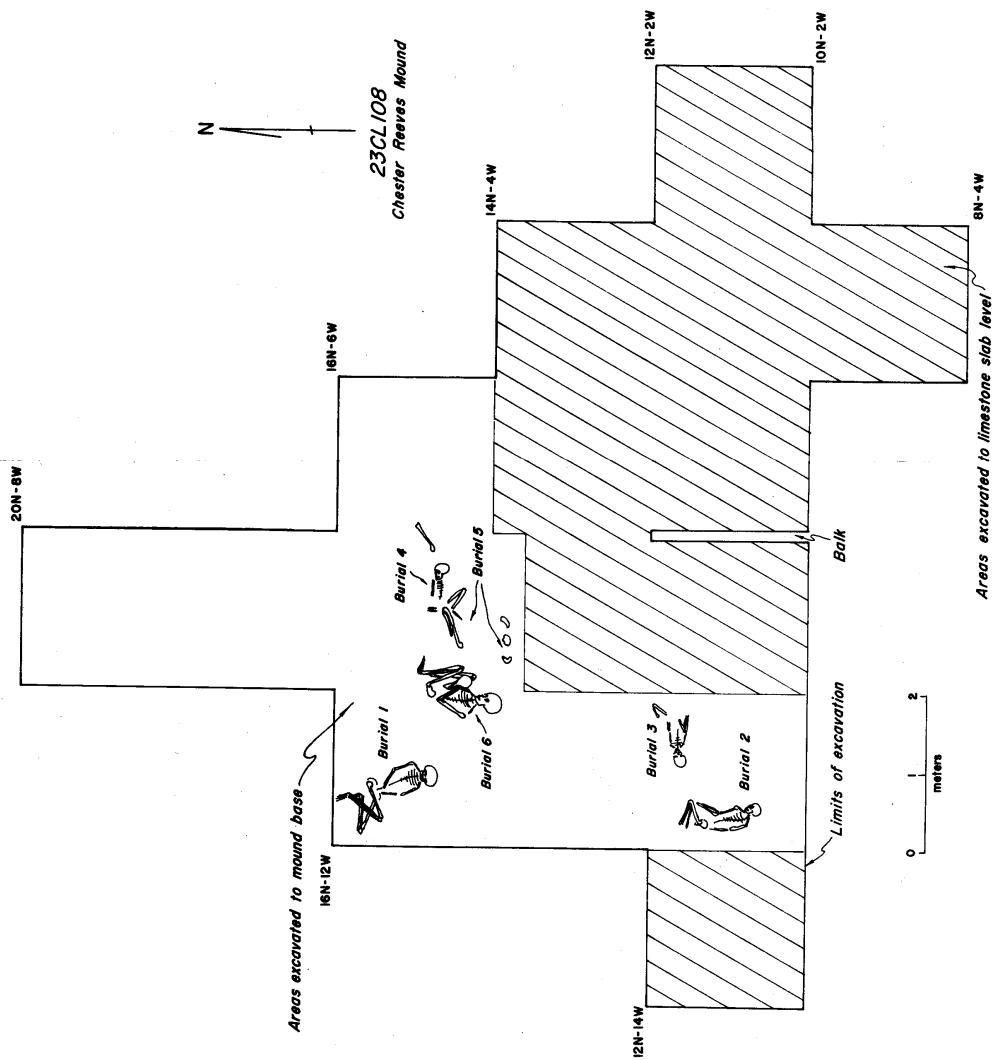


Fig. 3. 23CL108 site map showing the location of the burials within the Chester Reeves Mound.



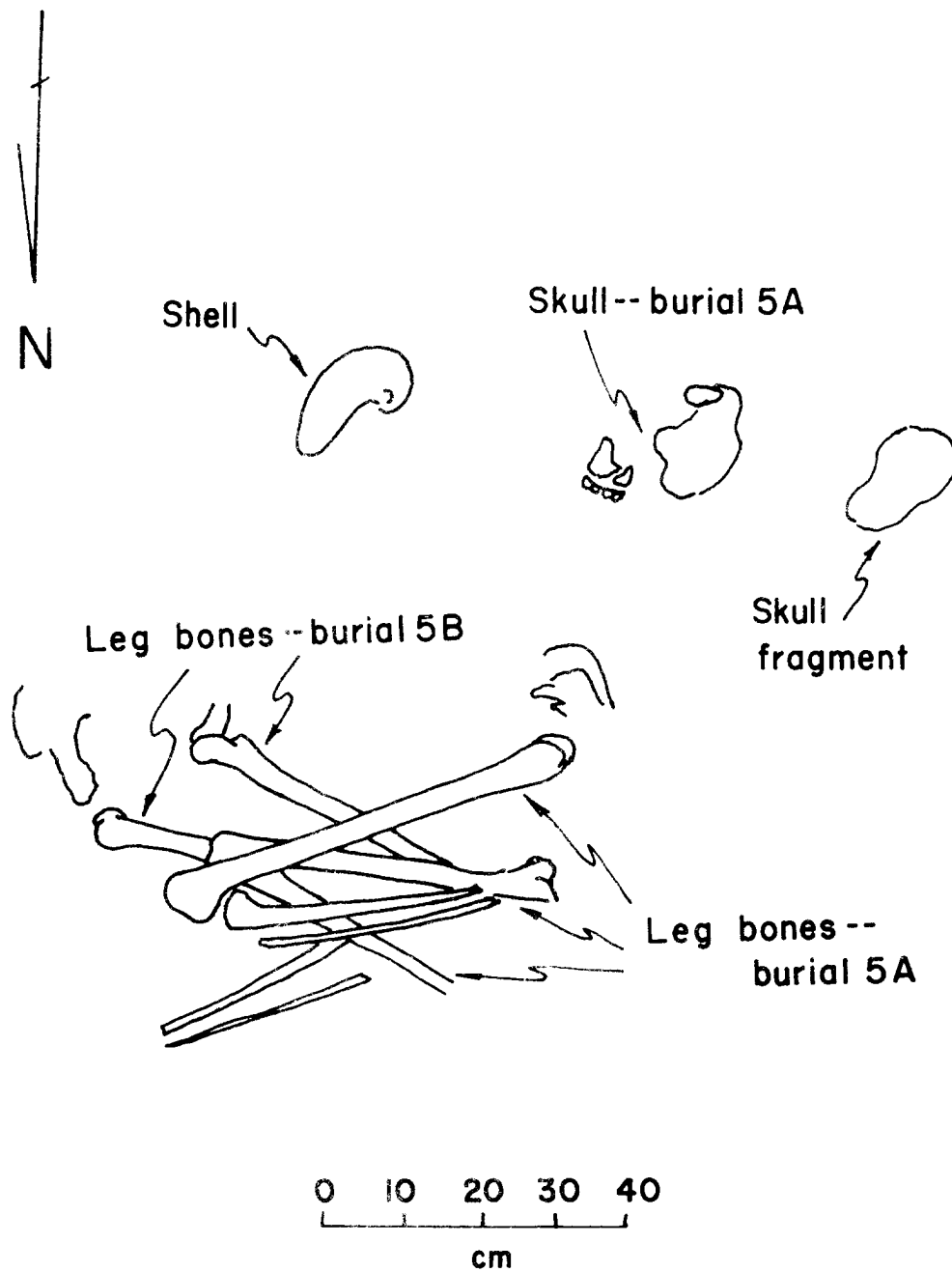


Fig. 5. Map showing the outlines and profiles of all the features from 23CL199.

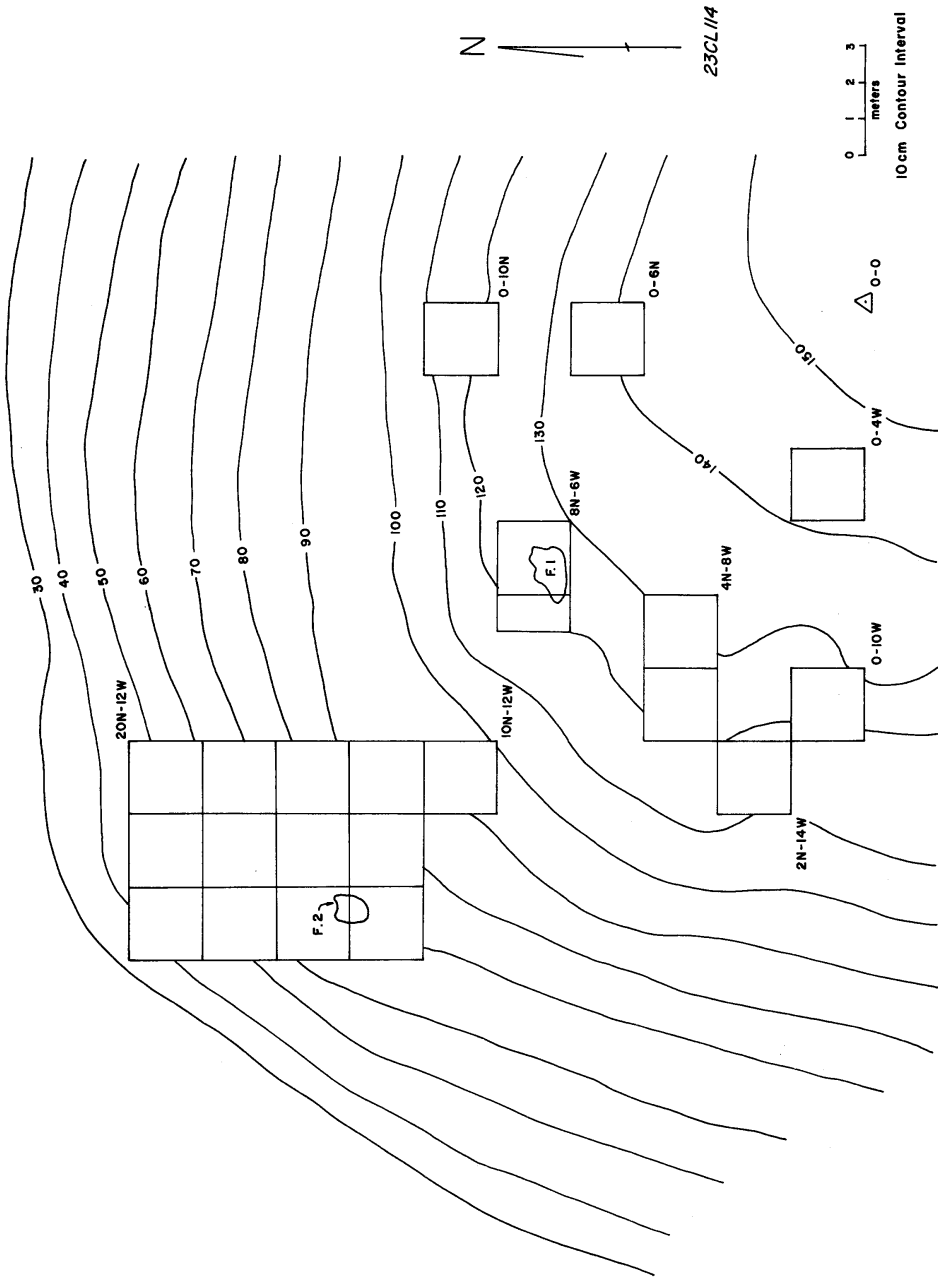


Fig. 6. 23CL114 site map showing the excavated areas.

