This document has been checked for information on Native American burials. No images considered to be culturally insensitive, including images and drawings of burials, Ancestors, funerary objects, and other NAGPRA material were found.



Department of Anthropology

 $Laboratory \, of Archaeology$ 

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# EXCAVATIONS AT SEVERAL WOODLAND AND ARCHAIC CAMP AND WORKSHOP SITES IN LAURENS COUNTY, GEORGIA

MARVIN T. SMITH



### UNIVERSITY OF GEORGIA LABORATORY OF ARCHAEOLOGY SERIES

**REPORT NO. 16** 



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Athens 1978

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#### INTRODUCTION

This study reports the field investigations at five archaeological sites located on the property of Southeast Paper Manufacturing Company near East Dublin, Laurens County, Georgia. The archaeological investigations were sponsored by Media General, Inc. of Saddle Brook, New Jersey.

The fieldwork was conducted by University of Georgia archaeologist Marvin T. Smith with a crew composed of Greg Paulk, Charles Siegel, Miles Sheffer, and Joel Jones. Dr. Paul Fish served as Principal Investigator for the project. Fieldwork started on May 11, 1977 and was completed on June 17, 1977. Laboratory analysis and report preparation were completed during August, 1977.

#### NATURAL ENVIRONMENT

The project site, known locally as the Scarborough tract, is located in the pine barrens section of the Coastal Plain physiographic province of southern Georgia. Typical of the Coastal Plain, this area is low in elevation with generally flat topography. Soils consist of mixed sands and silts which support a vegetation dominated by pines and scrub hardwoods. Some areas of the plant site are composed of eolian sand deposits. Scrub hardwoods characterize the lower portions of the proposed plant site, while pine is typical of higher, better drained areas. Hardwood trees would have provided edible nuts in the fall, perhaps attracting both man and other animals to the area. Today thick understory vegetation occurs in the hardwood areas.

The Oconee River flows along the western edge of the plant site and is accompanied by a parallel levee system and a backwater swamp. In addition, Shaddock Creek flows through the center of the property and provides another readily available water source (Figure 1). Chert is locally available in the Oligocene Suwannee Limestone formation (Dr. R. E. Carver, personal communication) which outcrops both 10km north and 10km west of the plant site. This chert was extensively utilized by prehistoric inhabitants of the area for tool manufacture.

Climatic data were derived from the Soil Conservation Service reports for adjacent counties (S.C.S. 1973). The area is characterized by warm, humid summers and relatively mild winters. The average daily temperature maximum ranges from 64 degrees F. in January to 92 degrees F. in July. Average annual rainfall is about 46 inches, and the frostfree growing season averages around 240 days from approximately mid-March to mid-November.

Current land use is limited mainly to planted pine plantation. Previously, much of the plant site had been under cultivation. Also, an early 20th century brick manufacturing plant was in operation near the northern edge of the plant site.



Figure 1

#### PREVIOUS ARCHAEOLOGICAL RESEARCH

Very little archaeological work has been done in the Pine Barrens section of the Coastal Plain. Larson (1966), in his evaluation of subsistence and settlement patterns on the coastal plain during the Mississippian Period, concluded that the interior long leaf pine and wiregrass zones were not permanently occupied during the late prehistoric and historic periods. However, recent work by University of Georgia archaeologists has shown that these zones were heavily utilized during the Late Archaic and Woodland Periods (Fish 1976; Fish and Mitchell 1976; Zurel, Gresham and Hally 1975).

During a thorough records check, Funkhouser (1976:2-3) was unable to locate any previous record of archaeological sites on the tract of land for the proposed paper mill. During his later field survey (Funkhouser 1976), however, 28 archaeological sites were located and mitigation procedures were recommended for sites 9Ls4, Ls5, Ls43, and a cluster of sites on the Oconee River levee: 9Ls23, Ls29, Ls31, Ls32, Ls35, and Ls38 (all now designated 9Ls23). This report describes investigations carried out at these sites and at an additional site, 9Ls44.

#### SITE 9Ls4

#### Description

Site 9Ls4 was originally defined as a concentration of flaking debris covering an area approximately two acres in extent and located on the east bank of Shaddock Creek (Figure 2). It appeared to be a special activity site or a series of short term camps. A large quantity of lithic debitage was collected on the surface of the site, and posthole tests indicated that material extended 50cm below the present ground surface (Funkhouser 1976:7). Although no diagnostic artifacts were located in the original survey, these observations made further testing advisable. Proposed investigative procedures included the excavation of backhoe trenches to locate features or occupation surfaces. Areas producing features were then to be excavated in large horizontal units.

#### Testing

Archaeological testing on site 9Ls4 proceeded as follows: an arbitrary base line was established from an origin point at the northern edge of the site near the small pond southward along the dirt farm road (Figure 2). Fourteen backhoe test trenches, each 10 meters long, were located perpendicular to this base line at 20 meter intervals on alternating sides of the base line. These trenches were staked at varying distances from the base line in order to preserve the existing road and its drainage; however, in general, they were located at the edge of the road (Figure 2). These trenches were designated by their distance from the origin point (Trench 20, 40, 60, etc.).



Figure 2

The profiles were examined for features, and artifacts were collected by trowelling through the backdirt. Very few artifacts were located. A few artifacts were noted in the profile cuts of the backhoe trenches. These artifacts were collected separately, and their depths from the surface were recorded. In general, the strata consisted of a dark humus, a gray sand, and finally a hard yellow to orange sandy subsoil. Test depths ranged from 70 to 120cm and exposed the subsoil. No occupation levels or archaeological features were detected, and artifact yields were low. Based on these findings, no large area excavations were warranted. Apparently site 9Ls4 was used as an intermittent campsite sometime during the Archaic and Woodland periods.

#### Artifacts

Artifacts recovered from Site 9Ls4 are listed in Table 1. Debitage and utilized flakes make up the bulk of the collection. Debitage was classified further into four categories: flakes of bifacial retouch, normal percussion flakes, broken flakes, and formless debris. These four categories were further divided into cortical, part cortical, and non-cortical flakes. Of the two classes of intact flakes, flakes of bifacial retouch made up 59% (N=33) of the sample, while normal percussion flakes accounted for the remaining 41% (N=23). When all debitage classes were combined, 13% were cortical, 17% were part cortical, and 70% were non-cortical. The low number of cortical flakes and the nearly total absence of cores indicates that Site 9Ls4 was not a quarry site. Furthermore, the low diversity of tool types (c.f. Fish 1976:30-37) seems to suggest that the site was the locus of a specialized activity, or, at most, a short term camp.

Since no diagnostic artifacts were located, it is difficult to assign Site 9Ls4 to a specific archaeological period. One small sand and grit tempered plain pottery sherd indicates that some activity took place during the Woodland period. However, the preponderance of lithic artifacts suggests that the site was utilized primarily during the Archaic period.

