Preliminary Archaeological Investigations
at the Crooked River Site (9CAM118)

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Report of Investigations

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INTRODUCTION

Preliminary archaeological investigations, consisting of detailed topographic mapping and limited test excavation, were conducted at the Crooked River Site (9 Cam 118) over a ten-day period during December 1983 and February 1984. The site is located on the southern Georgia coast within the extreme northeastern part of Crooked River State Park in Camden County (Figure 1). This location lies just north of the Kings Bay Naval Submarine Support Base, about 14 kilometers north of the town of St. Marys and 7 kilometers west of Cumberland Island. The site is bordered by salt marsh on its eastern side and is situated about 350 meters south of Crooked River and 100 meters west of an unnamed shallow tidal creek.

The landscape of the Crooked River Site gently inclines from the marsh edge and is characterized by discrete and overlapping shell middens dispersed over an 8-hectare (20 acres) area within the dense vegetation of a live oak hammock. The extent of the site corresponds closely with the limits of Pottsburg soil as shown on the U.S.D.A. soil survey map (Rigdon and Green 1980:Sheet #78). A narrow nature trail winds its way through the site to provide park visitors access to the hammock environment (Figure 2).

The purpose of the archaeological investigation was two-fold. First, a detailed topographic map of the site showing the distribution and extent of associated cultural features was required. This map would provide information critical to effective management of the site in future development plans for the park and also would provide basic scientific information necessary for future research, preservation, and interpretation. Quite simply, details concerning the form, internal arrangement, and extent of the resource are required if serious efforts are to be made to consider the site in the planning stages of either development or research.

The second goal was to acquire needed information concerning the cultural associations and significance of the Crooked River Site. Although initially recorded during an archaeological survey of the Naval Submarine Support Base at Kings Bay, little time was devoted to the site because it was peripheral to the primary survey effort. Survey was limited to surface inspection and, as dense vegetation obscured the ground, few artifacts were encountered that would suggest a cultural provenience for the site (Smith 1978). The present investigation, therefore, includes controlled excavation of test pits in selected areas of the site to allow a preliminary determination of cultural associations, integrity, and significance.
Figure 1
Site Location Map
(reduced section of the 1958 Harriots Bluff, Ga Quadrangle, U.S.G.S. 7.5 min series topographic map)
Figure 2
General Environmental Setting of the Crooked River Site
(view to the east along nature trail)
The field notes, records, and artifacts resulting from this investigation are temporarily curated in the Archaeological Laboratory at West Georgia College under Accession Number 29. Arrangements for permanent curation will be made in consultation with the Georgia Department of Natural Resources and the Office of the State Archaeologist.

**MAPPING METHODS AND RESULTS**

Topographic mapping of the Crooked River Site was accomplished with an engineer's transit and metric stadia rod. First, a base-line circuit of 30 temporary stations was established along the edges of the nature trail. These stations were set a distances of from 10 to 50 meters apart and served as control points for later mapping transects. Closure error for the base-line circuit was 5 meters horizontal and 2 centimeters vertical. This error was divided among the stations to achieve perfect closure. Next four bench marks were set in concrete as permanent reference points within an arbitrary metric grid system for the site. Bench Marks #1 (N382 E458), #2 (N357 E458), and #3 (N327 E458) were set on a grid north line along the nature trail in the eastern portion of the site and Bench Mark #4 (N393 E302) was set at the beginning of the trail in the west-central part of the site. The relationships between bench marks and circuit stations then were recorded.

Once control points and bench marks were established, mapping proceeded in two stages. First, general north-south transects, approximately 30 meters wide, were inspected for shell middens by walking each transect in a tight zig-zag pattern. When a shell midden was encountered, its dimensions were determined by measured pacing and its general orientation was noted. These data were written on a strip of flagging and tied to vegetation above the midden.