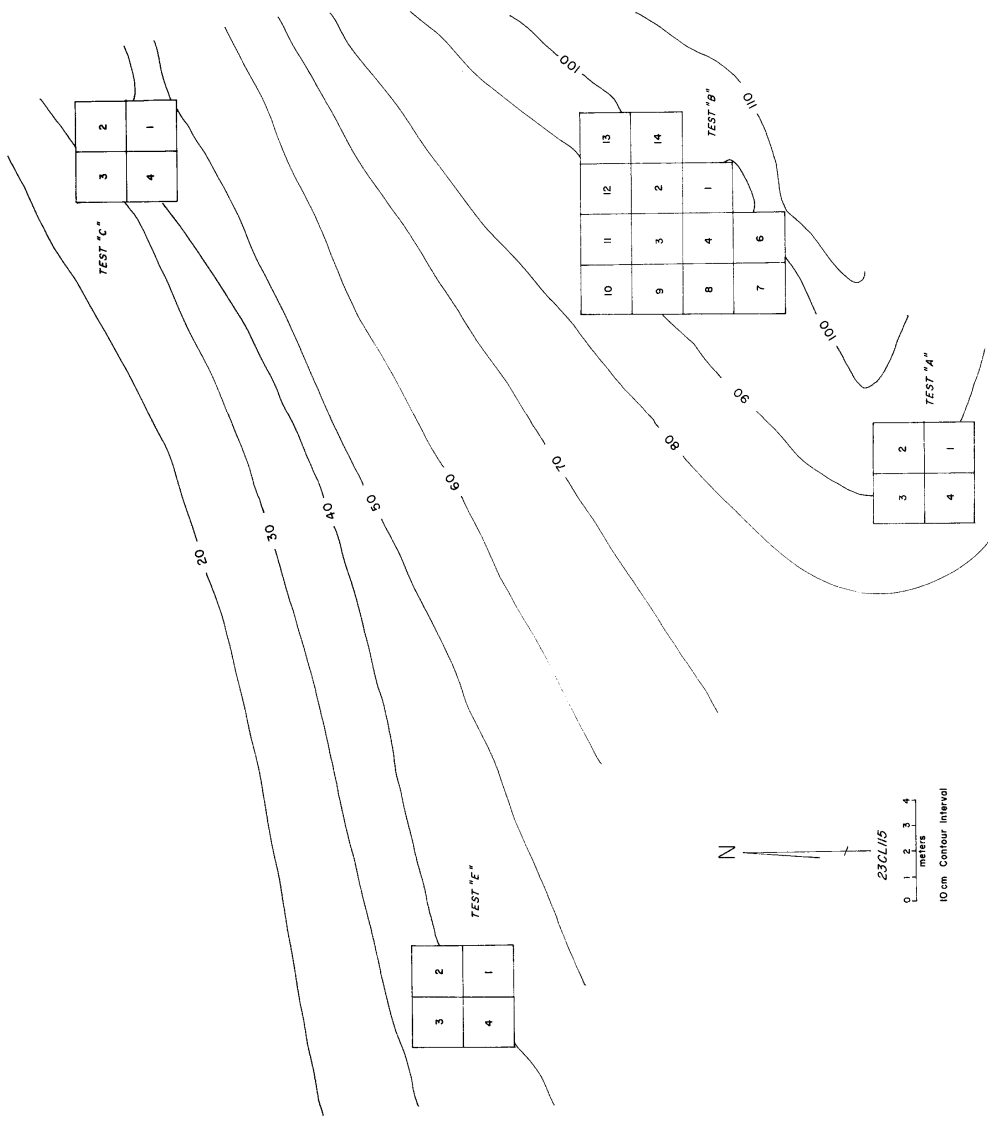


Fig. 7. 23CL115 site map showing the excavated areas.

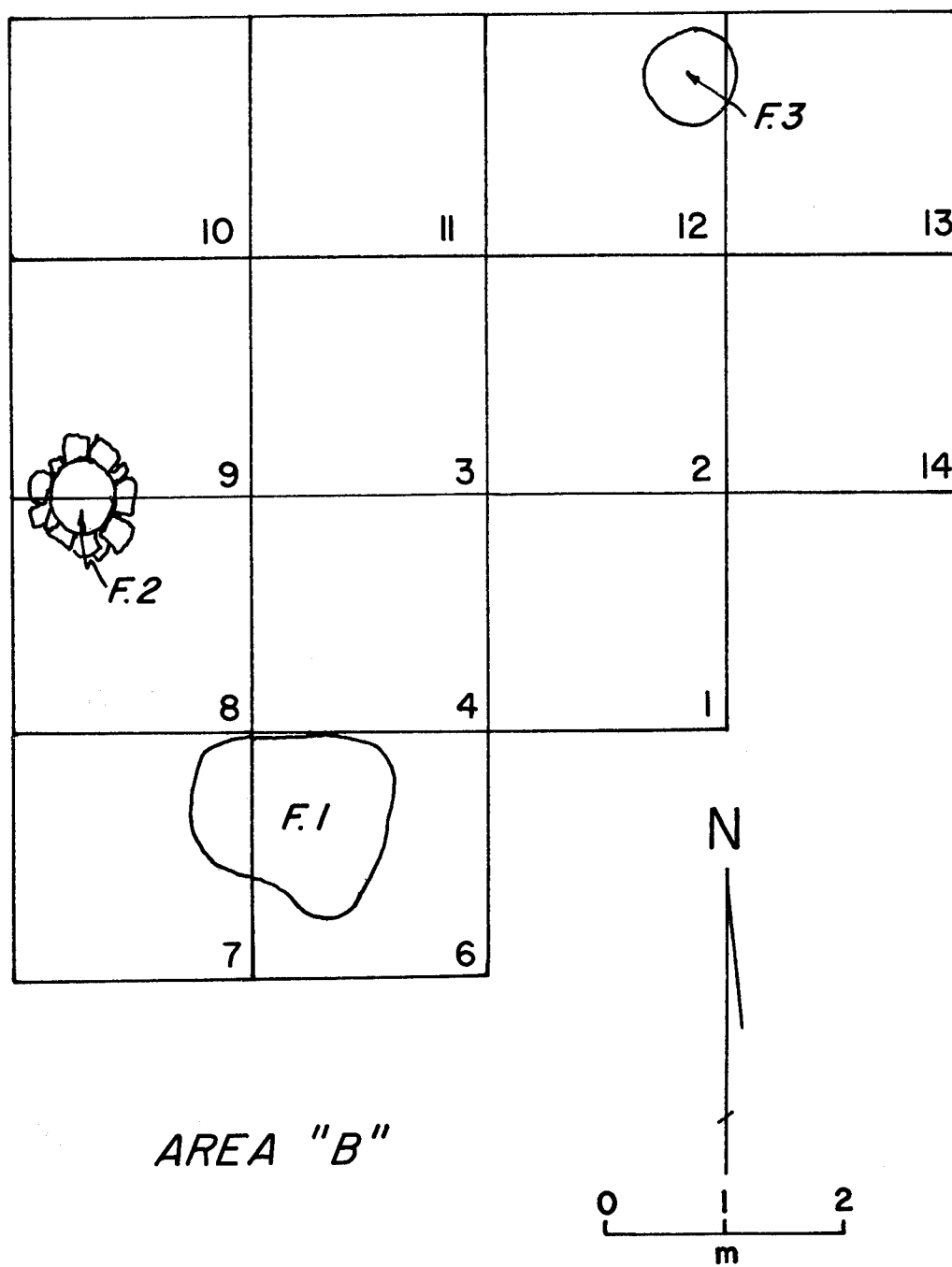


Fig. 8. Detail of the area B section of the site 23CL115 showing the location of the features.

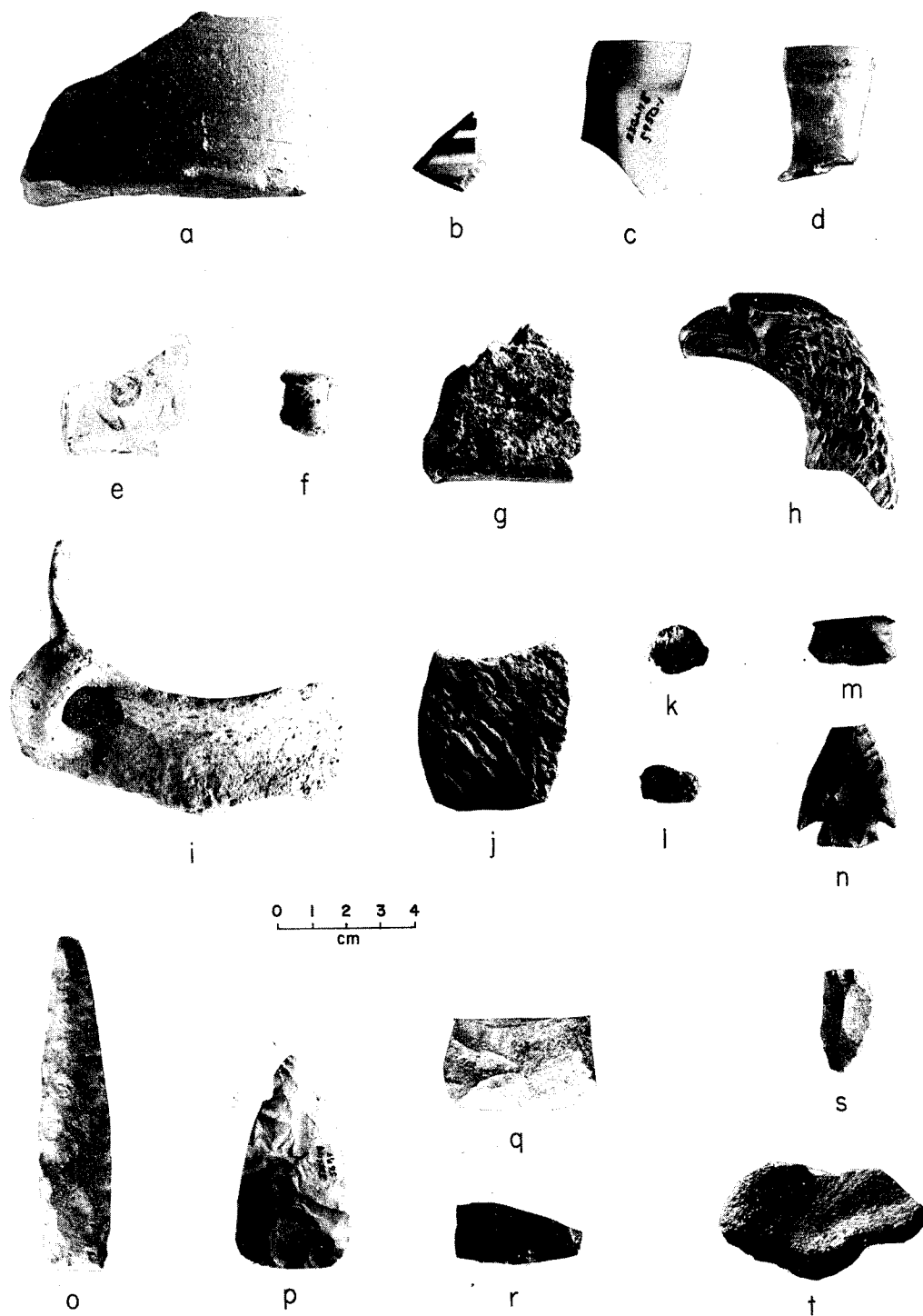


Fig. 9. Artifacts recovered from site 23CL115: historic (a-h), and prehistoric (i-t).