Dr. Robert E. Carver, a University of Georgia geologist, inspected the site and noted an outcrop of opal-replaced shell hash of probable Eocene age. Large quantities of this stone were found during excavations on the levee site, 9Ls23 (described below), where its presence signified transportation by human agents. Thus, Site 9Ls4 would be a probable source for this stone. The function of this stone is not known. It is not appropriate material for tool manufacture (chipped or ground). Utilization in "stone boiling" cooking is one possible function.

Provenience		Flakes	Utilized Flakes	Retouched Flakes	Scraper	Core	Biface	Sherd
Backhoe Trench	20	10		2				
	40	10	1					
	60	38				1		1
	80	21						
	100	8						
	120	3						
	140	6						
	160	6						
	180	4						
	200	20		1			1	
	220	7	1					
	240	3						
	260	0						
	280	0						
Surface		Not Collect	ed 1	2	1		1	

# TABLE 1. Artifacts Recovered from 9Ls4

#### SITE 9Ls5

#### Description

Funkhouser (1976:8) described Site 9Ls5 as the most extensive area of archaeological material encountered during the survey. The site covers an area greater than eight acres, and subsurface tests indicate that cultural remains are as deep as 150cm below the present ground surface. The site is located one-half mile east of the Oconee River and is situated adjacent to the back swamp of the river (Figure 1).

One small test unit located four features that were interpreted as hearths (Funkhouser 1976). Both the depth of deposit and the features previously located led us to believe that we would be able to locate additional features for careful excavation. The research plan called for locating features with a backhoe, and then excavating large areas to uncover living surfaces and additional features.

#### Testing

Thirty-six randomly selected backhoe trenches were used to investigate Site 9Ls5 (Figure 3). First, the site area, roughly a circle 220m in diameter, was divided into 10m squares. The grid was aligned with an existing farm road which allowed easy access to all parts of the site (Figure 3). This road was designated Grid East-West. Each square falling in the site area was numbered, and a 10% sample of squares was selected using a table of random numbers. The selected squares were then investigated by backhoeing a trench 10m long along the eastern margin of the square. Squares and thus trenches are designated by their northeast corner stake in a grid system. The origin of the grid is located southwest of the site (Figure 3).

Backhoe trench depth varied, but in all cases exceeded 100cm. A few trenches were excavated to depth of ca. 170cm, but the sandy soil made deep trenches dangerous. Most trenches averaged 120cm in depth. Only trenches along the eastern margin of the site reached subsoil.

The crew examined both long profiles of each trench for features, and then selected one profile to be trowelled and inspected more closely. The profile inspected varied according to the presence of roots, trees, and backdirt piles. The crew was not able to locate any distinct archaeological features in the sandy soil, but a few small concentrations of artifacts were encountered which may have been the remains of features whose outlines had disappeared due to extreme leaching of the soil.

No distinct buried occupation surfaces were encountered. Artifacts did not appear to be resting upon old ground surfaces, since they were oriented in all planes instead of being parallel to the present ground surface. This fact seems to indicate that the site has suffered extreme disturbance, perhaps by burrowing animals, roots, or even by flood



#### scouring.

Dr. Robert E. Carver, geological consultant to the project, has suggested that the site soil is composed of eolian sand, thought to be of Pleistocene to Holocene age. Such sand dune features are common on the east sides of Coastal Plain rivers. A shifting dune would certainly destroy all cultural stratigraphy and features. Furthermore, leveling such a dune field for cultivation would also disturb the context of artifacts. Dr. Carver also suggested that bioturbation of the surface sands, i.e., the effects of burrowing animals and root disturbance, was responsible for the mixed stratigraphy. For these reasons the vertical context of artifacts recovered is probably not indicative of their original stratigraphic context. For this reason, only horizontal artifact distributions are described in general terms.

Artifacts were recovered by several techniques. Early in the field season, some artifacts were randomly recovered from backdirt piles. These artifacts constitute the "grab sample." Other artifacts were collected while clearing profiles. The depths of all tools and sherds recovered from the profiles were carefully recorded and these artifacts were bagged separately. Flakes recovered from the profiles were added to the backdirt samples. A few concentrations of artifacts were bagged together as possible features. Finally, in order to obtain a statistically comparable collection of artifacts from each trench, five wheelbarrow loads of backdirt were screened for each trench. This sample was used in an attempt to determine horizontally distinctive activity areas.

Since neither aboriginal features nor distinct occupation levels could be identified, the research plan was modified and the scope of work was limited. No large area excavations were carried out because no areas could be located that appeared to have potential for yielding significant data. Features similar to those that Funkhouser had identified as possible hearths in his small test units were clearly observed in the larger backhoe cuts. These small, crescent-shaped charcoal lenses were shown to be burned roots.

#### Artifacts

Artifacts recovered during excavations at Site 9Ls5 indicated utilization during the Early Archaic and Late Archaic through Middle Woodland periods. Artifacts will be described under the broad categories of lithics and ceramics.

#### Lithics

Projectile Points. Projectile points were classified according to criteria defined by Cambron and Hulse (1975), Coe (1964), and Bullen(1975). The majority of the types fall in a Late Archaic through Early Woodland time range. It should be noted that while the Laurens County specimens frequently exhibited most of the established attributes in the published type descriptions, they frequently differed in size. Projectile point data appear in Table 2. Selected specimens are illustrated in Figure 4.

<u>Bifaces.</u> A total of 25 bifaces was recovered from all provenience units at 9Ls5. Artifacts classified as bifaces ranged from unclassifiable distal ends of projectile points to several large "choppers." Several probable unfinished tools and one drill midsection are also included. The distribution of bifaces is shown in Figure 5.

Retouched Flakes.. Only 14 retouched flakes were recovered from the sifted samples from the test trenches. An additional two were recovered in the grab samples. The distribution of retouched flakes is illustrated in Figure 6.

Utilized Flakes. Only 14 flakes were classified as utilized from all samples at Site 9Ls5, however, it should be noted that not all flakes in the grab sample were inspected. Nevertheless, nearly 7000 flakes were classified from the sifted sample, indicating that the number of recognized utilized flakes is quite small. Patination frequently obscured the determination of utilization or even retouch, so the actual number of utilized flakes was probably somewhat higher than indicated. The distribution of utilized flakes is shown in Figure 7.

Other Flake Tools. This category includes 5 sidescrapers, 1 endscraper, and 1 notch. The distribution of these tools is shown in Figure 8. The lack of sidescrapers, endscrapers, retouched flakes, and utilized flakes indicates that little cutting or scraping activity took place at Site 9Ls5.

Ground Stone Tools. Only one ground stone tool was located. It is a large, square perforated stone "netsinker" located in trench N 130, E 110 (Figure 9). This artifact is characteristic of the Stallings Island Culture (Clafin 1931; Stoltman 1972). One steatite vessel fragment was recovered from provenience N 20, E 150.

