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Archaeological Investigations at the Bay Vista Site (7S-G-26) and the Cole Site (7S-G-79)

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ARCHAEOLOGICAL INVESTIGATIONS AT THE BAY VISTA SITE (7S-G-26) AND THE COLE SITE (7S-G-79)

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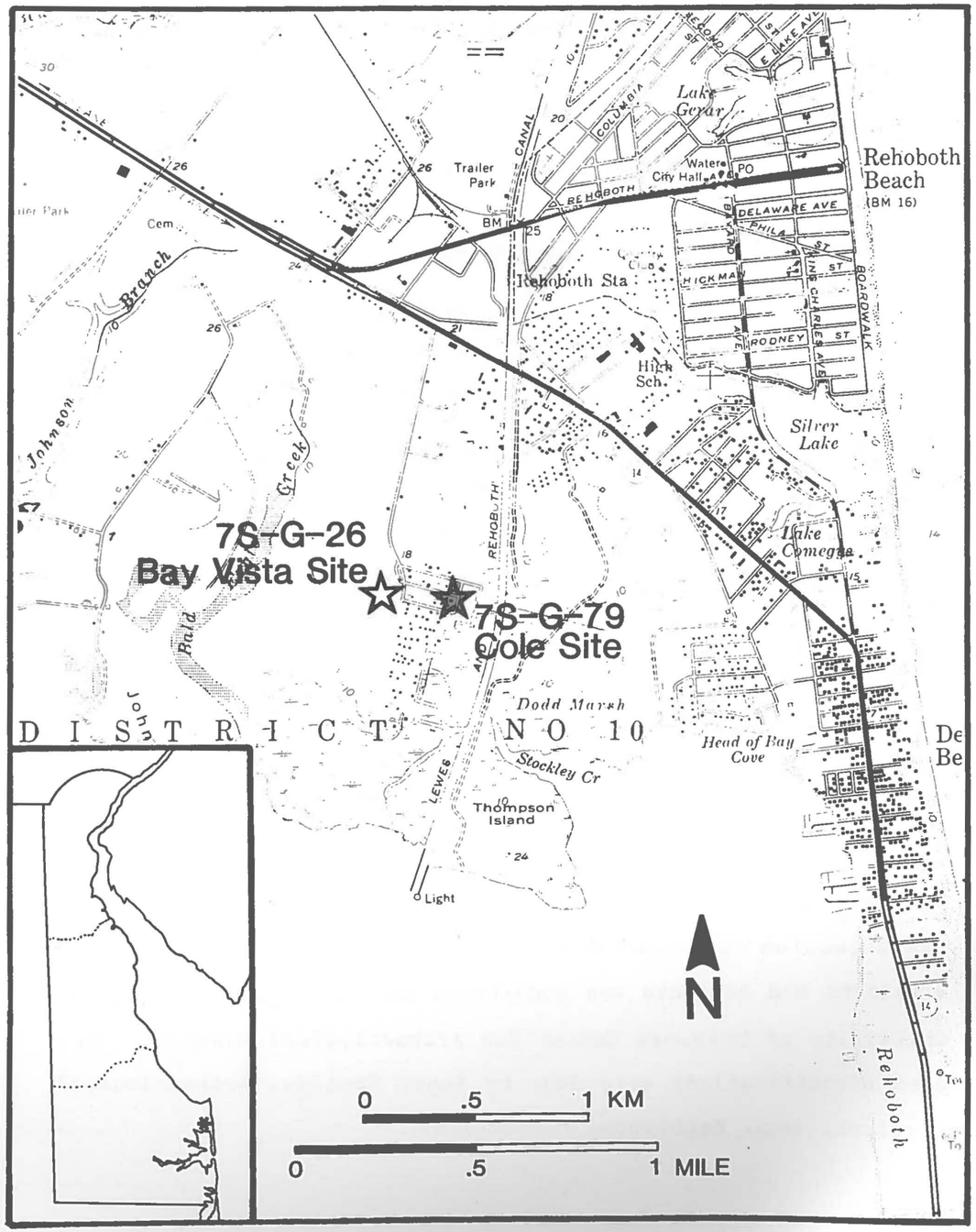
INTRODUCTION

The purpose of this report is to describe the results of salvage excavations at the Bay Vista (7S-G-22) and Cole (7S-G-79) Sites, two Woodland II Slaughter Creek Complex sites located in Sussex County, Delaware. The sites are located on the north side of Rehoboth Bay between the Lewes and Rehoboth Canal and Bald Eagle Creek (Figure 1). Although listed as separate site locations, these sites are probably part of a single complex of overlapping late prehistoric occupations that also includes sites 7S-G-60 and 7S-G-61. Much of the area has been disturbed by modern development and, indeed, the excavations reported on herein were an attempt to salvage data from features exposed during construction. Field investigations were undertaken by the Delaware Bureau of Archaeology and Historic Preservation under the direction of Daniel R. Griffith and laboratory analysis of artifacts and ecofacts was undertaken during January 1985 by the University of Delaware Center for Archaeological Research. All seed identifications were done by Roger Moeller, Archaeological Services, Inc., Bethlehem, Connecticut.