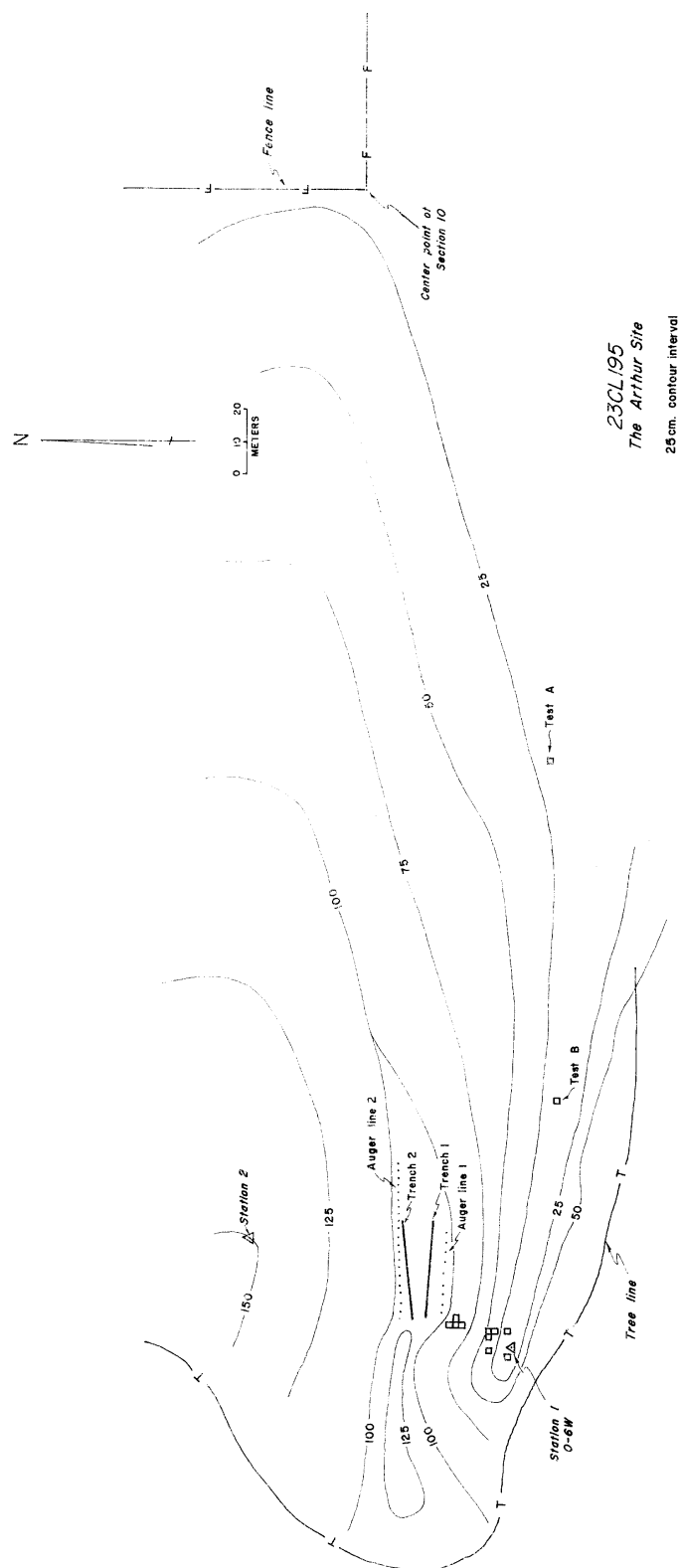


Fig. 10. 23CL195 site map showing the areas excavated and the exploratory trenches and auger holes.

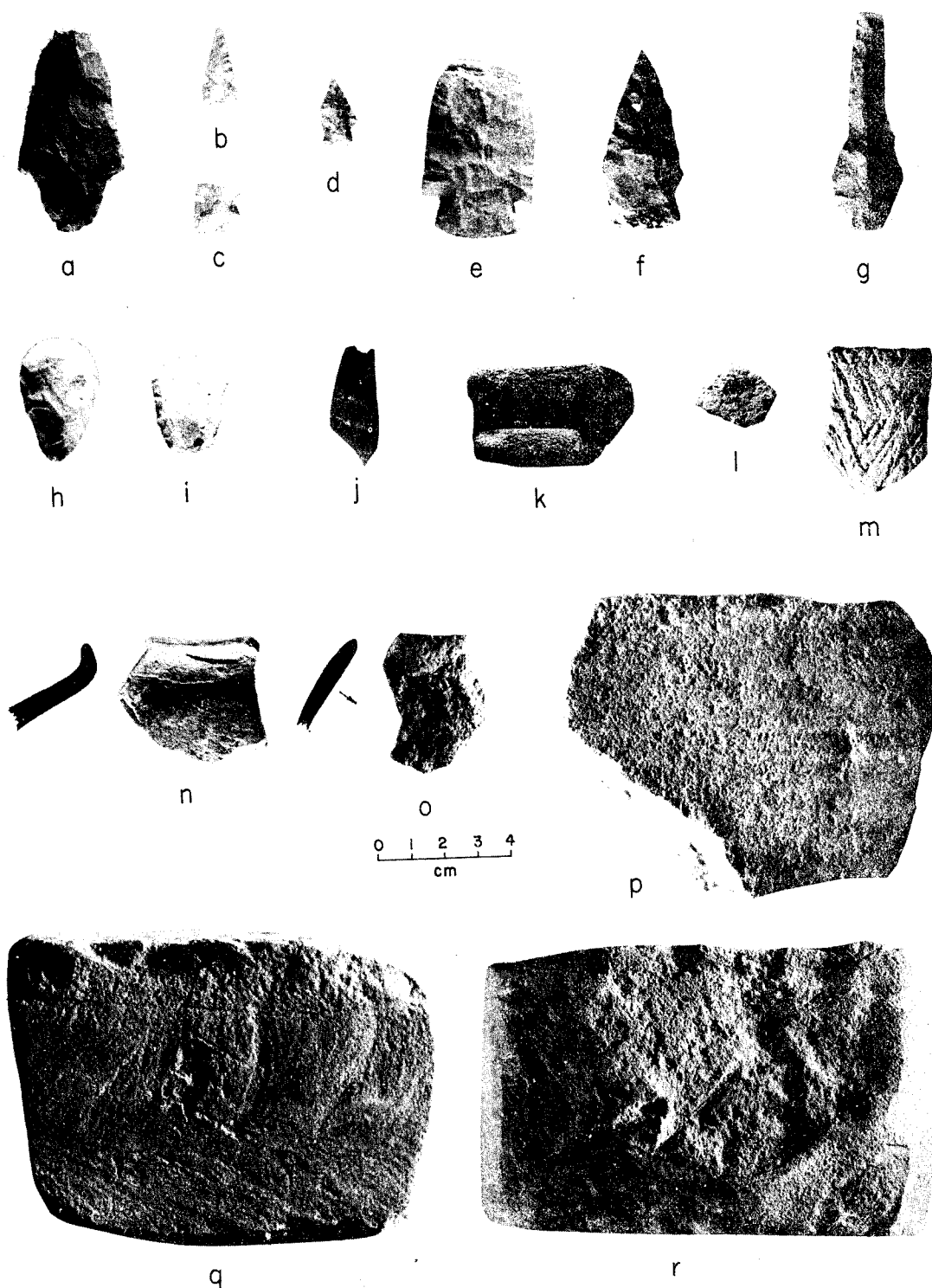


Fig. 11. Artifacts recovered from the surface and excavations of site 23CL195.

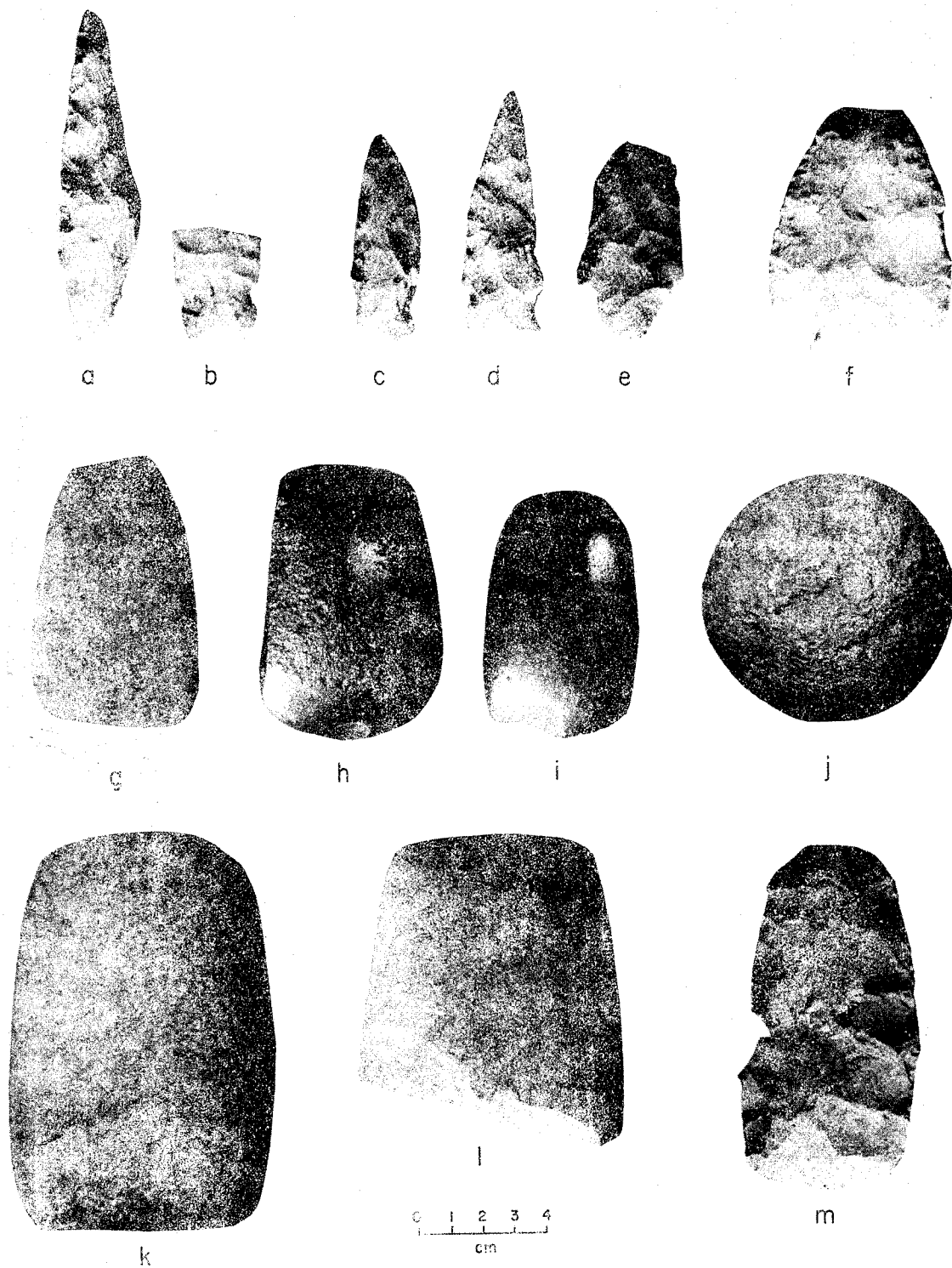


Fig. 12. Selected artifacts belonging to the Eugene Arthur collection from site 23CL195.