Debitage. A total of 6964 flakes from the thirty-six backhoe trenches was classified. Of the unbroken flakes, 58% (N=888) were flakes of bifacial retouch, while 42% (N=638) were normal percussion flakes. This distribution is virtually identical to that found at Site 9Ls4, implying similar activities took place at both sites. Of the total sifted sample of debitage, only 6% was cortical, while 10% was partial cortical and 83% was non-cortical. The high percentage of non-cortical flakes, and the high percentage of flakes of bifacial retouch appears to indicate that tools were being manufactured from prepared blanks or that old tools were being resharpened on the site. Flakes are compared with those from Site 9Ls44a below (Tables 9 and 10).

Areas of flake concentration are shown in Figure 10. Flakes tend to be concentrated on the western half of the site. This concentration

TABLE 2. Projectile Points Site 9Ls5

Period	Type	Length	Width .	Thickness	Provenience	Figure
Early Archaic	Kirk Corner Notched base	1	31.0mm	10.0mm	N50, E80 in situ 60-70cm B.S.	Fig. 4, Row 1 A
Mid-Late Archaic	Pickwick or Ledbetter	54.0mm	35.0mm	9.0mm	N120, El0 grab sample	Fig. 4, Row 1 D
Late Archaic	Elora	50.0mm	30.0mm	9.5mm	N120, E100 grab sample	Fig. 4. Row 1 B
Late Archaic - Early Woodland	Savannah River base	1	47.0mm	8.0mm	N60, Ello <u>in situ</u> 44cm B.S.	Fig. 4, Row 1 C
	Savannah River base	1	39.0mm	12.5mm	N150, E40 in situ 113cm B.S.	
Late Archaic - Middle Woodland	Gary	56.5mm	34.0mm	8.5mm	N60, E180 sifted sample	F1g. 4, Row 2 B
	Gary .	60.0mm	29.0mm	10.5mm	N180, E50 in situ 95cm B.S.	Fig. 4, Row 2 A
1	Gary Base	1	4	9.5mm	N20, E150 in situ 70cm B.S.	
	Gary Base	1	47.0mm	12.0mm	N40, EllO grab sample	Fig. 4, Row 2 C
	Gary Base	1	33.0mm	8.5mm	N40, Ell0 in situ 55cm B.S.	-
Unknown	Unclassified Corner Notched Base	1	47.0mm	11.0mm	N130, E10 sifted sample	Fig. 4, Row 3 A
	Unclass. Stemmed Base	ł	36.5mm	7.0mm	N60, Ell0 grab sample	
	Unclass. Stemmed	49.0mm	40.5mm	11.0mm	N140, E100 in situ 110cm B.S.	-
	Unclass. Stemmed	63.0mm	40.0mm	13.5mm	N130, E40 grab sample	
	Unclass. Stemmed	42.0mm	25.0mm	12.5mm	N60, E180 in situ 90cm B.S.	



Figure 4. Selected Projectile Points

















corresponds with the distribution of fiber tempered and Refuge Phase ceramics. The distribution of Deptford ceramics is almost complementary to the flake distribution. This indicates that most activity producing lithic debris took place during the Archaic and Early Woodland periods, and that the nature of the activity during the Middle Woodland period was somewhat different.

#### Ceramics

The 85 sherds recovered from all sampled provenience units at Site 9Ls5 can be divided into three main categories which correspond to chronological periods: fiber tempered ceramics, Refuge Phase ceramics, and Deptford Phase ceramics. Several ceramic "types" are recognized under each category. Type frequencies are given in Table 3, and distributions of the types are illustrated in Figures 11, 12, 13, 14, and 15.

Three Fiber Tempered Punctate and 13 Fiber Tempered Plain sherds indicate the earliest ceramic phase at Site 9Ls5. While formal type names for this small sample have been avoided, they more closely resemble the coastal St. Simons series than the Savannah River Stallings Island series (DePratter, personal communication). The distribution of Fiber Tempered sherds is shown in Figure 11. Radiocarbon dates for fiber tempered pottery range from  $2515 \pm 95$  B.C. to  $1750 \pm 250$  B.C. (Stoltman 1972:40). Recent dates extend the upper limit of this range to 1100 B.C. (DePratter n.d.b.).

The Refuge Phase signifies a transitional period when a gradual conversion to sand or grit tempering from the previous fiber tempering was made. Coil techniques replace the earlier modelled construction, and stamping becomes important (DePratter n.d.a.). Thus, a large number of sherds with fiber and intentional sand or grit tempering are included in this phase. The crude, thick, sand and/or grit tempered, simple stamped sherds which frequently have decorated rims and interior scraping appear to occur during the later portions of the phase. Distributions of these types are shown in Figures 12 and 13.

The Refuge Phase is presently poorly known, but the presence of Refuge-like ceramics at 9Ls5 significantly extends the known distribution of this series to the northwest of its previously recognized boundary (see DePratter n.d.a.). Clearly, the Refuge Phase is transitional from Fiber Tempered ceramics to the Deptford series. At this time only a few radiocarbon dates for the Refuge Phase are available. Marrinan has reported dated of 820 ± 95 B.C. and 835 ± 80 B.C. for fiber and grit tempered pottery on St. Simons Island (Marrinan 1975; DePratter n.d.b.).

In conclusion, Site 9Ls5 was occupied primarily during the late Archaic and Early Woodland periods. Only the possible Kirk Corner Notched projectile point base does not fit this period. Heaviest occupation probably took place during the Refuge Phase or, perhaps, in the preceramic Late Archaic. The lack of stratigraphy and features can TABLE 3. Ceramics Site 9Ls5

Phase	Type	Sifted Sample	Grab Sample	In Situ	Total
"Fiber Tempered"	Fiber Tempered Plain	8	5	m	13
	Fiber Tempered Punctate	ł	-	2	4/17
Refuge	Fiber and Sand/Grit Tempered Plain	24	0	თ	33
	Fiber and Sand/Grit Tempered Indeterminant Stamped	2	0	0	5
	Refuge Simple Stamped	7	2	0	6
	Refuge Plain	0	-	O	45
Deptford	Deptford Check Stamp (includes Linear Check)	7	0	m	10
	Deptford Simple Stamp	0	-	0	-
	Sand/Grit Tempered Plain	9	2	-	9 20
Indeterminant	Sand/Grit Tempered Indeterminant Stamped	0	-	1	2
	Unidentified Small Bits	2	0	0	4



Figure 11













be explained by the mechanical and biological disturbance of the eolian sand deposits that characterize the site. Due to the disturbed nature of the site, site function cannot be accurately determined, but the absence of ground stone tools, particularly the absence of mortars, pestles, "nutting stones" and other food processing implements, combined with the scarcity of chipped stone tools argues for short term specialized activities or perhaps for short term campsites. Debitage at the site apparently reflects secondary tool sharpening and tool manufacture from preforms. The distribution of artifacts is concentrated along the western margin of the site, perhaps reflecting orientation toward the backswamp and riverine resources.