FIGURE 1

Site Location



ENVIRONMENTAL SETTING

The Bay Vista and Cole Sites are located within the Coastal Bay Zone of Delaware (Custer 1984a:27) and their present environmental setting has been greatly altered by the construction of the Lewes and Rehoboth Canal, dredging of local marshes for erosion and mosquito control, modern development, and sea level rise. Nonetheless, some comments on the past environmental settings can be noted. Both sites are located on a section of well-drained land of the Sassafras sandy loam soil series (Ireland and Matthews 1974) at an elevation of less than 7m above sea level. This neck of land is surrounded on three sides by tidal marshes fringing Bald Eagle Creek, Stockley Creek, and the north side of Rehoboth Bay. The extent of these marshes has increased in size over the past thousand or more years, but Kraft's (1971; 1977) analyses of the changing geomorphology of this section of Delaware's Atlantic Coast suggest that the marshes were present in the area for the past 1000 years, as was Rehoboth Bay.

The well-drained soils of the site area would have supported a woodland dominated by oak with some pine and cedar (Braun 1967:268-270). Dominant game animals would have been deer and turkey with abundant small mammals. Edible nuts and seeds would also have been present. The local estuarine marshes would have provided a variety of seed-bearing plants, water fowl, and aquatic resources (Thomas et al. 1975). Rehoboth Bay's open waters would have provided various species of shellfish and fin fish and its shallow waters made these resources easily

accessible. In sum, the local environments of the sites would have provided abundant resources for hunting and gathering populations.

BAY VISTA SITE

Excavations at the Bay Vista Site (7S-G-26) focused on two main features. Feature 1 (Figure 2) was a shallow, circular pit filled with organic material. Approximately 1m in diameter, Feature 1 had two soil horizons. Feature 2 was a disturbed pit feature and did not produce significant information. Feature 3 (Figure 3) was a larger, somewhat rectangular, pit partially filled with shell. The internal stratigraphy of Feature 3 was complex and included 6 horizons (Figure 4). The artifacts and ecofacts from each feature are described below.

Feature 1

A total of 7 lithic artifacts (2 cores and 5 flakes), all cryptocrystalline chert and jasper, were recovered from Feature 1. Both cores and two of the flakes showed signs of cortex indicating that jasper and chert cobbles were being used as cores.

Ceramics were found throughout the feature and all 208 sherds fall within the Townsend Ware category (Griffith 1982). Table 1 summarizes the surface treatment data for each. Ceramics from both sections are equally divided between smoothed and cord-marked surface treatments. Rim sherds show plain and simple corded designs which fall relatively late in the Townsend ceramic