APPENDIX IV

ARCHEOLOGICAL SURVEY SMITHVILLE LAKE PROJECT

A Final Report

Accomplished Under Purchase
Order No. DACW-41-75-M-1848

with the

U.S. Army
Corps of Engineers
Kansas City District
Kansas City, Missouri

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February 1976

Introduction

In May, 1975 Kansas State University and the U.S. Army, Corps of Engineers, Kansas City District entered into an agreement (Purchase Order No. DACW41-75-M-1848) which authorized the Department of Sociology-Anthropology to conduct a survey for archeological sites that lay within specified areas of the Smithville Lake project: these areas being the lands along Camp Branch, a tributary of the Little Platte River, and lands within the public use areas of the lake (Fig 1).

The fieldwork was to be done in conjunction with the Kansas Archeological Field School beginning June 9, 1975 and ending August 1, 1975. Two survey teams, each consisting of an experienced salaried surveyor, and one student, walked the lands. The work was coordinated by the senior surveyor, Mr. Kevin B. Coopridier, under the general supervision of Dr. Patricia J. O'Brien, Kansas State University.

The following is a report of the results of that survey including a discussion of the environmental setting of the lake, previous survey work, survey methods, tracts of land covered, sites located, settlement patterns, and evaluations and recommendations.

Environmental Setting

The Smithville Lake which is being constructed by the U.S. Army Corps of Engineers is located on the Little Platte River, and its tributary Camp Branch just north of the town of Smithville in Clay County in northwest Missouri.

That region of Missouri is situated within the Dissected Till Plains of the Central Lowland province of North America. (Thornbury 1965:212-213, 226-228.) The area of Smithville Lake is a Prairie/Forest transitional vegetation zone. That is, the area generally is within the Prairie vegetal zone with tall grass cover on the uncultivated uplands merging into hardwood forest (basically oak-hickory) along the streams. For human occupation the oak-hickory forest's resources--nuts and wood (for fuel and building)--would have been of paramount significance. The prairie grasses though used for some constructional purposes, were most important for the bison herds they supported. Although a variety of small animals were available, deer and bison were the most important prehistoric protein sources. Undoubtedly, they were supplemented by fish and some mollusca. Roots and wild fruits were available, too.

These resources within the larger Kansas City area were distributed throughout three zones: the uplands, the forest border, and the river bottoms. More detailed descriptions of these zones were given in the reports by Calabrese (1969:18-21), and Riley (1967:2-4). While Johnson (1974:108-114) presented detailed data on the character of the environment just as the Euro-Americans were entering the area in the 18th and 19th centuries.

Previous Survey Work

In the spring and summer of 1967 the University of Missouri, in cooperation with the National Park Service, conducted a survey of the Little Platte River. That work was done by Rolland Pangborn, Marvin Kay, and Thomas J. Riley. (See Riley, 1967.) Twenty-three sites were located behind the dam axis--23CL104 to 23CL117 in Clay county and 23CI12 to 23CI20 in Clinton county. Twenty-two are habitation sites (camps or villages) and one is a burial mound. Fourteen are non-ceramic and eight are ceramic sites. Four sites were recommended for further work--23CL109, 23CL113, 23CL114 (all habitation sites), and 23CL108 (a burial mound).

In the summer of 1968, personnel from the University of Missouri, again with support from the National Park Service, returned to the area and excavations were undertaken by F. A. Calabrese (1968, 1974). In addition three new sites were located--23CL118, 23CL119, and 23CL120 (all habitation sites). Two are ceramic sites and the other non-ceramic.

In general, the survey work of the University of Missouri focused on the Little Platte River and resulted in the recording of twenty-six new sites within Clay and Clinton counties.

Survey Methods and Tracts Covered

Farnsworth (1973) reports three types of methods of archeological survey: 1) personal reconnaissance; 2) farm owner interview; and 3) local collector interviews. The work done on the Camp Branch survey was almost exclusively based on personal reconnaissance. This was done because the bulk of the lands surveyed were owned by the Corps of Engineers and in many cases the former farm owners were not available. Although some collectors were interviewed, they were the same people utilized in the earlier surveys and in most cases their site information had been reported.

Therefore, all the tracts of land discussed in this report were covered--on foot--by a two-man survey team. Basically the

fields were criss-crossed at approximately 10 meter (ca. 30 foot) intervals. In those tracts where vegetation cover was so dense as to preclude seeing the ground at all, the ridges and knolls within them were checked. Also checked were any gullies, creek banks, and creek beds--where possible. In all cases, a search was made to locate cultural debris eroding from the surface or brought up from below ground by rodent activity.

A more detailed exposition of work done on each tract will be presented in the final report. Figure 2 shows the land surveyed within Camp Branch and the various public areas at the southern end of the Smithville Lake and the sites found.

Tract designations are the same as the Corps of Engineers real estate tract numbers. Tracts completely covered by this survey were numbers 119-122, 124-126, 128-140, 142, 144, 146, 152-154, 156-157, 201-202, 204-206, 208-210, 213-223, 227, 247, 257, 259, 263, 270-271, 278, 330, 337-339, and 341.

Sites Located

Twelve (12) possible prehistoric archeological sites were discovered by this survey along with six (6) historic sites. Each site is discussed in the following paragraphs. The cultural identification of each site is given in its description along with a statement concerning the diagnostic artifacts which support such an identity. A more detailed outline of the culture periods of this area are given in the next section. Since ceramics are a diagnostic artifact, those sites lacking either diagnostic projectile point types or pottery are considered to be non-ceramic, and are thought to be potentially Archaic sites or possible even Paleo-Indian in affiliation.

23CL195. This site is located within Tract 213 and covers an area of ca. 15x75 meters. Artifacts recovered indicate the site was occupied by Early, Middle and Late Archaic, Kansas City Hopewell, and Steed-Kisker peoples. Because of the diversity and quantities of materials the site was tested. Unfortunately, all materials were in the plow zone and no subsurface features were found. The site at an average elevation of 835 feet M.S.L. (mean sea level) is 29.2 feet below the permanent pool level and 40.2 feet below the flood pool level.

23CL196. This site is located within Tract 128 and covers an area of ca. 50x50 meters. Unfortunately no diagnostic remains were found, although the site seems non-ceramic. The site at an average of 895 feet M.S.L. is 30.2 feet above the permanent pool level and 18.8 feet above the flood pool level.

23CL197. This site is located within Tract 204 and covers an area of ca. 1200 sq. meters. The only diagnostic material was a contracting stem projectile point similar to what is called a Gary point. Such a point is thought to date to the Late Archaic. The site at an average of 875 feet M.S.L. is 10.8 feet above the permanent pool level and 1.2 feet below the flood pool level.

23CL198. This site is located within Tract 135. Debris scatter is difficult to determine, because of glacial till. No diagnostic materials were found but site appears non-ceramic. The site at an average of 905 feet M.S.L. is 40.8 feet above the permanent pool level and 28.8 feet above the flood pool level.

23CL199. This site is located within Tract 219. Both diagnostic projectile points and pottery were found. The site which covers an area of 800 sq. meters is Kansas City Hopewell and it is strongly recommended that it be tested in the future. The site at an average elevation of 835 feet M.S.L. is 29.2 feet below the permanent pool level and 40.2 feet below the flood pool level.

23CL200. This site is located in Tract 210, and covers an area of ca. 50x75 meters. No diagnostic material was recovered but one shell bead was found. The site appears to be non-ceramic. Extensive amounts of historic debris from an old destroyed dwelling was reported. The site at an average elevation of 885 feet M.S.L. is 20.8 feet above the permanent pool level and 8.8 feet above the flood pool level.

23CL201. This site is also located in Tract 210 and covers an area of ca. 10x30 meters. The point recovered is a slightly shouldered, straight stemmed type--similar to one found on site 23CL205 which may be Late Archaic. The site at an average elevation of 825 feet M.S.L. is 39.2 feet below the permanent pool level and 51.2 feet below the flood pool level.

23CL202. This site is located in Tract 125 and covers an area over 10,000 sq. meters--the eastern portion has been disturbed by borrow pit work for the dike and materials are widely dispersed. The materials included were Steed-Kisker points and pottery, plus an Agate Basin Early Archaic and Table Rock Late Archaic points. The site at an average elevation of 840 feet M.S.L. is 24.4 feet below the permanent pool level and 36.2 feet below the flood pool level.

23CL203. This site is located in Tract 219 and has been heavily eroded and has dense vegetation cover making area of scatter difficult to determine. No diagnostic material was found but site seems non-ceramic. The site at an average elevation of 895 feet M.S.L. is 30.2 feet above the permanent pool level and 18.8 feet above the flood pool level.

23CL204. This site is located in Tract 223 and is widely dispersed. No diagnostic material was found. It seems to be non-ceramic. The site at an average elevation of 915 feet M.S.L. is 50.8 feet above the permanent pool level and 38.8 feet above the flood pool level.

23CL205. This site is located on Tract 227 and covers an area of ca. 25x50 meters with very scattered debris. The only diagnostic tool was a slightly shouldered, stemmed base--concave at end--not unlike the point found at site 23CL201. Site is probably Late Archaic. The site at an average elevation of 915 feet M.S.L. is 50.8 feet above the permanent pool level and 38.8 feet above the flood pool level.

23CL208. This site is in Tract 146 and may be a burial mound. It is about 30 feet in diameter and about 5 feet high. A single 2 meter square test should make it possible to assess the importance of this site. The site at an average elevation of 825 feet M.S.L. is 39.2 feet below the permanent pool level and 51.2 feet below the flood pool level.

23CL209. This site is located in Tract 136 and the farmer reported it was the site of an old Post Office. The site at an average elevation of 935 feet M.S.L. is 70.8 feet above the permanent pool level and 58.8 feet above the flood pool level.

23CL210. This site is also located in Tract 136 and is a small cemetery area. Four gravestones were present. Though they were damaged, they reveal the burials of Luisa A. Duncan (1836-1855), Letitia Davenport, and Eleanore Ligon (1818-1852). Others may be present because of the broken nature of the headstones. The site at an average elevation of 925 feet M.S.L. is 60.8 feet above the permanent pool level and 48.8 feet above the flood pool level.