#### SITE 9Ls23

Site number 9Ls23 has been assigned to that section of the Oconee River levee on the Southern Paper Manufacturing Company property. This area had previously been designated 9Ls23, Ls29, Ls31, Ls32, Ls35, and Ls38 (Funkhouser 1976:11), indicating individual backhoe trenches that had produced features or artifacts. The levee is relatively narrow and is flanked by the Oconee River to the west and a dense backwater swamp to the east (See Figure 1).

The excavation strategy employed at 9Ls23 was similar to that used at 9Ls4 and 9Ls5. Twenty-nine backhoe trenches were excavated to further investigate the area where Funkhouser had detected occupational debris. These trenches were numbered from north to south (Figure 16). Several possible features and artifact areas located by these backhoe tests, as well as a feature previously located by Funkhouser in his backhoe trench 9Ls32 (Funkhouser 1976), were investigated by 2-by-2 meter test units (Figure 16). Three distinct occupation areas were defined.

#### Test Units 1 and 2

Test Units 1 and 2 (Figure 16) were excavated to investigate a feature located by Funkhouser during the 1976 survey. Test Unit 1 was excavated in 10cm levels to a depth of 1 meter, screening all material through 1/4 inch hardware cloth. Below this level, artifacts were scarce and the unit was shovelled and trowelled, and only a sample of soil was screened. At 1.25m below the surface, there was an abrupt soil change from the loose, white sand to a red-brown, compact silt. This silt was excavated to a depth of 158cm below the surface. Later, the unit was excavated by backhoe to a depth of 2.9m, but no further cultural remains were noted in the alternating sand and silt profile.

Virtually all of the flakes located during the excavation of Unit 1 appear to be from the same core, and all sherds appear to be from the same red, friable, diamond stamped vessel. All artifacts recovered are listed in Table 4. Bioturbation of the sandy upper soil could explain the movement of artifacts in the upper levels, but this explanation does not explain the disturbance in the compact silt lower stratum. Artifacts in both soil zones appeared disturbed; that is, they did not appear to lie flat on an old surface.

Two features were located in Test Unit 1. Feature 1 was a large, irregular pit which was interpreted as a disturbed hearth or cooking pit. Several chunks of daub were first detected 31cm below the surface, and several stones were located just north of the feature. A relatively distinct pit outline was identified at the base of Level 6, 60cm below the surface. The pit bottom was 90.5cm below the surface. The feature was filled with dark, stained sand with charcoal near the center, grading into gray sand and finally into red, fired sand and daub near the northeastern margin. Only one unidentifiable stamped sand and grit tempered





TABLE 4. 9Ls23, Artifacts from Test Units 1 and 2

Unit	Level	Depth Below Surface	Flakes	Cores	Misc. Stone	Daub	Sherds
-	2	10-20cm	2		-	5	
-	ß	20-30cm	L				
-	4	30-40cm	4		9	-	-
-	5	40-50cm	15	-	28	ę	Ę
-	9	50-60cm	10		ω	-	ъ
-	7	60-70cm			14		
-	8	70-80cm	5		31		-
-	6	80-90cm	2		6	-	
-	10	90-100cm	4		26		2
-	E	100-119cm	2		54		
-	Silt	119-158cm	13		87	-	15
2	-	0-30cm	F				
2	4	50-60cm				F	

sherd and a few small stones were recovered from the feature fill. Analysis of the flotation sample indicates the presence of charcoal, pitch, small stone, and miscellaneous organic debris. No large burned wood fragments were located, but the fired sand and daub indicated the former presence of fire.

Feature 4 was a concentration of stone 60cm by 48cm located 137.5cm below the surface in the red-brown silt stratum. There were 134 cobble and pebble size, irregular fragments of opal-replaced shell hash and one small friable, reddish, stamped sherd apparently from the same diamond stamped vessel noted above. No pit outline could be detected, and since no organic matter could be seen no soil sample was taken. There was no evidence of fire. The function of the feature is unknown, but according to Dr. Carver, the stone must have been brought in by human agents.

Test Unit 2 was excavated to uncover the remaining portion of Feature 1. The first 30cm were shovelled off and not screened, since artifact yield was so low in the adjacent Test Unit 1. Levels 2, 3, and 4 were excavated as 10cm levels, and were screened through 1/4 inch hardware cloth. The only artifacts recovered in Test Unit 2 were one flake from Level 1, and one small piece of daub from Level 4. While excavating Test Unit 2, the sand profile caved in and destroyed most of the remainder of Feature 1. However, a soil sample of the dark feature soil was obtained. Since Test Unit 2 did not yield any artifacts which could be associated with Feature 1, it was abandoned.

#### Artifacts, Test Units 1 and 2

Artifacts from Test Units 1 and 2 are summarized in Table 4. Most debitage appeared to be from the same core. Fifty-four pieces of debitage were analyzed with the following results: 11% were cortical, 15% were partial cortical, and 74% were non-cortical. Of the whole flakes, 43% (n=9) were flakes of bifacial retouch, while 57% (n=12) were normal percussion flakes.

All ceramics, except for one sherd in Feature 1, appear to be from the same red, friable paste, diamond check stamped vessel. The stamping on several sherds was indistinct, but the paste, firing color, and friable nature made their identification certain. These diamond check stamped sherds appear to be late Refuge or early Deptford in time (DePratter, personal cummunication).

The area investigated by Test Units 1 and 2 apparently was a short term campsite. At least one core was reduced on the site, and at least one ceramic vessel was broken. The presence of daub in Feature 1 and the abundance of rock throughout Test Unit 1 suggests cooking activity.

#### Test Units 3, 3A, and 6

Test Units 3, 3A, and 6 were excavated near backhoe trench 19, which had produced several sherds of Swift Creek Complicated Stamped pottery and some evidence of midden stain (Figure 16). Several features were located and investigated, and one produced a radiocarbon sample.

Test Unit 3, 2-by-2m, was excavated in five 10cm levels. Artifacts recovered are listed in Table 5. An old road bed (ruts) was detected on the surface running through the unit from the southeast to the north central area of the unit. This disturbed area was not screened. The road bed was not assigned a feature number in the field, but it is illustrated in Figure 17. Test Unit 3 was excavated to a depth of 50cm, and two features were located at the base of Level 3. These features were pedestaled and were excavated later. Level 5 was culturally sterile, and excavation was halted since no other occupation zones had been observed in backhoe trench 19. A 1-by-1m extension, Unit 3A, was excavated to complete the removal of Feature 6.

Feature 5 was a poorly defined, irregular pit located in the southwestern corner of Test Unit 3. The portion within Test Unit 3 measured 84cm by 69cm and was 24cm deep. The feature contained four sand tempered stamped sherds and three eroded, sand tempered sherds. Although 4892 grams of soil sample were processed by flotation, only charcoal, pitch, and small stones were recovered.