The second phase consisted of mapping the locations of flagged shell middens and other topographic details. The entire site was systematically mapped in consecutive north-south transects. The transit location initially was recorded in reference to a bench mark or circuit station and mapping progressed within a transect by setting the transit at locations that maximized the visibility of flagged middens. The declination and distance to, and the elevation of each shell midden were recorded, along with its dimensions and general orientation. The elevations and positions of points on the ground surface adjacent to and between shell middens also were recorded, along with other topographic information such as marsh edges, roads, and disturbed areas. Mapping continued within each transect until shell middens no longer occurred. The locations of circuit stations and bench marks were again recorded as they became...
visible during the course of mapping to allow closure and to disperse inevitable error over previously mapped points.

Closure errors were generally rather great because of restricted visibility and the need to repeatedly move the transit at short intervals. The mapping project required 80 different transit set-ups. Horizontal errors ranged from as little as 3 meters to as much as 15 meters and vertical errors ranged from 0 centimeters to as much as 20 centimeters. The accuracy of the resulting topographic map, therefore, is somewhat less than that exact. Points noted on the map should be within about 5 meters of their actual locations and elevations should be within about 5 centimeters of true height. The map is as accurate as can be expected considering the limitations imposed by the densely vegetated environment.

The resulting map (Figure 3) shows the landscape contours at 20-centimeter intervals, along with the locations of shell middens, disturbances, excavated test pits, the nature trail, and the access road leading to the site. High (≥25 centimeters) and low (<25 centimeters) shell middens also are coded on the map, as well as the location of tabby fragments that indicate an unidentified historic structure.

The Crooked River Site contains a total of 381 shell middens spread over an area of 8 hectares. Of these, 283 are discrete middens and 98 overlap with other shell middens. The single middens usually are approximately circular, ranging from 2 to 13 meters in diameter and extending from 5 to 55 centimeters above the surrounding surface. The greatest concentration of shell middens occurs within approximately 100 meters of the marsh.

Distinctive internal patterns to the arrangement of shell middens are difficult to discern on the map. Several roughly circular and semi-circular arrangements, as well as short linear patterns, may denote refuse accumulations around or beside aboriginal domestic structures. This relationship, however, remains to be proven. The shell middens were divided into high and low groups and coded on the map in an attempt to discern any patterning by height. Once again, distinctive internal patterns are less than obvious.

The absence of clearly defined patterns is probably because the shell middens were formed over a long period of time by several cultural groups. The patterned arrangement of refuse deposition associated with a particular occupation would be obscured by different patterns of earlier and later occupations. If the cultural association of each shell midden was determined and this information was coded on the map, the respective patterns probably would become clear.

Disturbances at the Crooked River Site are isolated and infrequent. Most of the site appears to be intact and free of
Figure 3
Detailed Topographic Base Map of the Crooked River Site
(grid coordinates at 50-meter intervals shown at margins)
extensive modern intrusions. The apparent integrity of the shell middens indicates that the site was never subjected to the disturbing effects of modern agriculture. The dominant existing disturbance consists of a large bulldozed area in the west-central section of the site at the end of the dirt access road. Scattered shell within the churned soil indicates that shell middens were destroyed in this area. Other surface disturbance has resulted from construction of a fire break along the southwestern edge of the site. A single small shell midden was disturbed during construction of the fire break. Two recent trash dumps, one concentrated within 15 meters of grid coordinates N417 E388 and the other dispersed near N230 E315, intrude upon the site but have resulted in little actual disturbance. The nature trail also intrudes on the site, but impact to shell middens in its path has been minimized by construction of low wooden bridges across the larger middens.

The final disturbance noted at the Crooked River Site was disruption of several shell middens by trees and intentional digging. Three middens were severely disturbed by the roots of live or fallen trees, while as many as seven appear to have been dug into by relic collectors. The location of most of these away from the nature trail indicates that some park visitors are leaving the trail so that they may dig without being observed.