23CL211. This site is in Tract 222 and has the remains of an historic old farmstead. The site at an average elevation of 915 feet M.S.L. is 50.8 feet above the permanent pool level and 38.8 feet above the flood pool level.

23CL213. This site is located in Tract 140 and has the remains of an old historic farmstead. The site at an average elevation of 875 feet M.S.L. is 10.8 feet above the permanent pool level and 1.2 feet below the flood pool level.

23CL214. This site is located in Tract 213 and has the remains of an old historic farmstead. The site at an average elevation of 890 feet M.S.L. is 25.8 feet above the permanent pool level and 13.8 feet above the flood pool level.

23CL215. This site is located in Tract 214 and has the remains of an old historic farmstead. The site at an average elevation of 870

feet M.S.L. is 5.8 feet above the permanent pool level and 6.2 feet below the flood pool level.

Finally, the location of single isolated prehistoric finds did occur in this survey. Since none seem to represent sites (lacking cultural debris like chert chips, broken rock and burnt limestone), they will not be discussed further here, although data on them was recorded.

Public use areas covered by this survey included Crows Creek which was completely covered except for Tract 164. Three sites were found: 23CL196, 23CL202 and 23CL203. Except for site 23CL202, the others have no diagnostic material, and are thought to be non-ceramic. 23CL202 has Early and Late Archaic materials and some Steed-Kisker remains. Unfortunately, this site was near the dike borrow pit areas and has probably been destroyed by now.

The Smiths Fork area was examined but the area has been bulldozed and no sites were found.

About the south half of the Little Platte area was covered--those tracts not walked were still in private hands. Only one new site, 23CL208, was found. It may be a burial mound and should be tested. A single 2 meter square test should be enough to determine if it is a mound and not a natural knoll.

The Camp Branch area south of Paradise was surveyed--the sites located in this area have been discussed previously,--and one tract (247) north of Paradise was also surveyed. The other lands of this use area are still in private hands. No sites were found on Tract 247.

Honker Cove and Plattsburg Park were not surveyed for two reasons, (1) lack of time and (2) the lands still remain in private ownership.

Archeological Background

The archeology of the Kansas City area has received the attentions of Waldo R. Wedel (1943), J. Mett Shippee (1964, 1967, 1972), F. A. Calabrese (1969, 1974), Alfred E. Johnson (1974), and P. J. O'Brien (1972). This has resulted in the working out of eight cultural-historical units. Their estimated time spans and diagnostic artifacts are, after Johnson (1974:114-115):

- "1. Early Archaic - 8000-5000 B.C., Hardin Barbed and Agate Basin-like dart points.

2. Middle Archaic - 5000-2500 B.C., Nebo Hill and side-notched dart points.
3. Late Archaic - 2500B.C.-A.D. 1. Contracting-stemmed dart points.
4. Kansas City Hopewell - A.D. 1-500, Corner-notched dart points and sand tempered, plain-surfaced pottery.
5. Late Woodland - A.D. 500-1000, Corner-notched arrow points and cord-marked pottery.
6. Steed-Kisker - A.D. 1000-1250, Side-notched arrow points and shell-tempered plain-surfaced pottery."
7. Historic Indian:Kansa - A.D. 1500-1800, Side-notched arrow points, "Oneota-like" ceramics: Fanning Plain and Trilled, French, English and American trade goods.
8. Euro-American - A.D. 1714-present, Utilitarian use of metal, especially iron, glazed ceramics, glass, religious paraphernalia of Christianity, etc.

Settlement Patterns

Settlement data of Camp Branch and the Little Platte present some interesting contrasts when compared with data collected from Brush Creek, at present a tributary of the Missouri River but aboriginally a tributary of the Platte River.

Both Camp Branch and Brush Creek are about the same length and are morphologically similar. Camp Branch is 8 to 9 miles long and has one major tributary (Owl Creek) with permanent water and several smaller intermittent ones further up. Brush Creek is about 7 miles long with a major tributary (Naylor Creek) branching to the northwest.

Johnson (1974:120) reports 50 archeological sites on Brush Creek. These sites covered the cultural-historical units from 8000 B.C. to A.D. 1250. To date--the uppermost reaches of Camp Branch have not been completely surveyed--only 15 sites have been found on Camp Branch. Of these 15, six are single component historic sites (23CL209, 23CL210, 23CL211, 23CL213, 23CL214, and 23CL215) while a seventh (23CL200) is multi-component, having historic and prehistoric remains. Since there are no diagnostic prehistoric remains at 23CL200 (neither projectile points nor pottery), the site is thought to be non-ceramic. Sites 23CL198 and 23CL204 also lack diagnostic materials and seem non-ceramic. Sites 23CL105, 23CL197, 23CL201 and 23CL205 are single component

Late Archaic sites. The final single component site is 23CL199; this site is especially important as it is a Kansas City Hopewell site.

Site 23CL195, the Arthur site, is a multi-component site. It was tested extensively because of the range of artifacts from it, but unfortunately no subsurface features were found. This site has Hardin Barbed Early Archaic, Nebo Hill Middle Archaic and various contracting-stemmed dart points of the Late Archaic. Kansas City Hopewell pottery and points, including polished hematite celts, and Steed-Kisker points and pottery were found. This site seems to have been occupied in all time units except Late Woodland. One other well-known site in this reservoir area, 23CL109, is also an extensively occupied site. The families formerly living at both sites reported (personal communication) a clear permanent spring near both sites at the turn of the century. They have since dried up. Those springs may account for the permanency of the prehistoric occupations.

Table 1 tabulates the archeological components on Camp Branch.

Table 1

Archeological Components on Camp Branch

	No.	%	No.*	%
Early Archaic	1	4%	1	7%
Middle Archaic	1	4%	1	7%
Late Archaic	6	27%	6	40%
Kansas City Hopewell	2	9%	2	13%
Late Woodland	0	-	0	-
Steed-Kisker	2	9%	2	13%
Unknown (non-ceramic)	3	14%	3	20%
*Historic	7	32%	15	100%
	22	99%		

*tabulations are made without the historic to compare these data to Johnson's (1974:Table 5).

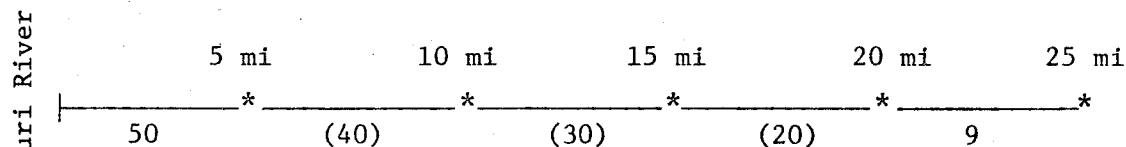
Assuming the unknown non-ceramic sites to be Archaic, 74% of the prehistoric archeological sites on Camp Branch are Archaic. Johnson (1974:Table 5) reports 40% of the sites on Brush Creek as Archaic. He reports 17% as being Kansas City Hopewell which is near the 13% for Camp Branch, but he has ca. 30% Steed-Kisker to the 13% for that component on Camp Branch. Camp Branch has no Late Woodland occupation.

In summary, Camp Branch has the same general occupancy of prehistoric populations as Brush Creek, except there is no evidence of

Late Woodland. The densest occupation seems to have been in Late Archaic times (40%).

These data would seem to suggest that the prehistoric populations used this area most extensively when their cultural patterns were most markedly that of hunters and gatherers. It is theorized that such patterns are directly related to the environmental conditions of Camp Branch, i.e. the upper reaches finger into the prairies placing it within the marked Prairie/Forest transition zone (see Fig. 3: showing Johnson's [1974] map of the Kansas City region in 1842). Brush Creek is over five miles from the nearest prairie while Camp Branch at its eastern end parallels the prairie.

Camp Branch has 9 prehistoric sites. Brush Creek has 50 such sites. Camp Branch enters the Little Platte River at a point 20 miles in from the Missouri River proper and its headwaters are over 25 miles away. The headwaters of Brush Creek are within 5 miles of the Missouri River with its mouth joining the Missouri. This suggests a ratio of sites as shown in the following diagram:



() projected numbers of sites

The following postulate for the Kansas City area would seem to be operating: the number of sites is inversely proportional to the distance from the Missouri river along a stream.

The variables that might contribute to such a model have not been isolated, but it is believed that soil type, permanence of water, ecological zoning, as well as distance from the Missouri River must be involved.

Evaluations and Recommendations

All of the land owned by the Corps of Engineers at the time of the survey within Camp Branch area of Smithville Lake was surveyed. Combining our results with the one site found on this tributary on

the earlier surveys means fifteen sites have been located thus far. Of those, nine are prehistoric.

The most significant site, 23CL195 (because of its multi-component occupancy), was tested in the summer of 1975. Unfortunately, all of the materials were within the plow zone, and no structural features were encountered. Two factors are believed responsible for the shallowness of this site: (1) it was probably occupied intermittently by the prehistoric peoples, and (2) some erosion of the original surface has occurred, especially through cultivation. Plowing through the years has resulted in the destruction of the context of the artifacts, and many of them are in the livingrooms of the local collectors. Unfortunately, this site has been irretrievably damaged by agricultural use and no additional work is recommended.

One site which should be tested is 23CL199. It is the lone single-component Kansas City Hopewell site found not only on Camp Branch, but within all of Smithville Lake. The site covers about 800 sq. meters so it is difficult to know whether it, like 23CL195, is scattered thinly over the ground or whether there is some undisturbed area within what could be a large and deep site. Of the prehistoric sites found, this one most warrants testing.

Two other sites merit comment, they are 23CL209 and 23CL210. 23CL209 is reputed to be the remains of an old Post Office while the headstones of site 23CL210 indicate it is a pre-Civil War pioneer burial plot. It is difficult for an expert in the pre-history of North America to evaluate the importance of any old historic Post Office so that the only recommendation I can make is to have it evaluated by an historic archeologist or historian.

The burial plot would be of some interest archeologically, more for the osteological information that would be derived than the cultural--problems of disease and nutritional levels on the early Frontier, but I expect the Corps of Engineers has an established policy on the treatment of historic graves.

Within the public use areas two recommendations are made. First, site 23CL208 in Little Platte Park should be tested to see if it is a burial mound. And second, completion of the survey in lands not presently owned by the Corps should be done, especially in the northern half of Camp Branch Park north of Paradise, in Honker Cove and in Plattsburg Park.

Finally, it is recommended that the remaining areas of Camp Branch be surveyed after the Corps has complete land acquisition. Completed data on settlements within these extreme upland areas is essential to the creation of any generative model of prehistoric settlement pattern for the whole Kansas City region. Such a model

would aid in predicting the locations of sites and would be a valuable tool for general planning.