Feature 6 was a shallow, roughly oval pit measuring 90 by 56 cm. This rather well defined feature was lens shaped in cross section (Figure 17) and contained a great deal of charcoal, 8 chert flakes, and 4 sand tempered sherds. A radio carbon determination of  $1275 \pm 60$ B.P., A.D. 675 (UGA 1706) was obtained for this feature. Although the ceramics in Feature 6 were not diagnostic, the paste closely resembles that of the Swift Creek ceramics for the surrounding Test Units 3 and 6, and it is believed that the date is applicable to this period.

Very few radiocarbon dates are available for Late Swift Creek. Early Swift Creek dates from Mandeville are as recent as A.D. 490  $\pm$  150 and A.D. 530  $\pm$  150 (B. Smith 1975:176). Dates from Russel Cave, Alabama for proveniences which contain small amounts of Swift Creek and the later Napier ceramics include dates of A.D. 800  $\pm$  110, A.D. 740  $\pm$  100, and A.D. 450  $\pm$  175 (Griffin 1974:13). Dickens (1975:36-38) reports a date of A.D. 605  $\pm$  85 for a midden area of the Annewakee Creek Mound that contained (in order of frequency) plain, Napier Complicated Stamped, Swift Creek Complicated Stamped, red filmed, and check stamped ceramics. Finally Gleeson (1970:132) reports a date of A.D. 585  $\pm$  90 from Feature 35 at the Icehouse Bottom site, 40Mr23. This feature contained Candy Creek (limestone tempered Swift Creek-like pottery) and Connestee Series ceramics. With these dates as a basis for comparison, the date of A.D. 675  $\pm$  60 obtained for Feature 6 at 9Ls23 appears to be an accurate determination. TABLE 5. 9Ls23, Artifacts from Test Units 3, 3A, and 6

Unit	Provenience	Flakes	Swift Creek C.S.	Indt. St.	Cordmarked	Plain and eroded
m	Level 2	-	£	m	2	2
ю	Level 2 base		9	1		2
e	Level 3	8		1	-	13
e	Level 4	m	-			2
3A	Above F.6	8				
9	Overburden	ы С	2	L	1	10
9	Shovel Shaving	1		-		
9	Adjacent to F.5	4				
	TOTALS	18	12	7	4	29



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Although the sample of ceramics from Units 3, 3A, and 6 is small, the Swift Creek sherds can be characterized as having fine sand temper with occasional grit inclusions, and having poorly executed curvilinear complicated stamping. Design elements are represented by thin lines. Rim profiles are straight, and the top of the rim is flattened. Cord marked sherds have the same paste, but the rim form is tapered instead of being flattened. The distinctive Early Swift Creek scalloped rim is absent.

Soil (31,531 grams) from Feature 6 was processed by flotation. The organic materials identified by Larry Landers, Institute of Forestry, UGA, included charcoal, pitch, hickory nut fragments, and red oak acorn caps. The shape of the pit, and the abundance of burned wood, suggest a fire pit or hearth; however, there was no evidence of burning in the pit walls. The presence of nut and acorn fragments may indicate utilization of the levee during the fall.

Test Unit 6, a 3-by-3m unit, was excavated north of Test Units 3 and 3A (Figure 16). The unit was opened with a backhoe to an irregular depth. Up to 12cm of soil were removed to level the Unit floor, which was then shovel shaved to the approximate level of Features 5 and 6 to look for additional features. All artifacts recovered in Test Unit 6 are listed in Table 5. Four additional features were located and tested.

Feature 9 was apparently a burned stump hole. This interpretation was prompted by the presence of burned pitch or sap, and a definite charred root which was connected with the feature. One sand and grit tempered eroded sherd was found in the top of this "feature" during shovel shaving. No ethnobotanical material was recovered in the flotation sample.

Feature 10 was first observed as a soil discoloration in the northwestern corner of Test Unit 6. The feature fill was dark and sticky soil with charcoal flecks. Two small chert flakes were recovered. One recent Brassica seed was recovered through flotation (L. Landers, personal communication). This feature was excavated and found to bend sharply. It is interpreted as an animal burrow.

Feature 11 was an oval, pit-like feature located near the center of the test unit. One chert flake was found in the fill, and flotation samples contained only small amounts of charcoal and pitch. This feature may be of aboriginal construction but its function is unknown.

Feature 12 was defined by an area of slightly harder and redder soil. Excavation of this feature located no cultural debris, and it is believed that this feature was a natural soil phenomenon.

In conclusion, Test Units 3, 3A, and 6 were excavated to investigate a Swift Creek occupation area of the levee. Feature 6 yielded a radiocarbon determination of A.D. 675 for this occupation, and this date appears to be acceptable for Late Swift Creek. The presence of cordmarked ceramics in the midden along with the Swift Creek ceramics apparently illustrates the contemporaneity of these types in south Georgia. The low artifact density and the lack of postholes indicates a short term occupation.

#### Test Unit 4

Test Unit 4 was excavated to investigate a feature located in backhoe trench 1 (Figure 16). The unit was excavated to within 30cm of the feature with the backhoe. An arbitrary datum point was established in a nearby tree and excavation was initiated at a point lllcm below the datum. A natural stratum, a suspected midden zone, was excavated in two arbitrary levels and screened through 1/4 inch hardware cloth. Level 1 was excavated from 111 to 128cm and Level 2 was excavated from 128cm to a hard, silt soil change located at approximately 145cm below datum. Artifacts recovered in these levels are listed in Table 6. Lithics were almost totally absent. Only one flake and one drill (Figure 4, Row 3, B) were located. Ceramics indicated a late Deptford temporal placement (DePratter, personal communication). Ceramics identified as Deptford Simple Stamped were differentiated from Refuge Simple Stamped on the basis of thinner wall thickness, lack of heavy grit temper, lack of shell scraping marks on the vessel interior, lack of decorated rims, presence of tetrapods, and better execution of stamped decoration.

Two features were investigated in Test Unit 4. Feature 7 was a small, oval feature originally located (and disturbed) by backhoe trench 1. This feature was a shallow basin filled with dark, mottled sand and some charcoal flecks. Artifacts in the fill included 1 large burned chert chunk, 1 cortex chunk, 1 eroded sand tempered sherd, and 1 unidentified stamped sherd. A flotation sample yielded charcoal, pitch, and one hickory nut fragment.

Feature 8 was a large, gray sand filled pit which disappeared into the south profile of the unit. At the southern profile, the feature was l2lcm wide, perhaps being a close approximation of its true diameter. Artifacts recovered from this feature include one Deptford Simple Stamped tetrapod, 1 sand tempered stamped sherd, and 1 eroded sand tempered sherd. A flotation sample yielded charcoal and pitch. An analysis of pollen from Feature 8 and the adjacent midden appears in Appendix A.

The Test Unit 4 area was occupied during the late Deptford period. While it is hard to generalize about an occupation from one 2-by-2m test unit and one backhoe trench, the lack of postholes seems to indicate transitory activity.

