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a banded slate pendant, crushed quartz tempered pottery, fabric, and probably argillite contracting stemmed drills. All the burial pits belong to this component. Because of a lack of diagnostic artifacts, it was not possible to assign any of the other features excavated during the period of the contract to this component. However, during the subsequent week of excavations sponsored by the Lower Delmarva Chapter, two features were excavated which probably belong to this occupation. One was a hearth containing red ochre, which also occurred in the graves, and the other was a pit which contained a Meadowood point and an argillite contracting stemmed drill.

Also present at the site is a Late Woodland Slaughter Creek Phase component. One feature was excavated which was attributable to this period, a fire hearth. Occassionally pieces of shell tempered Townsend ware or triangular points were found in the first ten centimeter level, but most of the surface indications of this component were removed when the site was cleared.

Conclusions

The excavations at the Nassawango Creek Site, including those prior to and subsequent to the period of this contract, resulted in the excavation of thirty-four two-meter-square units and seventeen aboriginal features. In addition, significant artifacts were found in almost every unit, though not in every ten centimeter level. There is every indication that additional excavation at this site could yield valuable information, particularly about the Delmarva Adena occupation. Certainly the other ridges of sand on that tract of land should be investigated, particularly the ridge to the west of the present excavations, where test pits excavated by members of the Lower Delmarva Chapter have already indicated that fruitful work could be done here. Because this potentially valuable site was cleared in the hopes that it would be purchased for development, full excavation of the site is the only way to ensure that no significant information will be lost. It is suggested, therefore, that four to eight weeks of excavation are still needed at the Nassawango Creek Site. Attached is a budget for the laboratory processing, analysis, and preliminary report preparation based on the four weeks of excavation which have already taken place. Also enclosed is a budget for further work at the site, including processing, analysis and report writing.

Cara L. Wise
Research Assistant
Section of Archaeology
Division of Historical and Cultural Affairs

Dover, Delaware
August 22, 1973
the remains of the earliest colonial settlement: a substantial, well-preserved house foundation dating to the c. 1620's which may have been a church house; a probable large fort structure where numerous early gun parts, cannonballs, and a fibrous substance resembling portions of the extensive palisade, which apparently surrounded the plants and was many thousands of feet in length in each direction; etc. In addition to these structural remains, thousands of early 17th century artifacts from England, Germany, Italy, Holland, Spain, and China have been found.

Based on the historical and archaeological information already at hand, it can be stated that Flowerdew Hundred will be one of the most important and informative 17th century archaeological sites yet investigated in the New World.

THE ARKANSAS CERTIFICATION PROGRAM FOR LAY ARCHEOLOGISTS

CHARLES R. McGIMSEY

The Arkansas Archeological Survey and the Arkansas Archeological Society jointly have designed and implemented a program of training in field archeology which is available to any Society certified program provides a regularly programmed set of courses and other experiences leading to various levels of certification, first in either laboratory techniques, site surveying techniques, or field excavation. A person becoming fully certified in all three of these areas can proceed to become certified as an archeological technician and as a field archeologist. Anyone attaining the latter level, which would require several years of effort, will have had the equivalent of five college level courses in archeological field techniques and several hundred hours of programmed and supervised field experience, as well as the experience of designing, executing, and reporting upon a major field project. The program already is paying major dividends both in terms of providing desired training to Society members and in recruiting the state with well trained individuals far in excess of that which could be provided by the Survey alone, thus greatly increasing the state's capability of protecting and preserving its archeological resources.

UNDERSTANDING THE PAST

EARL R. SIDLER

A study made to reconstruct the aboriginal forest cover of Jefferson County, New York, indicates the presence of certain natural resources and features which may have made this area a highly desirable location for aboriginal occupation. It also suggests that similar studies be made in other areas to determine the extent to which European exploitation has changed the ecology to obscure the reasons for aboriginal occupation.