TEST EXCAVATION METHODS AND RESULTS

Small test pits were excavated in three widely separated areas of the Crooked River Site to gather evidence of the cultural associations and subsurface integrity of the site. Placement of the test pits was subjective. Tests 'a' and 'b' were contiguous units positioned so as to extend into one of the larger shell middens within the dense midden area in the southeastern section of the site. Tests 'c' and 'd' were positioned between shell middens within the southern and western margins of the site (see Figure 3). These locations were chosen in an attempt to sample the complexity present at the site. It was thought that the interior test pits would provide a sample of the multi-component deposition suspected to characterize the dense midden zone, while the marginal test pits would be more likely to detect peripheral single-component archaeological remains.

Each test pit was excavated in arbitrary 15-centimeter levels to sterile subsoil. The arbitrary levels were interrupted as natural or cultural strata were recognized. The fill of each level was sifted through 1/4-inch mesh hardware cloth to standardize recovery of artifacts and other cultural remains. A single 1.5-liter sample of soil that passed through the 1/4-inch mesh was saved from the shell zone in Test 'a' to recover a portion of the small fraction of faunal remains noticed in the stratum. The base of each excavation level was inspected for
intrusive cultural features and, upon completion of each test pit, soil profiles were recorded and the unit back-filled.

**Test Pits 'a' and 'b'**

Test 'a' was a 75-centimeter wide trench extending 3 meters east from the center of a roughly circular shell midden measuring about 7 meters in diameter and extending 40 centimeters above the surrounding surface. Test 'b' was a 2-meter square excavated at the eastern end of Test 'a' to expose the margin of the shell midden in relation to surrounding soil horizons.

A topographic map was made of the area around the test pits to show in detail the forms and distribution of surrounding shell midden (Figure 4). Surface elevations for this map were recorded at approximately 2-meter intervals to provide the data required to draw contours at 5-centimeter intervals.

A profile of the northern walls of Tests 'a' and 'b' is shown in Figure 5 (see also Figure 6). Seven distinctive strata were represented in the test pits. The ground surface was covered with a thin layer of leaves and decaying organic matter. Beneath this organic litter in Test 'a' was a shell midden composed principally of a dense matrix of oyster and quahog clam shells containing pottery, bones, and botanical remains. A layer of grey sandy humic midden, containing few cultural remains, lay between the shell midden and organic litter in Test 'b'. The base of the shell midden was defined by crushed shell mixed within the top of an underlying stratum of dark brown sandy humic midden. The zone of crushed shell was recognized upon inspection of the profiles rather than during actual excavation. The dark brown humic midden, containing frequent pot sherds and occasional faunal remains, was preceded by a brown sand horizon that contained infrequent pot sherds. This final cultural stratum was preceded by sterile tan sandy subsoil.

Pottery components associated with each stratum are shown in Table 1. A meaningful stratigraphic sequence appears to be indicated in the excavation levels. The lowest and oldest cultural zone, the brown sand, is associated primarily with plain fiber-tempered pottery of the St. Simons Period (ca. 2000 B.C. - 500 B.C.). This stratum is succeeded by dark brown sandy midden containing a high percentage of plain coarse-sand tempered pottery. In addition, plain grit-tempered, plain fine-grog tempered, and burnished plain fine-grog tempered pottery begins to occur in the dark brown sandy midden in relatively high percentages. The fine-grog tempered sherds appear to be Savannah Period types (ca. 1000 A.D. - 1550 A.D.), while the coarse-sand, grit, and fine-sand tempered sherds are of undocumented types. The shell midden (combining the shell midden and crushed shell zones) that overlays the dark brown sandy midden contains less plain coarse-sand tempered pottery and substantially more cord marked, grit-tempered pottery. Plain and burnished plain
Figure 4
Topographic Map showing Location of Tests 'a' and 'b'
in Relation to Surrounding Shell Middens
Figure 6
Tests 'a' and 'b'
(view to the northwest)
fine-sand tempered sherds also begin to occur in the shell midden, along with substantially more St. Johns Check Stamped pottery. Pottery in the upper, most recent, grey sandy midden occurred in such small amounts that the percentages probably provide a grossly inaccurate picture of the true ceramic composition of the stratum.