#### TABLE 6. Artifacts from Test Unit 4

	Prove	nience	
	Level 1	Level	2
Flakes		1	
Drill		1	
Miscellaneous Stone	16	21	
Deptford Simple Stamped	17	1	
Deptford Linear Check	1		
Swift Creek Complicated Stamped		1	
Sand Tempered Plain	3	2	
Indeterminate Sherd	12	1	
Daub	2	4	

#### Test Unit 5

Test Unit 5 was excavated to investigate a stained stratum in backhoe trench 2. Soil was removed to within 21cm of the stained stratum with a backhoe. One Deptford Simple Stamped sherd was located well above the stained stratum, but no artifacts were located within it. Dr. R. E. Carver, consulting geologist, inspected the stratum and indicated that it was probably of natural origin.

#### 9Ls43 THE FULLER-KEEN CEMETERY

The Fuller-Keen Cemetery is a small, rural cemetery consisting of fifteen graves. Only a few of the burials were marked, but dated tombstones indicated that interments took place between 1856 and 1875. During the course of construction work, Media General arranged for the removal of the burials to a more suitable location. The Laboratory of Archaeology, University of Georgia, arranged to send observers to take notes on the cemetery removal. This brief report is based on field notes by Mr. Greg Paulk and a cursory field skeletal analysis carried out by Mr. Miles Sheffer. Since this project was not an actual excavation, but only an observation of a cemetery removal, data collection was minimized. All burials were oriented east-west. The distribution of burials is shown in Figure 18.

Burial 1 was an adult of undetermined sex. The grave was not marked. Skeletal remains were encountered at a depth of 2 feet. The skeletal material was fairly well preserved. According to the notes, the left M<sub>1</sub> and the right M<sub>1</sub> were absorbed. There was a filling in M<sub>2</sub>, but the right M<sub>3</sub> was not fully erupted. The individual was possibly a male.

Burial 2, also unmarked, consisted of several cranial fragments located at a depth of four feet. An age of 6-12 years was estimated based on a fully erupted first molar and an unerupted second molar.

Burial 3 was an unmarked burial of an adult female (?) of advanced age located at a depth of approximately four feet. The skull showed signs of injury and subsequent healing. The teeth were well worn.

Burial 4 was that of Henry E. Keen, 1843-1856, the son of Burial 5, Young Keen, below. The bone was rather poorly preserved, but the second upper molars were not erupted. The casket bottom was located at a depth of five feet. The head was to the east.

Burial 5 was marked Young Keen, 1790-1875. Only a few traces of casket wood were found at a depth of five feet.

Burial 6 was identified as Mrs. Keen #1 in the notes. Only the M3 remained and the alveolar process was almost completely gone indicating advanced age. The burial was in a wooden casket and a brick crypt at a depth of four feet. The head was to the west. Casket ornaments and a window were excavated. This was the burial of Young Keen's first wife.

Burial 7 was identified as Mrs. Keen #2 by the tombstone. Bone preservation was excellent, due to a brick crypt and a wooden coffin. The remains were located at a depth of ca. four feet. Mrs. Keen #2 was the second wife of Young Keen. All molars were erupted and worn, and both femurs were considerably bowed.

# Fuller-Keen Cemetery

9 Ls 43

Not to Scale







Burial 8 was an unmarked grave. No wood or bone was located, but a definite pit confirmed a previous burial.

Burial 9 was also an unmarked pit with no bone preservation.

Burial 10 was identified by a "full-size" surface stain, but upon excavation, nothing was found.

Burial 11 was similar to Burial 10, except the surface stain was small.

Burial 12 was an unmarked burial of unknown sex located at a depth of four feet. The second maxillary molar was erupted, but the third molar was not erupted suggesting the burial was 12-22 years old at death. The lack of epiphyseal fusion of several long bones indicates an age near the younger part of this range.

Burial 13 was that of Mrs. Mary Fuller, 1851-1871. Casket wood and bone were located at a depth of four and a half feet. The complete dentition was observed, and the third molars were just erupting. Coffin screws were located. Apparently some type of fruit was intentionally included in the casket.

Burial 14, Unknown Fuller #1, was defined by an adult casket with glass window and ornamentation. The burial was of advanced age, based on absorption of the alveolar process. A plastic hairpin or comb indicates that the burial was a female. Porcelain buttons were also found in the fill.

Burial 15, Unknown Fuller #2, was a child (Mj not erupted). The casket had a glass window and three lead and bronze casket ornaments per side.

A few interesting points can be made. Burials occurred with the head to the east or to the west. There is indication of clothing (buttons) with one of the burials, and one burial had an elaborate hair comb. The intentional interment of fruit with the deceased was noted in one case. Although this was a rural area, the families apparently went to the trouble and expense of obtaining professionally manufactured caskets. This might further imply the work of a professional undertaker. Due to the brief time available, no records search was attempted, but historical research and interviews with descendants known to be in the area could add much to the study of the cemetery.

#### SITE 9Ls44 A AND B

#### Description

The 1976 survey team located site 9Ls44, but did not subsequently report the site. This site is located in a large field northeast of site 9Ls5 (See Figure 1). The exact dimensions of the site cannot be determined due to disturbance, but it is minimally 340m north-south by 650m east-west. The site is bordered on the north by a county maintained road. One area of the site, designated 9Ls44B, has been destroyed by borrow pit excavations for road construction.

#### Testing

Two small backhoe tests and controlled surface collection of twelve plowed strips were used to investigate site 9Ls44A. Site 9Ls44B was also surface collected, but not in a controlled manner because of its disturbed nature.

Small backhoe tests were used primarily to determine stratigraphy. No archaeological features were observed, and only one test yielded artifacts. These were few in number. Soil profiles were similar to the nearby site 9Ls5, and consisted of a plowzone, a light tan sand, and finally a hard, light tan to white clayey subsoil with manganese nodules.

Twelve plowed strips were aligned roughly east-west and were spaced at 30m intervals (Figure 19). They followed the old plowing pattern. These strips were numbered as Row 1 through 12 from north to south, and were divided into 20 meter sections lettered from west to east (Figure 19). The plowed strips were approximately 4.5 meters wide.

All artifacts noted on the surface were collected by row and section. Because of their bulk, brick fragments were only sampled; otherwise all material observed was recovered.

#### Artifacts

Lithic artifacts from 9Ls44A include 14 projectile points, 45 flake tools (retouched and utilized flakes), 7 scrapers, and 24 bifaces. No ground stone tools were found in the plowed strips, however, a fragment of a ground stone artifact, probably a celt, was found on the road.