THE NASSAWANGO ADENA SITE

CARA L. WISE

The Nassawango Adena site is located in northwestern Worcester County, Maryland, not far from Salisbury, on Nassawango Creek. It was discovered in March 1973, after the site had been bulldozed. Excavations were sponsored by the Maryland Geological Survey and the Lower Delaware Chapter of the Archeological Society of Maryland, Inc. Seventeen features were located and excavated. Four contained burials. Feature #1 contained cremated bone, loose copper beads, burned soil, and ash fill covering the partially disintegrated skeleton of an uncremated child burial with a necklace of roughly graduated copper beads ranging in size from 2 mm. to 5 mm. in length, and a copper pendant. In Feature #6 the fill contained, in addition to the cremated bone and loose copper beads, a copper paint cup and a broken banded slate pendant. Under this fill was the tightly flexed and partially disintegrated skeleton of a second child apparently buried in a fabric bag packed with bark and a fibrous substance resembling Spanish moss. Accompanying the burial was a very long double stranded necklace of copper beads. Fragments of the badly decayed fabric bag were recovered. A third burial feature contained only cremated bone, loose copper beads, burned soil, and ash while a fourth was almost completely destroyed by a plough. Five other features were fire hearths. One is of particular interest because it appears to have been used to manufacture red ochre from the locally available bog iron. Red ochre was found in the burial features. Eight poorly defined features, rarely apparent in the excavated material, were tentatively identified as storage pits.

Although the excavated material has not been analyzed, four major occupations have been identified on the basis of surface collections. Indications of a fifth occupation, a Late Archaic manifestation, were also apparent in the excavated material. The latest habitation at the site is attributable to the Late Woodland Slaughter Creek Phase, characterized by triangular points, shell tempered Townsend Series pottery, and roulette decorated pipes. Preceding that was a Late Middle Woodland Webb Phase occupation, characterized by red and white Ware pottery and Late Creek points of rhyolite and argillite. Probably associated with the burials is an Early Woodland occupation characterized by crushed quartz tempered, cordmarked pottery, generalized side notched points, and Rossville-type points. Crushed quartz tempered, cordmarked potsherds were found at significant depths in three of the four burial features. Carbon samples have been obtained from the three major burial features and should provide significant information about the Adena manifestation at the Nassawango site.

THE BOUCHER SITE: AN ADENA-RELATED BURIAL GROUND IN HIGHGATE, VERMONT

LOUISE A. BASA

After a brief account of the conditions under which this salvage project was conducted, a preliminary description of the features and their contents will be given. The site contained 55 definite burials (37 with unburned human skeletal remains and 18 cremations) and 20 related deposits which contained no recognizable traces of bone or were removed in blocks of earth and have at present not yet been excavated. A selected portion of these features, their construction and their contents will be presented stressing the importance of in situ relationships.

KEYHOLES, PING PONG PADDLES, OR TURTLE PITS

IRA F. SMITH III

Regional archaeologists in the northeast and in Pennsylvania have become accustomed to dealing with the limited variety of "immovable artifacts" encountered most frequently in their floodplain excavations: refuse and storage pits, burials, village trenches, ditches, postmolds, rock piles, etc. Information gathered in the last six years from various excavations conducted by the Pennsylvania Historical and Museum Commission (William Penn Memorial Museum), and also from sites explored by others in western Pennsylvania, has demonstrated the significance of a different and unique kind of feature tentatively referred to here as a "semisubterranean structure." The purpose of this paper is to describe in general terms the more than 30 Late Woodland semisubterranean structures that have been discovered in eastern Pennsylvania, discuss their cultural and spatial relationships, explore their role in the archeological community, and interpret their function.

There are three basic elements to the semisubterranean structure: first, the elevated, postmold-enclosed portion of the complex; next, the firepit, which is deeper, smaller, packed with fire-cracked rocks, and has no encircling postmolds; and, finally, the tunnel, which consists of two parallel lines of postmolds connecting the firepit to the body.