Although complicated and less than perfect, the ceramic association represented in strata of Tests 'a' and 'b' strongly suggest that important chronological information is available in undisturbed deposits at the Crooked River Site. With a larger sample from several stratigraphic test pits, it is likely that a secure ceramic chronology could be defined for the site.

The only stone artifact encountered in Tests 'a' and 'b' was a chert flake recovered from the brown sand stratum. This orange and tan flake was unmodified and retained cortex of its parent outcrop on its outer surface.

Faunal and botanical remains were encountered primarily with the shell stratum of Tests 'a' and 'b'. With 1/4-inch mesh screen, 108 grams of bone was recovered from the shell matrix. The bones included the remains of gar, catfish, perhaps mullet, unidentified turtle, an unidentified small mammal, and white-tailed deer. Within the 1.5-liter sample of shell midden rescreened through 1/32-inch mesh, were 3 grams of bone that included small vertebrae of fish and 1 gram of charred acorn-cup fragments.

Other strata in the test contained less faunal material. The grey sandy midden yielded 6 grams of bone, including the remains of unidentified fish and a rabbit. Skeletal elements from gar, unidentified fish, unidentified turtle, an unidentified small mammal, and white-tailed deer were included in the 13 grams of bone recovered from the dark brown sandy midden. Only 1 gram of unidentified bone was recovered from the brown sand stratum.

Test Pit 'c'

Test 'c' was a 2-meter square located in an area between three shell middens along the southern periphery of the Crooked River Site. The simple soil profile represented in the test pit consisted of a thin layer of organic litter on the surface, followed by 22 centimeters of grey sandy midden, and concluded by sterile tan sandy subsoil containing a localized pocket of white and brown sandy subsoil (Figure 5).

Cultural material was restricted to the grey sandy midden and was most frequent in the lower 12 centimeters of the stratum. Identified pottery consisted of 4 plain and 1 check stamped coarse-sand tempered sherds, along with 1 plain fine-grog tempered sherd. The ceramic associations recovered from the midden appear similar to those previously encountered in the dark brown sandy
Table 1
Pottery Associations of Strata Exposed in Tests 'a' and 'b'

<table>
<thead>
<tr>
<th>EXCAVATED CONTEXT</th>
<th>POTTERY BY SURFACE TREATMENT AND TEMPERING</th>
<th>POTTERY BY TEMPER</th>
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<tr>
<td></td>
<td>Plain, Fiber Tempered</td>
<td>Fiber Tempered</td>
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<td>Plain, Coarse Sand Tempered</td>
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<td>Plain, Fine Sand Tempered</td>
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<td></td>
<td>Plain, Grit Tempered</td>
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<td></td>
<td>Plain, Fine Grog Tempered</td>
<td>Fine Grog Tempered</td>
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<td></td>
<td>Plain, Fine Grog Tempered (Savannah)</td>
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<td></td>
<td>Plain, Fine Sand with Sponge Spicles (St. Johns)</td>
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<td></td>
<td>Burnished Plain, Fine Sand Tempered (Savannah)</td>
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<td></td>
<td>Burnished Plain, Fine Sand Tempered (Unknown)</td>
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<td>Burnished Plain, Fine Sand with Sponge Spicles (St. Johns)</td>
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<td>Check Stamped, Fine Sand Tempered (Unknown)</td>
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<td>Check Stamped, Fine Sand with Sponge Spicles (St. Johns)</td>
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<td></td>
<td>Cord Marked, Fine Sand Tempered (Unknown)</td>
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<tr>
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<td>Cord Marked, Grit Tempered</td>
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</table>