Projectile points were classified according to criteria listed in Cambron and Hulse (1975), Coe (1964), and Bullen (1975). Temporally, the projectile points ranged from a Dalton type, ca. 8000 B.C., to a Madison type, post 1000 A.D. The majority of the projectile points were Late Archaic-Early Woodland stemmed types, and the Middle Woodland Hernando type. All projectile points are listed in Table 7 and selected specimens are illustrated in Figure 4. There was no particular horizontal clustering of projectile points, and projectile point occurrences



9Ls44
from
Points
Projectile
7.
TABLE

Type	Length	Width	Thickness	Provenience	Illustration
Unclassified Stemmed	43	33.0	9.5	Row 2, Section A	Figure 4, Row 4, C
Gary Base	1	46.0	14.0	Row 2, Section G	
Savannah River Base	ł	1	10.0	Row 2, Section W	
Unclassified Base	ł	ł	6.0	Row 3, Section C	
Hernando	42	26.5	5.0	Row 3, Section E	Figure 4, Row 4, A
Unclassified Fragment	I	46.5	9.0	Row 4, Section L	
Candy Creek Base	1	25.0	10.5	Row 6, Section A	Figure 4, Row 4, D
Unclassified Base	I	28.0	6.0	Row 6, Section N	
Unclassified Base	ł	36.0	10.0	Row 8, Section G	
Madison	24	12.5	3.0	Row 8, Section H	Figure 4, Row 4, E
Hernando	41	26.0	5.0	Row 9, Section A	Figure 4, Row 4, B
Unclassified Stemmed Base	ł	35.0	0.11	Row 9, Section I	Figure 4, Row 3, D
Unclassified Stemmed Base	ł	36.0	13.5	Row 10, Section I	Figure 4, Row 3, E
Dalton	34	23.0	6.0	Row 11, Section F	Figure 4, Row 3, C
Unclassified Stemmed Base	ł	29.0	10.0	9Ls44B Surface	
Unclassified Stemmed Base	ł	26.0	10.5	9Ls44B Surface	

did not correspond to the presence of ceramics. Since site 9Ls44 is well known to local collectors, the sample of tools recovered probably bears no close relationship to the original contents of the site.

Debitage recovered from 9Ls44A consisted of 3237 flakes. Eight percent (268) were cortical; 15% (473) were part cortical, and 77% (2496) were non-cortical. The low percentage of cortical flakes suggests that primary flaking activities took place elsewhere; however, when this figure is compared to those from several Late Archaic sites in the Big Slough Watershed (Fish and Mitchell 1976), it appears to be quite high (Table 8). Since chert resources are directly available on the Big Slough sites in the form of chert nodules (Fish, personal communication), these sites can be considered as potential quarries. In contrast, chert is not directly available at 9Ls44, yet the percentage of cortical flakes is much higher. The frequencies of flake types compares favorably with nearby site 9Ls5.

Similarly, the percentages of flakes of bifacial retouch and normal percussion flakes was compared for several sites (Table 9). Site 9Ls44 is quite different from Late Archaic sites in the Big Slough Watershed (Fish and Mitchell 1976), and is also somewhat different from nearby site 9Ls5. It is most like some of the sites in Effingham County, Georgia, reported by Fish (1976). The relatively low number of flakes of bifacial retouch may indicate that heavy percussion flaking for the purpose of producing tool blanks was an important activity at 9Ls44. It should be stressed, however, that 9Ls44 is not a quarry site.

Finally, tool to flake ratios were compared for several sites (Table 10). These ratios were found to be quite variable. Clearly, site 9Ls44 is unlike 9Ls5, but this may be attributed to different recovery techniques (screening vs. surface collection). Compared to other Georgia sites that were surface collected, the ratio is quite similar.

Flake concentrations were noted along the western edge of the field and along the northern edge. These concentrations may represent deeper plowing at turning points, rather than true concentrations. If the concentration on the western edge of the site is not a result of plowing practices, then it may reflect past activity concentration along the edge of the swamp.

Ceramics recovered from 9Ls44 fall into the Late Archaic through Middle Woodland periods (Table 11). All type frequencies were low, with the Middle Woodland type Swift Creek Complicated Stamped being the most numerous. The low sherd frequencies indicate that the 9Ls44 area was only utilized for short term activities or camps during the Woodland period.

9Ls44B, the disturbed area of site 9Ls44, yielded virtually the same assemblage as 9Ls44A. Artifacts recovered include 126 flakes, 2 flake tools, 2 stemmed projectile point bases, 4 biface fragments, TABLE 8. Flake Frequency Comparison

ļ

Site	# Cortical	20	# Part Cortical	2	# Non-Contical	10	TUTAI
				2		9	
9L s 4 4 A	268	8	473	15	2496	11	3237
9Ls44B	17	13	21	17	88	70	126
9Ls5	424	9	742	10	5798	83	6964
9Mi7	20	-	905	43	1183	56	2108*
9Mi12	-	.2	58	6	581	16	640*
9Mi43	34	2	306	18	1338	80	1678*
*Source:	Fish and Mit	chell 1	976:29.				

ake Frequencies
E
Percussion
Norma 1
and
Retouch
Bifacial
of
Comparison
TABLE 9.

Site	# Bifacial Retouch	%	# Normal Percussion	%	TOTAL
9Ls44A	195	33	389	99	584
9Ls44B	4	29	10	17	14
9Ls5	888	58	638	42	1526
9Mi7	102	8	1140	92	1242*
9Mi12	51	10	462	06	513*
9Mi43	32	4	713	96	745*
9Ef12	60	81	21	19	**[[[
9Ef29	93	42	126	58	219**
9Ef35	68	48	73	52	141**
9Ef71	255	72	98	28	353**
*Source:	Fish and Mitchell 197	6:29.			

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\*\*Source: Fish 1976:69, 70, 82, and 103.

TABLE 10. Tool to Flake Ratios and Core to Flake Ratios

Site	Tool to Flake Ratio	Core to Flake Ratio
9Ls44A	1:36	1:540
9Ls44B	1:16	1:63
9Ls5	1:134	1:774
9Mi7	1:14	1:28*
9Mi12	1:31	1:213*
9Mi43	1:129	1:14*
9Ef12	1:21	N.A.**
9Ef29	1:18	N.A.**
9Ef35	1:5	N.A.**
9Ef71	1:19	N.A.**

\*Fish and Mitchell 1976 \*\*Fish 1976 TABLE 11. Ceramics, Site 9Ls44

Provenience	Swift Creek Comp. St.	Deptford Check Stamp	Sand/Grit Temp. Plain	Fiber Tempered Punctate	Unidentified Stamped	Refuge Simple Stamped	Refuge Plain
Row 1, Section N			1				
Row 1, Section T	1						
Row 1, Section U					1		
Row 1, Section V	1						
Row 2, Section A	2		5		1		
Row 2, Section U		2					
Row 2, Section W			1				
Row 3, Section B			1				
Row 4, Section A		1					
Row 4, Section J				1			
Row 5, Section C						1	
Row 5, Section K			1				
Row 5, Section M			1				
Row 6, Section J			1				
Row 8, Section A			1				
Row 9, Section B		1.4					1
Row 9, Section F					1		
Row 10, Section A	1						
Row 10, Section E					1		
Backhoe Test							1
9Ls44B		1					

2 cores, 1 Deptford Check Stamped sherd, and miscellaneous 19th-20th century items. Artifacts from 9Ls44B are described in Tables 7, 8, 9, 10, and 11.