Semisubterranean structures of this nature have a restricted distribution in the northern part of the state. They are unquestionably associated with early Susquehanna F-1 sites (ca. A.D. 1500-1550), but associated with early Susquehanna F-2 sites, not later ones, and with at least the later sites of the Wyoming Valley not later ones, and with at least the later sites of the Wyoming Valley.
EASTERN STATES ARCHEOLOGICAL FEDERATION

PROCEEDINGS OF THE ANNUAL MEETING
DOVER, DELAWARE,
NOV. 2, 3, 4, 1973

ALABAMA
CONNECTICUT
DELAWARE
FLORIDA
GEORGIA
KENTUCKY
MAINE (2)
MARYLAND (2)
MASSACHUSETTS
MICHIGAN
MISSISSIPPI
NEW HAMPSHIRE
NEW JERSEY
NEW YORK
NORTH CAROLINA
OHIO
ONTARIO, CANADA
 PENNSYLVANIA
RHODE ISLAND
SOUTH CAROLINA
TENNESSEE
VERMONT
VIRGINIA
WEST VIRGINIA

BULLETIN NO. 33 JULY, 1974
August 22, 1973

Mr. Tyler Bastian
State Archeologist
Maryland Geological Survey
Latrobe Hall
The Johns Hopkins University
Baltimore, Maryland 21218

Dear Tyler:

This is to inform you that the field work at the Nassawango Creek Site (18-Wo-23) is now complete.

Enclosed are the summary report and budget proposals required under the contract.

Sincerely yours,

Cara L. Wise
Research Assistant

CLW/sd
Enclosure
18-Wo-23

NASSAWANGO CREEK SITE

Summary Report

Excavation of the Nassawango Creek Site by Cara Lewis Wise, field director, and Faye Stocum, Field assistant, under a contract with the Division of Archeology of the Maryland Geological Survey began July 17, 1973 and continued until August 4, 1973, a total of 15 working days. Crew members included at various times William Zaruba and Norma Baumgartner of the Division of Archeology, members of the Lower Delmarva Chapter of the Archeological Society of Maryland, Inc., and staff members and crew of the Delaware Section of Archaeology.

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The earliest cultural component identifiable from this site belongs to the Terminal Archaic Period. Artifacts attributable to this period include a bannerstone fragment, a grooved axe fragment, and a steatite bowl fragment. More than one occupation may be represented. No features could be assigned to this period.

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Also present at the site is a Late Woodland Slaughter Creek Phase component. One feature was excavated which was attributable to this period, a fire hearth. Occasionallly pieces of shell tempered Townsend ware or triangular points were found in the first ten centimeter level, but most of the surface indications of this component were removed when the site was cleared.

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Cora L. Wise
Research Assistant
Section of Archaeology
Division of Historical and Cultural Affairs

Dover, Delaware
August 22, 1973
NASSAWANGO CREEK SITE

Proposed Budget

For eight weeks of excavation and for laboratory and preliminary report preparation based on eight weeks of excavation.

**Excavation**

<table>
<thead>
<tr>
<th>Cost per week:</th>
<th></th>
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<tbody>
<tr>
<td>1 supervising archeologist @ $50/day (3 days)</td>
<td>$150.00</td>
</tr>
<tr>
<td>1 archeologist @ $35/day</td>
<td>175.00</td>
</tr>
<tr>
<td>2 assistants @ $3/hr.</td>
<td>240.00</td>
</tr>
<tr>
<td>travel for supervisor (350 miles @ 10¢)</td>
<td>35.00</td>
</tr>
<tr>
<td><strong>Total per week</strong></td>
<td><strong>$600.00</strong></td>
</tr>
</tbody>
</table>

**Cost for 8 weeks of excavation:**

| salararies and travel                                   | $4,800.00 |
| supplies and equipment, including camera                | 600.00    |
| **Total for excavation**                                | **$5,400.00** |

**Laboratory preparation (2 weeks lab work for each week in the field)**

**Cost per week:**

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>1 laboratory archeologist @ $35/day, 1/2 time</td>
<td>$87.50</td>
</tr>
<tr>
<td>1 laboratory technician @ $3/hr.</td>
<td>120.00</td>
</tr>
<tr>
<td><strong>Total per week</strong></td>
<td><strong>$207.50</strong></td>
</tr>
</tbody>
</table>

**Cost for 16 weeks of lab work:**

| salararies                                    | $3,320.00 |
| supplies                                      | 133.00    |
| **Total cost of lab work**                    | **$3,453.00** |