|                         | Plain, Fiber Tempered                      | Fiber Tempered    |
|                         | Plain, Coarse Sand Tempered                | Coarse Sand Tempered |
|                         | Plain, Fine Sand Tempered                  | Fine Sand Tempered |
|                         | Plain, Grit Tempered                       | Grit Tempered     |
|                         | Plain, Fine Grog Tempered                  | Fine Grog Tempered |
|                         | Plain, Fine Grog Tempered (Savannah)       |                  |
|                         | Plain, Fine Sand with Sponge Spicles (St. Johns) |                  |
|                         | Burnished Plain, Fine Sand Tempered (Savannah) |                  |
|                         | Burnished Plain, Fine Sand Tempered (Unknown) |                  |
|                         | Burnished Plain, Fine Sand with Sponge Spicles (St. Johns) |                  |
|                         | Check Stamped, Fine Sand Tempered (Unknown) |                  |
|                         | Check Stamped, Fine Sand with Sponge Spicles (St. Johns) |                  |
|                         | Cord Marked, Fine Sand Tempered (Unknown)  |                  |
|                         | Cord Marked, Grit Tempered                 |                  |

| Grey Sandy Midden       | Identified = 8                             | 0                  |
|                         | *Unid. = 20                                | 0                  |
| Shell Zone              | Identified = 75                            | 5                  |
|                         | *Unid. = 26                                | 5                  |
| Dark Brown Sandy Midden | Identified = 60                            | 5                  |
|                         | *Unid. = 12                                | 5                  |
| Brown Sand Zone         | Identified = 26                            | 5                  |
|                         | *Unid. = 25                                | 5                  |

* consists of eroded sherds and those measuring less than 15 mm in diameter
midden in Tests 'a' and 'b'.

Faunal material was rare in Test 'c' and restricted to the basal 12 centimeters of the midden. The 6 grams of bone recovered by 1/4-inch screen included the remains of unidentified fish and turtle.

Test Pit 'd'

Test 'd' was a 2-meter square located along the western margin of the site between two shell middens. The soil profile represented in the test pit revealed a thin shell zone beneath the organic litter on the surface. The shell stratum was underlain by a thin grey sandy midden zone representing the humic deposits of a relic ground surface. This was then underlain by three types of sandy subsoil, suggesting that the test pit intersected a boundary between different subsoil horizons (Figure 5).

Cultural material was encountered in the shell strata and within the subsoil. The thin grey sandy "midden" was sterile within the test pit. The shell zone contained 2 check stamped fine-sand tempered sherds and a plain fine-sand tempered sherd. The pottery appears similar to that recovered from the shell midden in Tests 'a' and 'b'. Faunal remains within the shell of Test 'd' were restricted to an unidentified mammal bone fragment. An eroded fiber-tempered sherd was encountered 35 to 45 centimeters beneath the surface within the white and brown sandy subsoil.

The information provided by Test 'd' indicates that shell midden sheet deposits occur at the Crooked River Site and that fiber-tempered pottery, probably of the St. Simons Period, occurs within the subsoil which otherwise appears to be sterile. The sheet shell midden was not visible on the ground surface because of organic debris and others at the site would not have been detected during the mapping project. The occurrence of fiber-tempered pottery in seemingly sterile subsoil has been noted elsewhere on the Georgia coast. It appears that the subsoils were active ground surfaces three to four thousand years ago. New soils have since been deposited, probably by the wind, and the buried organic matter has leached away in the acidic coastal sands.

CONCLUSIONS AND RECOMMENDATIONS

The information resulting from preliminary investigations at the Crooked River Site demonstrates that it is a predominantly undisturbed multi-component aboriginal site that contains 381 shell middens spread over 8 hectares. In addition, a historic
component is indicated by tabby construction fragments in a northern section of the site.

Available evidence indicates that initial occupation occurred during the St. Simons Period (ca. 2000 B.C. - 500 B.C.). This occupation appears to have been followed by a group that produced coarse-sand tempered pottery. In appearance, the paste of this pottery is similar to Deptford pottery types found along the middle and northern coasts of Georgia (see Waring and Holder 1968). The distinctive bold and linear check stamping characteristic of the Deptford complex, however, appears to be absent at the Crooked River Site. The association of the coarse-sand tempered pottery with Savannah Period type fine-grog tempered sherds in an undisturbed deposit beneath the shell midden in Tests 'a' and 'b' may indicate a temporal relationship with this later period.