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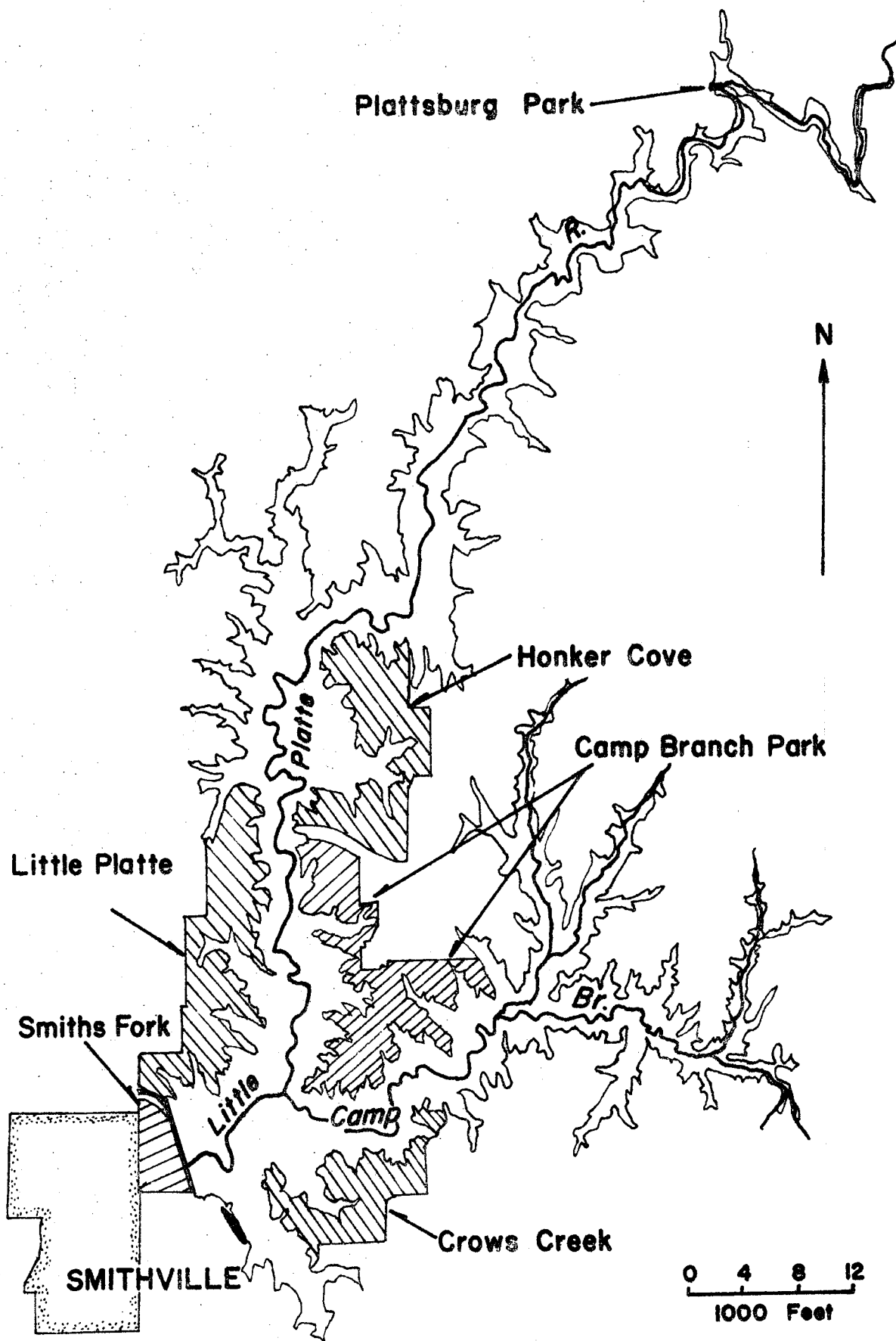


Fig. 1. Smithville Lake showing the location of Camp Branch and the Public Use Areas.



Fig. 2. Map showing the southern half of Smithville Lake with all known archeological sites and indicating the tracts of land covered in this survey.

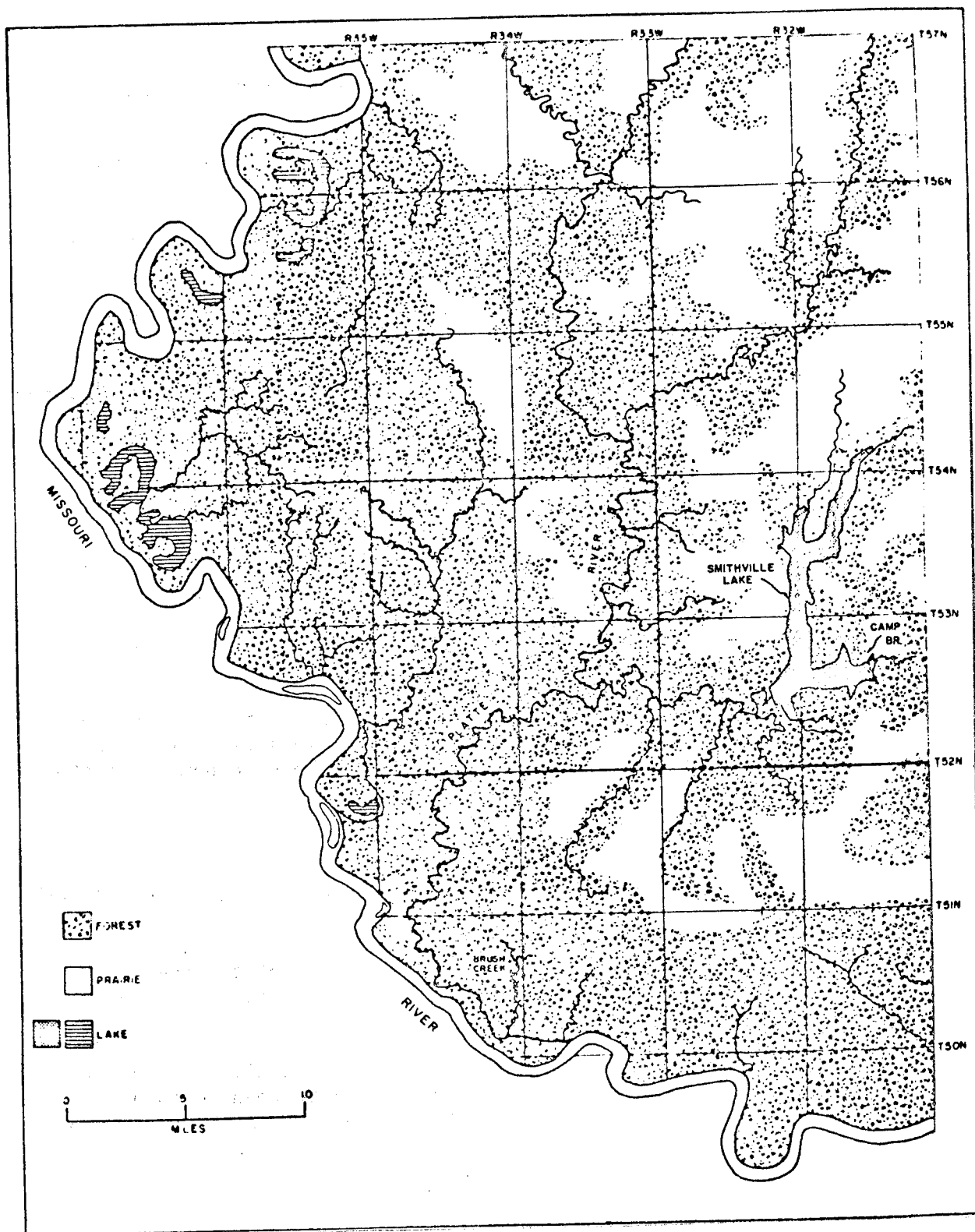


Fig. 3. Hutawa's map of Buchanan, Platte and Jackson Counties, Missouri in 1842 (from Johnson 1974).

GLOSSARY

Amaranth -- seeds of the grass family Amaranthaceae including such common weeds as smartweed and the pigweeds.

Amorphous -- without definite shape or pattern; lacking organization or definite form.

Ancillary -- small sites subsidiary to large ones, and reflecting only limited use.

Beamer -- a flat edged spatula-like bone tool often made of a bison or deer tibia used to scrape animal hides.

"Blocky" endscraper -- a chipped stone scraper for processing animal hides made from a thick block shape flake (some called tabloids) with small retouch chipping scars on one end and the sides.

Chenopodia -- seeds from plants of the goosefoot family.

Clinkers -- a pumice-like stone which erodes from the South Dakota area and is carried (it floats) down the Missouri River in the annual snow melt. It is used to abrade or sand bone and wood.

Demographic -- the statistical study of human populations dealing with birth, marriage, mortality, health, etc.

Dental hypoplasia -- refers to transverse lines in the teeth, usually occurring in the enamel crown of the tooth. This is a hypoplastic defect which might suggest a disturbance in the development of the teeth early in life.

Diaphysis -- the main part or shaft of the long bones.

Diploë -- refers to the spongy layer of bone between the outer and inner table of the cranial vault bones.

Enamel extension -- an extension of the enamel crown of the teeth, riding down onto the root space, usually between the roots on some molars and premolars.

Enamel pearl - a combination or cluster of enamel usually found below the inferior margin of the dental enamel and between roots on molar teeth. Enamel pearls are often obscured from observation by the surrounding alveolar bone.

Epiphyseal closure -- refers to the union of the epiphysis with the diaphysis of the long bone representing the termination of major longitudinal growth for that bone. Is used in aging skeletal material.

Etiology -- the study of the causes of either disease or anomalies which result from an abnormal state, producing pathological conditions or a genetic predetermined state causing an anomaly.

Foliated matrix -- the core of a rock which gives the appearance of being folded or layered like the pages of a book.

Gemmate -- refers to a malformation of a tooth or two adjacent teeth. Is seen as either one tooth root with two separate crowns or one crown with two or twinned roots. (See figure 1 in text.)

Grog tempered -- baked clay or broken potsherds ground up and added to wet clay during the manufacture of pottery. Helps the vessel dry without cracking.

Hafted -- the attachment of a stone tool to its handle or shaft.

Infracranial morphology -- the science and study of external structure and form without regard to function. In this case referring to bone other than the cranium.

Innominate bone -- the bones of the pelvis, made up of the ilium, the ischium, and the pubis.

Interuterine environment -- refers to the environment inside the uterus concerning itself with the development of the fetus.

Lambda -- a landmark on the cranium defined by the intersection of the sagittal and the lamboid suture.

Maserate -- refers to a dry skeleton with the absence of any soft tissue.

Mesially -- refers to that surface of the tooth which is oriented toward the center line of the body.

Mottling -- a surface have colored spots or blotches.

Mylohyoid -- this suggests a U-shaped area and is pertinent to the hyoid bone and the molar teeth. The mylohyoid groove is located on the posterior interior portion of the mandible.

Periosteum -- the fibrous membrane which forms the investing covering of the bones except at their articular surfaces.

Periostitis -- inflamed condition of the periosteum.

Porosis -- a condition marked by the formation of pores or cavities or an increase translucency to roentgen rays.

Porotic hyperostosis -- a pathological condition manifesting itself primarily on the parietal and occipital bones. The diploë is usually thickened or even created in an area normally lacking the diploë and that increase porosis of the external table join sinus hollows in the spongy bone of the cranial wall. This is also termed osteoporosis symmetrica.