**Preliminary analysis and summary report writing (1 week for each week in the field)**

**Cost per week:**

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<table>
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<th></th>
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</thead>
<tbody>
<tr>
<td>1 supervising archaeologist @ $50/day</td>
<td>$250.00</td>
</tr>
<tr>
<td>1 lab technician 1/2 time @ $3/hr.</td>
<td>60.00</td>
</tr>
<tr>
<td><strong>Total per week</strong></td>
<td><strong>$310.00</strong></td>
</tr>
</tbody>
</table>

**Cost for 8 weeks of analysis and writing:**

| salararies                                    | $2,480.00 |
| drafting maps and illustrations               | 50.00    |
| carbon 14 dates (4 @ $175)                    | 700.00   |
| photography for report                        | 50.00    |
| typing and editing                            | 75.00    |
| **Total cost of analysis and report**         | **$3,355.00** |

**TOTAL OF BUDGET**  $12,208.00
NASSAWANGO CREEK SITE

Proposed Budget

For the analysis and reporting of materials excavated during the 1973 field season.

Laboratory preparation (two weeks lab work for each week of field work)

Cost per week:
1 laboratory archeologist @ $35/day, 1/2 time $ 87.50
1 laboratory technician @ $3/hr. 120.00
Total per week $107.50

Cost for 8 weeks of lab work:
salaries $1660.00
supplies 67.00
Total cost of lab work $1727.00

Preliminary analysis and summary report preparation (1 week for each week in the field)

Cost per week:
1 supervising archaeologist @ $50/day $250.00
1 lab technician 1/2 time, $3/hr. 60.00
Total per week $310.00

Cost for 4 weeks of analysis and writing:
salaries $1240.00
drafting maps and illustrations 50.00
photography for report 50.00
typing and editing 75.00
Total cost of analysis and report $1415.00

TOTAL OF BUDGET $3142.00
THE NASSAWANGO CREEK SITE
WORCESTER COUNTY, MARYLAND:
Sand Dune Archaeology

Cara L. Wise
Anthro 558
Dr. Foss
THE NASSAWANGO CREEK SITE
WORCESTER COUNTY, MARYLAND
Sand Dune Archaeology

ABSTRACT: The Nassawango Creek site is situated on a sand ridge of
Galestown series soil. It was occupied more or less continually for
the last 2500 yrs. An examination of the soil characteristics
indicates that this and similar sites may have been favorable for
winter occupations during the Woodland Period.

Introduction

The Nassawango Creek site is located in northwestern Wor-
cester County, Maryland, on Nassawango Creek, a tributary of the
Pocomoke River and not far from Salisbury, Maryland (Fig. 1). The
site is situated on a sand ridge, which is one of a number of such
ridges in this part of the Delmarva Peninsula. Although the most
recent study of these ridges or dunes has not yet been published
and Jordan's (1964) study of the Columbia (Pleistocene) sediments
of Delaware is too general to be of specific use, these dunes appear
to have been formed by both marine and aeolian processes (Jordan
1964:32-33) and are probably of late Pleistocene to early Holocene
age (John Foss, personal communication).

The site was discovered in March of 1973 when two amateur
archaeologists from Salisbury, Maryland, stopped to check our a
newly cleared piece of land. In addition to the points, chips,
and potsherds which are commonly found on Indian sites, they found
copper beads. In April, the Lower Delmarva Chapter of the Arch-
eological Society of Maryland, Inc. began excavations at the site. Their work revealed the presence of at least two burial features as well as several other features. It was soon decided that more direct professional involvement was needed. Arrangements were made whereby the Maryland Geological Survey would pay for 3 weeks of excavation, the Lower Delmarva Chapter would provide some volunteer labor and pay for a fourth week of excavation, and the Delaware Section of Archaeology would provide storage space and room for analysis. I was chosen as the excavation director, and Ms. Faye Stocum, then an MA student at the University of Toronto, was chosen as assistant.

The Excavations

During the four weeks of excavation, a total of 34 two-meter units were opened and excavated to a depth of at least 30 cm. Seventeen features which appeared to be of aboriginal origin were located and excavated. Of these, 4 were burial features, 5 were fire hearths, and 8 were poorly defined features, usually containing no cultural material other than small chips and pieces of burnt bone.