The next period of aboriginal occupation indicated at the site was associated with a reduction in the frequency of coarse-sand tempered pottery and a marked increase in cord marked grit-tempered pottery. This increase was accompanied by the appearance of plain and burnished plain fine-sand tempered pottery. The one shell midden tested at the site was associated with this occupation. The cord marked grit-tempered pottery has been identified previously at other sites along the south Georgia coast (e.g. Smith et al. 1981) and is similar to grit-tempered Savannah Fine Cord Marked Pottery of the middle and northern Georgia coast (see Caldwell and Waring 1968). The possibility also exists of a relationship with similar, but poorly understood, cord marked grit-tempered pottery found in interior areas of the coastal plain (see Snow 1977). As with the coarse-sand tempered pottery, however, the chronological position and cultural associations of the grit-tempered pottery remain unclear for the southern Georgia coast.

The deposition of other cultural material stratigraphically above the shell midden indicates that there may have been a still later aboriginal occupation at the site. Insufficient data was available within the tested contexts to minimally define the parameters or confirm the existence of this occupation.

**Site Significance**

The Crooked River Site has the demonstrated potential to yield information concerning a wide range of issues important in the prehistory of the southern coast of Georgia. The undisturbed cultural deposits in stratigraphic sequence at the site represent a rare situation on the Georgia coast where many important sites have been disturbed by modern agricultural practices.

The potential to address a broad range of questions that are critical to the understanding of aboriginal cultures and their
adaptation to the coastal environment of southern Georgia clearly demonstrates the significance of the Crooked River Site. Basic unresolved questions that may be answered with data from the site include: 1) contribution to the definition of a secure regional cultural chronology; 2) definition of internal village organization and its persistence or change over time; 3) definition of subsistence patterns and their persistence or change over time; 4) definition, by inference, of the nature of social and political organization associated with aboriginal occupation and how this persisted or changed over time; and 5) definition of the relationship of resident cultures with those in neighboring regions. Given the potential of the site to greatly increase our understanding of Georgia prehistory, it is recommended that the Crooked River Site is eligible for inclusion in the National Register of Historic Places at a state level of significance.

Management Recommendations

It is fortunate that the Crooked River Site is located within the protective setting of a state park. The site will be spared many of the development impact pressures that it would face in a commercial or private environment. Nevertheless, the first step in effective management is a clear recognition by Department of Natural Resources officials and staff that the site is a significant non-renewable cultural resource and that it is sensitive to any ground-disturbing activities. Consideration of the site should be included in a comprehensive development plan for the park and possible impacts should be avoided.

Management of the Crooked River Site should also include interpretation of the site for the benefit of Georgia citizens and park visitors. A clear plan should be developed that defines a long range archaeological research design to meet interpretation goals and to provide answers to significant scientific questions. The resulting scientific information ultimately should be summarized in a non-technical form for distribution to the public. Site interpretation and public education also would be enhanced by providing park visitors with tours of archaeological investigations as they occur.

Visitor access to the site, however, needs to be controlled. Several of the mapped shell middens had been disturbed by relic collectors. If allowed to continue, this disturbance could have a serious impact upon the site. It is recommended that visitors be requested to remain on the nature trail that passes through the site, and adherence to this request should be enforced by park personnel.
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ERRATA

Page 4, second paragraph: "stantions" should be "stations"
third paragraph: "date" should be "data"

Page 7, first paragraph: "destroyed" should be "destroyed"; "distrubance" should be "disturbance"

Page 12, fourth paragraph: "with" should be "within"

Page 14, third paragraph: "sary" should be "sandy"

Page 15, second paragraph: "nothern" should be "northern"

Page 16, first paragraph: "elligible" should be "eligible"