Provenience -- the specific location of an artifact within an archeological site.

Spall fragment -- a small, thick triangular, rectangular or square chert debris flake which shattered from a chert core during knapping operations.

Spina bifida, sacral -- a defect in the posterior elements of a sacral vertebra in which the laminae fail to unite in the mid-line posteriorly. Additionally, the spinous process is usually absent.

Spokeshave -- a chipped stone tool with a concave notch used for planing and shaving curved bone or wood surfaces.

Stafne defect -- an anomalous oval concavity occurring in the mandible usually located slightly posterior and inferior to the third molar on the lingual surface above the inferior mandibular border near the junction of the pterygoideus medialis muscle attachment and the submandibular salivary gland fossa. The cortical bone surrounding the lesion is usually normal showing no infection or polysystic disease. The concavity itself might have a smooth cortical interior or a granular interior without reference to cortical or spongy bone.

Stream rank -- a geomorphic system for numbering the branching tributaries of a stream or river starting at its head and moving to its mouth.

Symphysis -- the line of fusion between two bones which are separate in early development, or a form of synchondrosis in which the bones are separated by a disk of fibral cartilage as in joints between vertebra or between pubic bones.

14. VITAE

Patricia J. O'Brien
Michael Finnegan

I. Vitae of Patricia J. O'Brien

II.

PII Redacted

III.

IV.

V. Education

- | | | |
|----|--|------------------------------------|
| A. | Nicholas Senn High School
Chicago, Illinois | 1949-1953 |
| B. | Wright Junior College
Chicago, Illinois | 1954-1960
Associate of Arts |
| C. | University of Illinois
Urbana, Illinois | 1960-1962
Bachelor of Arts |
| D. | University of Illinois
Urbana, Illinois | 1962-1969
Ph.D. in Anthropology |

VI. Non-academic Employment:

- | | | |
|----|--|-----------|
| A. | Illinois Bell Telephone Company
Plant Engineering Clerk
Evanston, Illinois | 1953-1960 |
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VII. Teaching Experience:

- | | | |
|----|---|---------------------------|
| A. | University of Illinois
Graduate Teaching Assistant | 1963-1966 |
| B. | Florida Atlantic University
Interim Instructor | 1966-1967 |
| C. | Kansas State University
Assistant Professor
Associate Professor | 1967-1972
1972-present |

VIII. Research Positions:

- A. University of Illinois 1962-1963
Research Assistant to Charles J. Bareis
on the Cahokia Project
- B. University of Illinois 1963-1964
Research Assistant to Dr. Elaine A.
Bluhm on the Rock River and John
Deere projects.
- C. University of Illinois Summer, 1965
Research Assistant to Dr. John C. McGregor
on a syllabus of Introductory Physical
Anthropology and Archaeology

IX. Professional Organizations:

The Society for American Archaeology
 The American Anthropological Association, Fellow
 The Society of Sigma Xi
 American Association for the Advancement of Science
 Current Anthropology, Associate
 Arkansas Archaeological Society
 Iowa Archaeological Society
 Kansas Archaeological Society
 Missouri Archaeological Society
 Texas Archaeological Society
 Wisconsin Archaeological Society

X. Research Interests

Artifact classification and analysis; Middle Mississippian, Middle Missouri and Central Plains archaeology; the engineering and building technology of the Maya; the origin and spread of domesticated plants; and cultural classification (Steward's culture types) especially with reference to archaeological materials.

XI. Field Work in Archaeology

- A. University of Illinois Summer, 1964
Field Foreman for Dr. Elaine A. Bluhm
University of Illinois Archaeological
Field School

- B. University of Kansas Summer, 1968
Co-director of the Great Plains Archaeological Field School. Jointly sponsored by KU, KSU, and Wichita State with support from NSF. Excavated Taylor Mound (14DP3)
- C. Kansas State University Summer, 1969
Co-director of Great Plains Archaeological Field School sponsored by KU and KSU. Excavated Steed-Kisker (23PL13) and Young-Pridey (23PL4) sites.
- D. Kansas State University Fall, 1969
Completed excavations at the Griffing (14RY401) site, A Smoky Hill earthlodge near Manhattan.
- E. Kansas State University Summer, 1970
Co-director of Midwestern Archaeological Field School sponsored by KU, KSU, and University of Missouri. Excavated sites 23SA115, 23SA162 and 23SA162W.
- F. Kansas State University
Excavated the Don Wells (14RY404) site near Manhattan and tested the Elliott (14GE303) site south of town.
- G. Kansas State University Summer, 1971
Co-director of Kansas Archaeological Field School sponsored by KU and KSU. Excavated the Young-Pridey (23PL4), White (23PL80), Coons (23PL16) sites and the Cochran Mound (23PL86).
- H. Kansas State University Fall, 1971
Excavated further at the Elliott (14GE203) site and also excavated at the Coffey (14P01) site, around Manhattan.
- I. Kansas State University Summer, 1972
Director of Kansas Archaeological Field School sponsored by KU and KSU. Excavated the Young-Pridey (23PL4) site.

- J. Kansas State University Summer, 1973
Co-director of Kansas Archaeological
Field School sponsored by KU and KSU.
Excavated the Cogan Mounds 1 and 2
(23PL125).
- K. Kansas State University Fall, 1973
Excavated the Witt (14GE600) site, a Spring, 1974
Smoky Hill earthlodge near Junction
City.
- L. Kansas State University Summer, 1974
Director of Kansas Archaeological Field
School sponsored by KU and KSU. Ex-
cavated the Nuttle (14BU4) and
Holdermann (14BU19) sites near El Dorado.
- M. Kansas State University Summer, 1975
Co-director of Kansas Archaeological
Field School sponsored by KU and KSU.
Excavated the 4 sites in Smithville
Lake and directed a site survey of the
Camp Marsh area.
- N. Kansas State University Fall, 1975
Excavated the Ashland Bottoms site
(14RY603), a Late Kansas City
Hopewell site south of Manhattan.
- O. Kansas State University Summer, 1976
Director of Kansas Archaeological
Field School sponsored by KU and KSU.
Excavated 3 sites in Smithville Lake
and completed site survey of it.

XII. Professional Recognition:

Plains editor for Current Research in American Antiquity
(Society for American Archaeology). 1971-1976.

XIII. Grants and Fellowships:

- A. Platte River Valley Archaeological Survey. Bureau of
General Research, Kansas State University. 1969-1970
- B. Summer Fellowship. Bureau of General Research, Kansas
State University. 1970.

- C. Platte River Valley Archaeological Survey. Bureau of General Research, Kansas State University. 1970-1971.
- D. Platte River Valley Archaeological Survey. Bureau of General Research, Kansas State University. 1971-1972.
- E. Platte River Valley Archaeological Survey. Bureau of General Research, Kansas State University. 1972-1973.
- F. Kansas Archaeology. Bureau of General Research, Kansas State University. 1974-1975.
- G. Kansas Archaeology. Bureau of General Research, Kansas State University. 1974-1975.
- H. Cahokia Archaeology. Bureau of General Research, Kansas State University. 1975-1976.
- I. Cahokia Archaeology. Bureau of General Research, Kansas State University. 1977-1978.

XIV. Contracts:

- A. Smithville Lake, 1975-1976. U.S. Army Corps of Engineers, \$19,000.
- B. Milford Lake Shoreline Surveys, 1975-1976. National Park Service, \$5,000.
- C. Smithville Lake, 1976-1977. U.S. Army Corps of Engineers, \$99,000.

XV. Publications:

"Two Late Woodland Sites in Lake County, Illinois." Transactions of the Illinois Academy of Science, Vol. 57, No. 2, pp. 109-115, 1964.

"Doctrinaire Diffusionism and Acts of Faith." American Antiquity, Vol. 33, no. 3, pp. 386-388, 1968.

"A Mastodon (?) Tusk from Manhattan, Kansas." Transactions of the Kansas Academy of Science, Vol. 71, no. 1, pp. 90-91, 1968.

"Chronological Position of the Cambered Jar at Cahokia and Its Implications." American Antiquity, Vol. 34, no. 4, pp. 411-416, 1969.

"Some Ceramic Periods and Their Implications at Cahokia." In Explorations into Cahokia Archaeology, edited by Melvin L. Fowler. Bulletin 7, Illinois Archaeological Survey, Urbana. 1969.

"Valley Focus Mortuary Practices." Plains Anthropologist, Vol. 16, no. 53, pp. 165-182, 1971.

"The Don Wells Site (14RY404), A Hopewellian Site Near Manhattan and Its Implications." Kansas Anthropological Association, Newsletter, Vol. 17, no. 5, pp. 1-11. Topeka, 1972.

"A Clovis Point from the Waterville, Kansas Area." Plains Anthropologist, Vol. 17, no. 55, pp. 6064, 1972.

"The Sweet Potato: Its Origin and Dispersal." American Anthropologist, Vol. 74, no. 3, pp. 342-365, 1972.

"Urbanism, Cahokia and Middle Mississippian." Archaeology, Vol. 25, no. 3, pp. 188-197, 1972.

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With Kevin Hart. "The Utlaut Site (23SA162W): An Oneota-Historic Missouri Burial Site." Missouri Archaeologist, Vol. 34, nos. 1-2, pp. 48-66, 1972.

With Clark S. Larsen. "The Cochran Mound, 23PL86, Platte County, Missouri." Missouri Archaeological Society, Newsletter, No. 267, pp. 1-5, 1973.

With Clark S. Larsen, John O'Grady, Brian O'Neill and Ann S. Stirland. "The Elliott Site (14GE303), A Preliminary Report." Plains Anthropologist, Vol. 18, no. 59, pp. 54-72, 1973.

With Pamela Hixon, Beryl Miller, Don Rowlison, Paul Tribble, David Vitt and J. Pat Young. "A Most Preliminary Report of the Coffey Site, 14P01: A Plains Archaic Site in Pottawatomie County." Kansas Anthropological Association, Newsletter, Vol. 18, no. 5, pp. 1-38, 1973.

Archaeological Excavation Smithville Lake Project. Report submitted to the U.S. Army Corps of Engineers, Kansas City District. 1975.

Milford Lake Shoreline Archaeological Survey. Report submitted to the National Park Service, Midwest Archaeological Center. 1976.

Archaeological Survey Smithville Lake Project. Report submitted to the U.S. Army Corps of Engineers, Kansas City District. 1976.

IN PRESS:

"A Preliminary Review of Steed-Kisker Culture." Wichita State University, Bulletin.

With Elaine Bluhm Herold. "The Huber Site (Ck-1), Cook County, Illinois." in Bulletin of the Illinois Archaeological Survey, Urbana.

With Elaine Bluhm Herold. "The Hoxie Farm Site (Ck-4), Cook County, Illinois." in Bulletin of the Illinois Archaeological Survey, Urbana.

"Steed-Kisker: A Western Mississippian Settlement System." In Mississippian Settlement Patterns, edited by Bruce D. Smith. Academic Press.