The fill of the burial features consisted of pockets of burnt or ashy soil containing cremated bone and loose copper beads. In addition, two of the graves contained the poorly preserved in-flesh burials of two juveniles accompanied by strings of copper beads. The copper salts from the beads had partially preserved the bone
of the burials and in one grave, fragments of fabric were preserved as well. Other artifacts found in the graves indicate that these features have some relationship to the widespread burial complex which has been termed Adena. On the Delmarva Peninsula this dates from about 200 B.C. to A.D. 200. It is my opinion that the component at this site represents an early manifestation of this complex.

The fire hearths contained charcoal, thoroughly burnt bone, and little else. One contained the badly fragmented remains of a Late Woodland Townsend Ware vessel. The only sizable pieces of bone recovered from the site, other than those from the burials, were burned bone from the fire hearths. A particularly interesting hearth is one which appears to have been used for the processing of red ochre from locally available bog iron. It is possible that the red ochre which was found in one of the graves came from this hearth or from one of the other two which were found by the amateurs after the close of the excavations.

The other eight features are difficult to describe or analyze. There was only a slight color difference to distinguish them from the surrounding soil. Although I feel fairly confident that there had been some disturbance in these areas, I would be hard put to state conclusively that we were able to follow the original contours of the disturbances or that the disturbances were of human origin. One of these features had a thin lanceolate projectile point in it, and another had a quartz scraper and
an argillite contracting stem drill. These were the only two which contained artifacts.

Artifacts were also found at varying depths where there was no discernible disturbance. In most units, the maximum depth for artifacts of any kind was 30 cm., but in a few squares material was found up to 50 cm. deep. More recently, the amateurs have found a quartz fluted point at a depth of about 70 cm.

Culture History

Although the excavated material from the Nassawango Creek site has not yet been analyzed, it is possible to make some statements about the culture history of the site on the basis of surface collections. In the topsoil, and for the most part removed by the stripping of the site, was evidence of a Late Woodland Slaughter Creek Phase occupation, characterized by triangular points, shell-tempered Townsend Ware pottery, and roulette decorated pottery pipes. Also removed during the clearing operations was a late Middle Woodland occupation related to the Webb Phase identified for Delaware (Thomas and Warren 1970). Corner-notched, pentagonal, and small lanceolate projectile points are characteristic. Strongly represented at the site, and only partially removed by clearing is a Middle Woodland occupation characterized by Fox Creek points and Mockley Ware pottery. At least one of the poorly defined features may be related to this occupation. Also strongly represented is an
Early Woodland occupation characterized by Exterior Corded/Interior Smoothed pottery, generalized side-notched points, and/or contracting stemmed Rossville points. Similar pottery was found in two of the four burial features. This pottery dates at least as early as 500 B.C. A Late Archaic occupation is indicated in the excavated material, but is not clearly represented in the surface material. Thus there is evidence for fairly consistent occupation for the last 2500 yrs and more sporadic occupation back to about 4000 yrs ago. The only evidence for an earlier occupation is the single projectile point found during the recent amateur excavations.

The Soil

In March, 1975, a visit was made to the Nassawango Creek site by Dr. John Foss, University of Maryland, Richard L. Hall, Soil Conservation Service, and myself. Although much of that part of Worcester County and adjoining parts of Wicomico County had standing water because of several days of almost constant rain, the site itself was dry. When we arrived, we found that a large pit had been dug in the top of the ridge by pothunters. This pit, disappointing as it was to find it there, did serve a purpose in that it provided a good look at the soil profile. Although this tract of land had been mapped as Lakeland soil and a typical Lakeland profile was found in the lower areas around the ridge, the profile in the pothunter's pit indicated a Galestown classification for the ridge itself (Richard L. Hall: personal communication).
The Galestown series is described as consisting of "deep, coarse textured soils that are rapidly permeable and somewhat excessively drained or excessively drained" (Hall 1970:16). These soils are not particularly useful for agricultural purposes and this is especially true of the Galestown loamy sand, 5 to 15 percent slopes, which is found on the sand ridges of Wicomico County (Hall 1970:16-17). The profile at the Nassawango Creek site indicates a sandier soil than the typical Galestown profile so that these tendencies would be accentuated. Erosion by water is not a problem, but soil blowing is a severe hazard and may result in blowouts (Hall 1970:17 and personal communication). The age of the soil at the site is probably about 2000 yrs (Ross, personal communication). This would indicate how long the surface of the dune has been essentially stable rather than how long ago the dune itself was formed.