Again, as noted for site 9Ls5, the lack of diversity of tool types, particularly tools for the preparation of vegetable foods, indicates only short term, specialized activities. These activities were probably related to hunting, since projectile points were one of the most common tool types recovered. A late 19th century component, identified by plain, white ironstone china sherds, brick fragments, and weathered, purplish glass was also present.

#### CONCLUSIONS

This mitigation project on Southeast Paper Manufacturing Company property near Dublin, Georgia, has provided a glimpse of an area relatively unknown in the archaeological literature. Several conclusions can be made at this time. Late Archaic through Middle Woodland sites are quite numerous in this section of Georgia. Not only were such sites present in the project area, but similar sites reported by local amateurs were visited. This observation seems to agree with the recent work by Fish and others in southern Georgia (Fish 1976; Fish and Mitchell 1976; Zurel, Gresham, and Hally 1975; Snow n.d.).

While it has long been recognized that eolian sand deposits exist along the eastern sides of Georgia coastal plain rivers, the extent of the occupation of these geologic features is only now becoming apparent. Unfortunately, excavations at site 9Ls5 seem to indicate that archaeological context of materials in these dune features may be severely disturbed. Certainly work at 9Ls5 has shown the specialized nature of these dune occupations; it now remains to place these sites in a regional settlement system. Only through careful excavation of other types of Late Archaic through Middle Woodland sites will the complete picture emerge.

Perhaps the most exciting result of the work was the recognition that sites occurring on the coastal plain river levees can be expected to yield intact archaeological features, and that pollen can be preserved in these contexts. While no large, permanent village sites were located in the segment of levee investigated by this project, several large sites were visited on the west side of the Oconee.

Work at site 9Ls23 also confirmed the previously suspected association of Swift Creek and cord marked ceramics in south Georgia. A radiocarbon determination of A.D. 675 was obtained for this assemblage. Because of the small sample size involved, no effort to establish a type designation for the cord marked ceramics was attempted, but recent work by Snow (n.d.) should establish type descriptions.

While it is safe to state that the archaeology of south-central Georgia is the least known of any region of the state, this area has a high potential to yield useful data. It is probable that literally thousands of sites occur, ranging from lithic scatters to large mound complexes. It is hoped that this initial work will generate further interest in this potentially exciting region of Georgia.

#### ACKNOWLEDGMENTS

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#### APPENDIX

#### Palynological Analysis at Ls23

#### Suzanne K. Fish

Six samples from excavated proveniences at Ls23 were processed for pollen extraction. Of these, two yielded pollen in sufficient quantities and condition for tabulation. Many factors contribute to the difficulty of recovering pollen from archaeological sediments in the Southeast. The climate encourages destructive microorganisms and abundant rainfall produces poor soil conditions. Prehistoric activities involving fire destroy pollen grains. In addition, at Ls23, much of the soil is a coarse sand which would allow oxidation to take place over time.

The samples yielding pollen are from the same area of the site, Test Unit 4. Reasons for better preservation in this locale cannot be specified, but could relate to locale topographic features, soil chemistry, deposition rate, or cultural activity. Even in these two samples, however, pollen was very sparse and identification of the quantities involved were quite lengthy. Resulting spectra are of 50 and 100 grains. These returns are not unsatisfactory, considering the very limited previous success in applying palynological techniques to Southeastern archaeological remains.

Both samples are from proveniences associated with Late Deptford artifacts. One was taken from Feature 8, a pit. The second sample came from a buried level of midden adjacent to Feature 8 and assumed to be contemporary with it.

With small sample sizes, comparisons must be of a general nature. The two samples from the Deptford occupation at Ls23 resemble each other in major features. Arboreal types account for 32 percent of all pollen in one and 40 percent in the other. Oak, hickory, and pine are the best represented types. A reasonable reconstruction at the regional level is an oak-hickory forest with pine admixture. Although pine is equally represented in the pollen spectra, its relative regional importance would probably be less than that of the deciduous trees. Pine is a very prolific pollen producer and contributes more heavily to the pollen rain than most other species.

Elm, basswood, ash, locust, and cypress pollen occurred as single grains. The infrequency of these types is probably due both to the localized occurrence of the species involved and to limited pollen production. The presence of cypress pollen is particularly interesting for its environmental implications. Both Georgia cypress species are indicators of permanently damp to swampy conditions. These conditions were undoubtedly present on an adjacent stretch of the Oconee River, as the pollen of cypress does not distribute widely. Most species of ash and locust are also characteristic of damp locales in Georgia (Duncan 1941). Non-arboreal pollen represents over half of all pollen for both samples. Such frequencies would be unusual in samples from a forested locality. It is quite probable that the immediate environs of the site were naturally open or cleared of trees during the occupation in question. The great majority of the non-arboreal pollen in each case consists of Cheno-Ams (a composite palynological category made up of the Chenopodiaceae and the genus Amaranthus).

Chenopods and amaranths are common plants of disturbed habitats. The abundance of this pollen type could reflect a vegetational response to cultural disturbance during site occupation. It may be relevant, however, that species producing this pollen type have served both as wild food sources and as cultigens.

It is possible that large amounts of Cheno-Am pollen were introduced to the sample sediments by the handling of plant materials gathered elsewhere. Concentrations of pollen from plants introduced into a site would tend to be localized and to produce differing percentages from sample to sample. The fact that the two samples have very similar frequencies of Cheno-Ams would suggest that a more likely case is an appreciable stand of the plants in or around the site. Additional samples from the same horizon would furnish one means of further clarifying the interpretation.

The natural or encouraged presence of chenopods and amaranths may have been a factor in the Deptford occupation at the site. The role of these plants in the early agriculture of eastern North America has received attention in the archaeological literature (Struever 1962). The results from Ls23 suggest that future research might profitably be focused on this problem at similar sites, using palynological and other techniques.

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# Test Unit 4, Midden east of Feature 8

	<pre># of grains</pre>	%
Arboreal Pollen		
Pinus	11	11
Quercus	7	7
Carya	12	12
Gleditsia	1	1
Ulmus	1	1
Total Arboreal	32	32
Non-Arboreal Pollen		
Cheno-Am	50	50
Gramineae	6	6
Low Spine Compositae	6	6
Malvaceae	1	1
Liliaceae	1	1
Total Non-Arboreal	64	64
Unknown types	4	4
Total All Pollen	100	100

# Test Unit 4, Feature 8

	<pre># of grains</pre>	%
Arboreal Pollen Pinus	7	14
Quercus	5	10
Carya	5	10
Tilio	1	2
Taxodium	· · · ·	2
Total Arboreal	20	40
Non-Arboreal Pollen		
Cheno-Am	23	46
Gramineae	3	6
Low Spine Compositae	1	2
Total Non-Arboreal	27	54
Unknown types	3	6
Total All Pollen	50	100