VITA - MICHAEL FINNEGAN

FALL, 1977

[PII Redacted]

Positions

Associate Professor of Anthropology	1977-present
Assistant Professor of Anthropology	1973-1977
Department of Sociology, Anthropology & Social Work	3204 Claflin Road
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Education

B.A.	1967, University of Colorado, Anthropology, Cum Laude in Psychology.
M.A.	1970, University of Colorado, Anthropology.
Ph.D.	1972, University of Colorado, Anthropology.

Professional Experiences

1973	Faculty of the Paleopathology Seminars series, Smithsonian Institution
1972-1973	Research Fellow, Division of Physical Anthropology, Smithsonian Institution, Washington, DC 20560 Osteology: non-metric infra-cranial variation
1971-1972	Head Teaching Assistant, Physical Anthropology, University of Colorado
Spring 1971	Visiting Research Associate in Paleopathology, Smithsonian Institution
1969-1971	Physical Anthropologist for Bella Bella Prehistory Project, British Columbia
1968-1970	Teaching Assistant, Physical Anthropology, University of Colorado, Head 1970.

Membership in Professional Societies

American Academy of Forensic Sciences
 American Anthropological Association
 American Association of Physical Anthropologists
 Anthropological Society of Washington
 Colorado Archaeological Society
 Human Biology Council
 Kansas Anthropological Association
 Missouri Archaeological Society
 Paleopathology Association
 Society for American Archaeology

Teaching and Research Interests

Beginning and advanced physical anthropology, osteology, quantitative methods and statistical analysis, pathology, primatology, field and laboratory techniques, industrial application and human factors engineering, bibliography of physical anthropology.

Current Research

Discrete non-metric skeletal variation.
Paleopathology.

Publications

Laboratory Manuals

- 1970 A Guide to Osteological Analysis. Boulder, University of Colorado. (reprinted in 1974)
- 1970 Anthropological Supplement, Physical Anthropology 201. Boulder, University of Colorado. (With sections by J. Michael Hoffman and King Hunter)

Ph.D. Thesis

- 1972 Population Definition on the Northwest Coast by Analysis of Discrete Character Variation.

Monographs

- 1974 Bibliography of Human and Nonhuman non-metric variation. Research Reports #14, Department of Anthropology, University of Massachusetts, Amherst (with M.A. Faust), January, 1974.

Articles

- 1970 Ethnographic support for the analysis of osteo and mummified remains. Student Anthropologist, 2 (2) 95-101.
- 1971 Current research in paleopathology. Colorado Anthropologist, 3(2)20-22. With David Frayer.
- 1974 A Migration Model for Northwest North America. In: International Conference on the Prehistory and Paleoecology of Western North American Arctic and Subarctic, S. Raymond and P. Schledermann (eds.) University of Calgary Press. pp. 57-73.
- 1976 PUM-III: Age, Sex, Stature and Weight. Paleopathology Newsletter, No. 14, pp. 7-9.
- 1976 Archaic Human Skeletal Material from the Draper Cave Site, 5CR1, Custer County, Colorado. Southwestern Lore, Vol. 42, No. 3, pp. 24-32.

- 1976 Cervical Ribs Related to Disuse Atrophy in an Archaic Skeleton (490 B.C.): A preliminary Report. Paleopathology Newsletter, No. 15, September, pp. 8-10.
- 1976 Walnut Creek Massacre: Identification and Analysis. American Journal of Physical Anthropology. Vol. 45, No. 4, 737-742.
- 1977 A Seated Burial and Associated Boatstone From Northwest Kansas. Plains Anthropologist, Vol. 22, No. 75, pp. 23-35. (With Tom Witty).
- 1977 Faunal Remains from Bab edh-Dhra, 1975. In Press: Bulletin of the American Schools of Oriental Research. February.
- 1977 "Non-metric Variation of the Infracranial Skeleton," In Press: Journal of Anatomy (London).
- 1977 Human Skeletal Remains from Bradford House III, Site 5JF52, Jefferson County, Colorado. In Press: Plains Anthropologist.
- 1977 The Lewis Central School Site (13PW5): A Resolution of Ideological Conflicts at an Archaic Ossuary in Western Iowa. In Press: Plains Anthropologist (with D.C. Anderson, J. Hotopp, and A.K. Fisher).
- 1977 Racial Distance: A multivariate analysis of roentgenographic measurements in Eskimos, Indians, and Whites. In Press: Homo (with Frances P. Schulner).

Unpublished Reports

- 1974 The Human Skeleton from Feature 8. Site 14SH322. For The State Archaeologist, Topeka - 13 pages.
- 1975 Preliminary non-metric analysis on the Hill City skeletal material for forensic evaluation. 12 pp. Dr. C. Snow, FAA, Oklahoma City, OK.
- 1975 An Assessment of the Archaeological Resources of the Missouri River Basin, Quindaro Bend, Platte and Clay Counties, Missouri. For: Van Doren-Hazard-Stallings; Engineers and Architects, Topeka, Kansas. Army Corps of Engineers, Kansas City District. 19 pp (with Don Rowlison)
- 1975 Forensic Skeletal Identification Report, 29 October 1975. Dr. Hostetter, Riley County Coronor.
- 1976 Preliminary report on skeletal material from site 13PW5. State Archaeologist: Iowa, 31 pp.
- 1976 Preliminary Forensic Osteology Report 76-1: Police Department, Garden City, Kansas, 11 pp.
- 1976 Preliminary Report: Reno County Sheriff Forensic Case of 24 August 1976.
- 1976 Preliminary Report: Kansas Bureau of Investigation Western Office. Forensic Case of 21 September 1976.
- 1976 Preliminary Forensic Report: Dickinson County Sheriff's Office. Forensic Case of 15 November 1976.
- 1977 Report on the human skeletal material from the Chester Reeves mound, Smithville, Missouri, to Project Director, Dr. P.J. O'Brien.

Field Experience

- 1968 Group Leader to Switzerland. Experiment in International Living, Putney.
- 1969 Survey and excavation of skeletal material, Bella Bella and Bella Coola areas, British Columbia (for University of Colorado and Simon Fraser University).
- 1970 Survey and excavation of skeletal material, Bella Bella and Bella Coola areas, British Columbia (for University of Colorado and Simon Fraser University).
- 1972 Excavation of Skeletal material, Draper Cave Site, Florence, Colorado for Colorado Archaeological Society. Survey and Excavation of the Moore Site, Yampa, Colorado.
- 1973 Non-metric analysis work in South and East Africa and Israel.
- 1974 Director of Kansas State University, Archaeology Field School for intersession.
- 1975 Physical anthropologist and surveyor for the Bab edh-Dhra' Expedition, American Center Oriental Research, Jebel Amman, Jordan.
- 1975 Physical Anthropologist for The Autopsy of PUM-III, a 25-year old female mummy from Egypt, dated to ca. 350 BC. Detroit 20-23 August.
- 1976 Physical Anthropologist for the Smithville Lake Project. Smithville, Missouri.
- 1977 Physical Anthropologist for the Bab edh-Dhra' Expedition, American Center Oriental Research, Jebel Amman, Amman, Jordan.

Consultant Duties

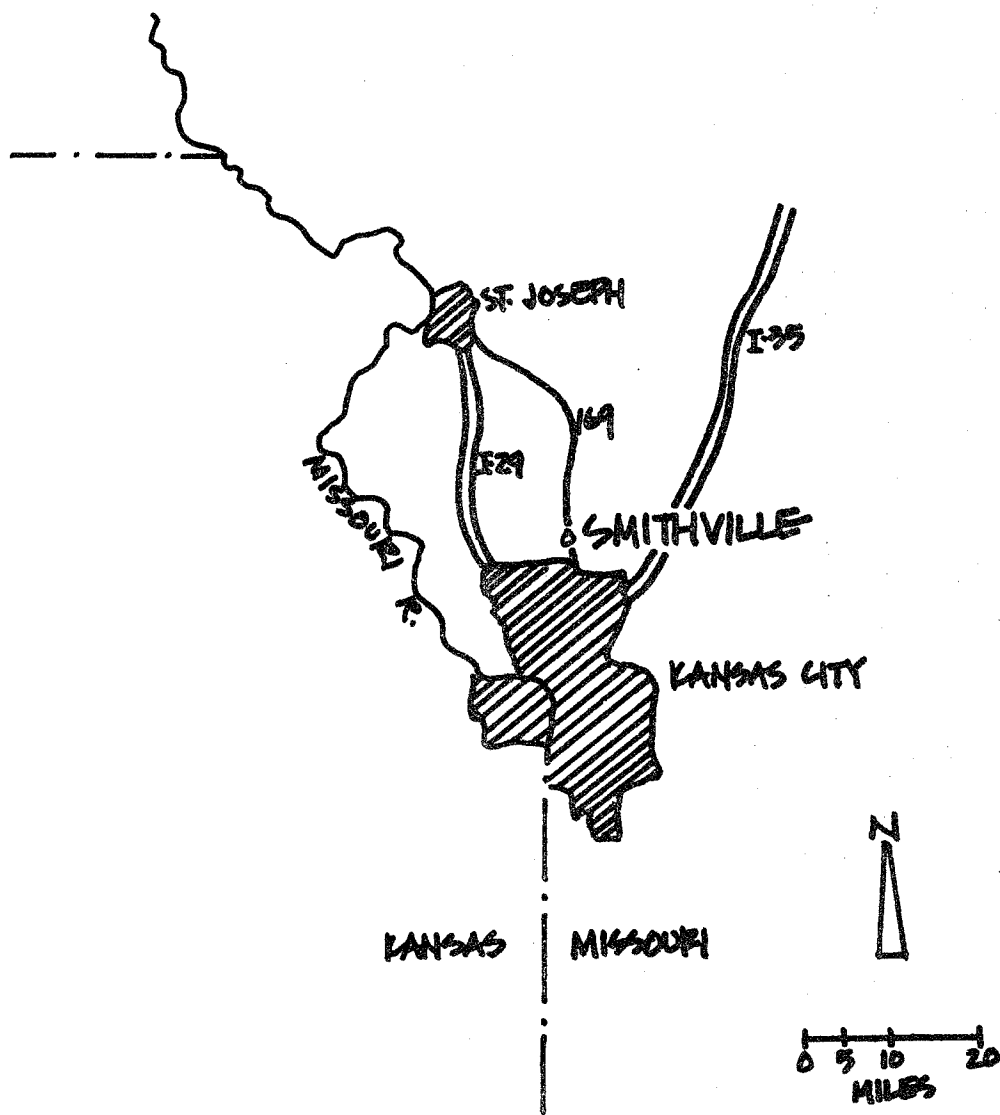
1973 - present	Osteological Consultant for The Office of Kansas State Archaeologist.
1974 - present	Forensic Osteologist for the Kansas Bureau of Investigation.
1975	Van Doren-Hazard-Stallings Engineers-Architects Archaeological Survey

Editorial Responsibilities

The Connective Tissue: A Newsletter in Osteology.

Military

Enlisted in U.S. Naval Reserve, 1959. Midshipman at University of Colorado. Two years active duty Pacific and Southeast Asia. Recipient of American Spirit of Honor Medal.



Location