Vegetation

Although the original vegetation was probably scrub hardwoods, predominately oaks, this and most of the other dunes in the area were cleared and farmed during the eighteenth and nineteenth centuries. When reforestation took place, many areas of Galestown soils were invaded by loblolly pine, and shortleaf and Virginia pines are found on some of the sand ridges (Hall 1970:16). As would be expected, these soils are highly acid.
Implications for Archaeology

The excavations at the Nassawango Creek site and this cursory examination of the soil characteristics have implications for archaeology in two specific areas. One of these is in research design, that is to say, in the setting of problems for research. The other is in the area of field techniques.

Research Design: Sand dune sites are most likely to provide information about the Woodland Period (ca. 1000 B.C. to A.D. 1650). At the Nassawango Creek site, the stabilization of the dune, as indicated by the length of continuous soil development, corresponds more or less with the beginning of continuous occupation. Continuous in this context means occupation by a series of chronologically related cultures, not permanent year to year occupation. Occupation before stabilization cannot be considered continuous, although it did occur sporadically. Although the mobility of the soil and the prevalence of soil blowing make burial of material a good possibility, reversals of stratigraphy due to blowout disturbances are also to be expected. Culture-historical data are more likely to come from comparison of excavated materials with stratigraphically ordered contexts at other sites or from radiocarbon dating of features. These sand dune locations are, as noted before, quite dry at times of the year when other soils are affected by extreme water saturation. This would make sand dunes very favorable places for winter occupation once the surface had become stabilized. On the other hand, the same permeability
that favors winter occupation would mitigate against summer occupation, particularly by groups involved in even minimal horticulture. Today these dunes are planted only in watermelons and cucumber, if at all, and special measures are needed to maintain fertility and moisture. It is not unlikely that a minimal level of horticulture, based on native cultigens such as Chenopodium, had been attained in this area by 500 B.C. Dune sites may thus be fruitfully excavated as part of a research design studying aspects of Woodland Period subsistence and settlement, but they should not be expected to provide stratigraphic data on culture history. The recovery of organic materials, including unburnt bone, is also not to be expected.

**Field Techniques:** In order to successfully recover a maximum amount of data from the excavation of sand dune sites, the special nature of the soil must be considered. These sites should not be excavated during the traditional summer field season then they are very dry and color differentiation is at a minimum. Pit features and the units within which they are located should be excavated concurrently. That is to say, the feature should be excavated to a given depth, say 10 cm. or 4 in., then the unit should be taken down to that depth, the feature excavated an additional increment, then the unit, and so on. The soil of the dune is not cohesive enough to withstand the pressure of leaning over into a pit feature to excavate it. Pedestalling of horiz-
ontal features is also not practical. The origin and function of the indistinct features like those found at the Nassawango Creek site should be carefully studied. Although the extreme acidity and permeability of the soil may make chemical analyses nonproductive, it is possible that detailed tests for relatively immobile elements such as potassium and magnesium could help differentiate between natural and human depressions, or at the very least aid in defining the profiles. There may be significant differences between natural and human-made depressions.

Conclusions

The primary significance of the Nassawango Creek site lies in the professional excavation of the Delmarva Adena related burials. In the absence of a specific threat, the excavation of sand dune sites should be bypassed in favor of potentially stratified sites or sites which may be more productive of faunal and floral material. However, as part of a research design involving Woodland Period settlement patterns, the expenditure of funds to excavate sand dune sites might be justified.
BIBLIOGRAPHY

Hall, Richard L.

Jordan, Robert R.

Thomas, Ronald A. and Nancy H. Warren