FIGURE 2

Feature 1 – Bay Vista Site

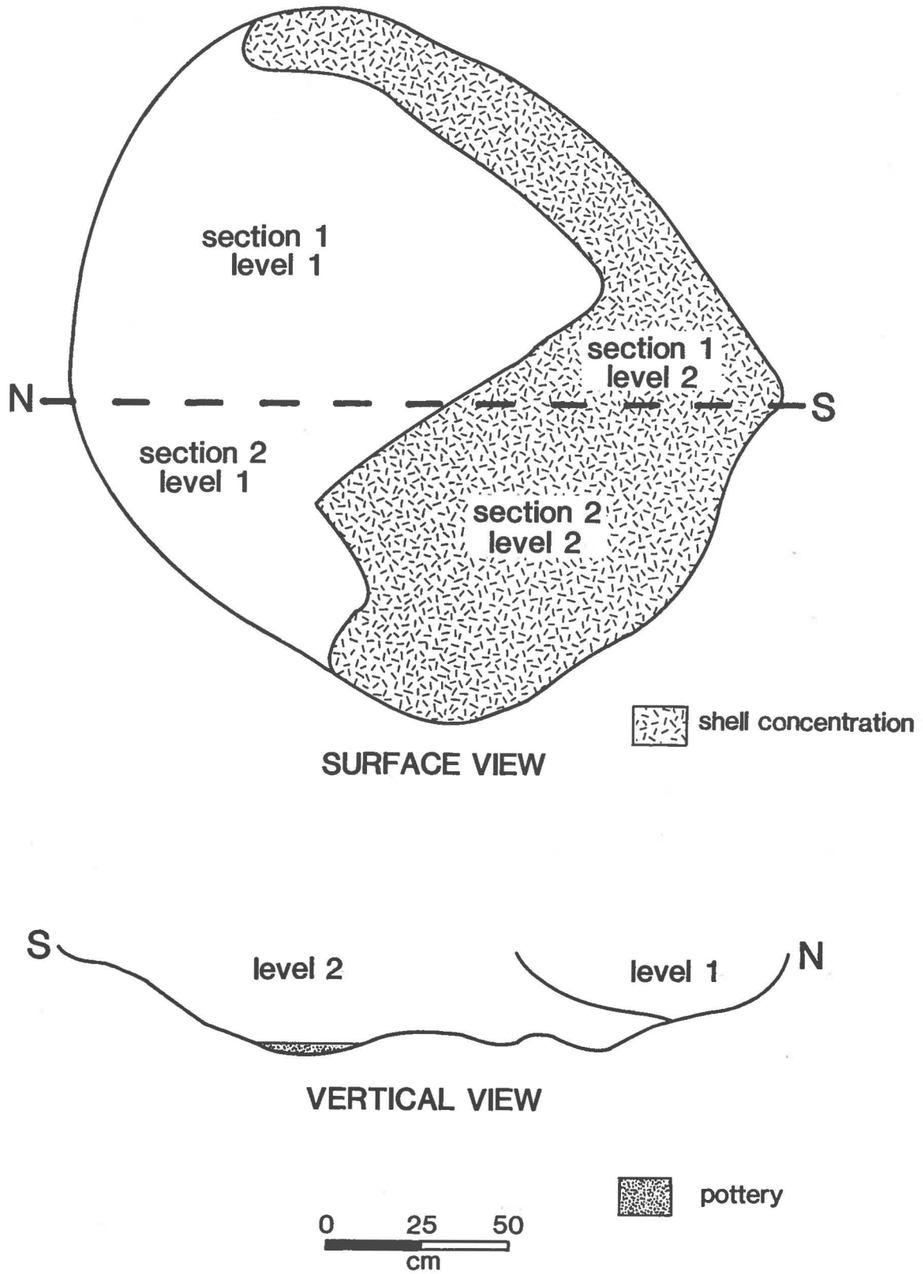


FIGURE 3

Feature 3, Plan View – Bay Vista Site

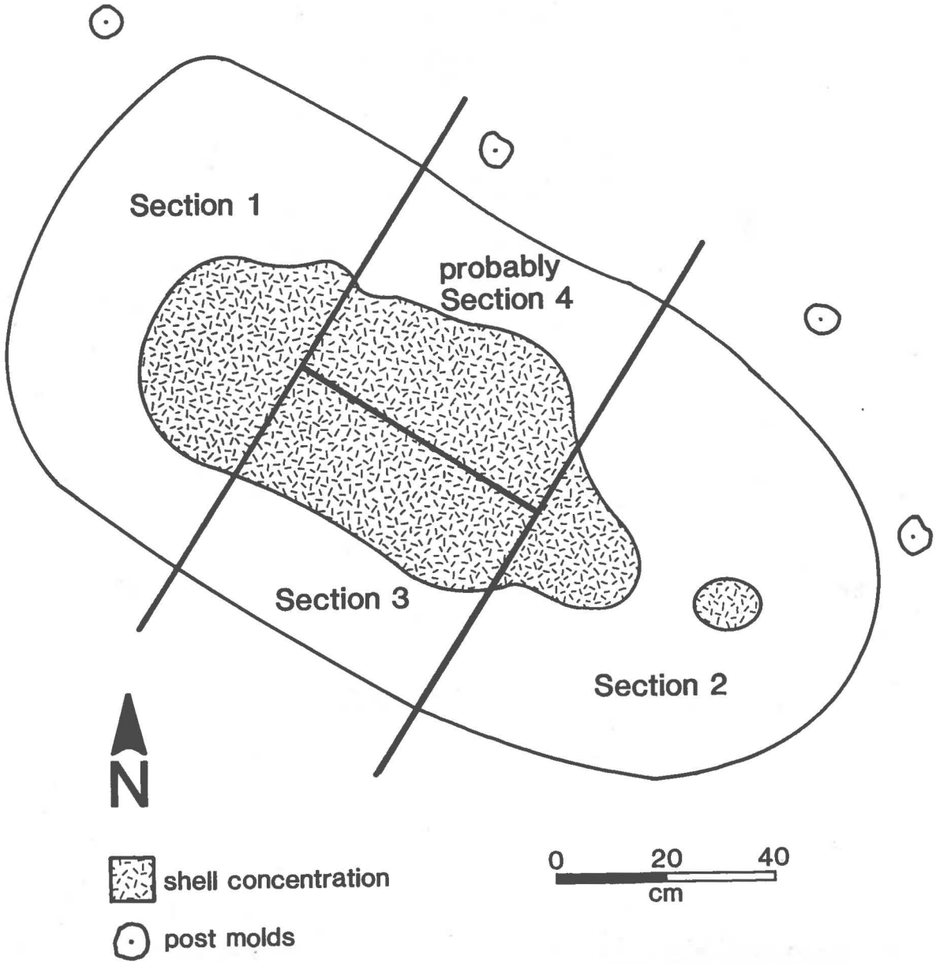


FIGURE 4

Feature 3, Section View – Bay Vista Site

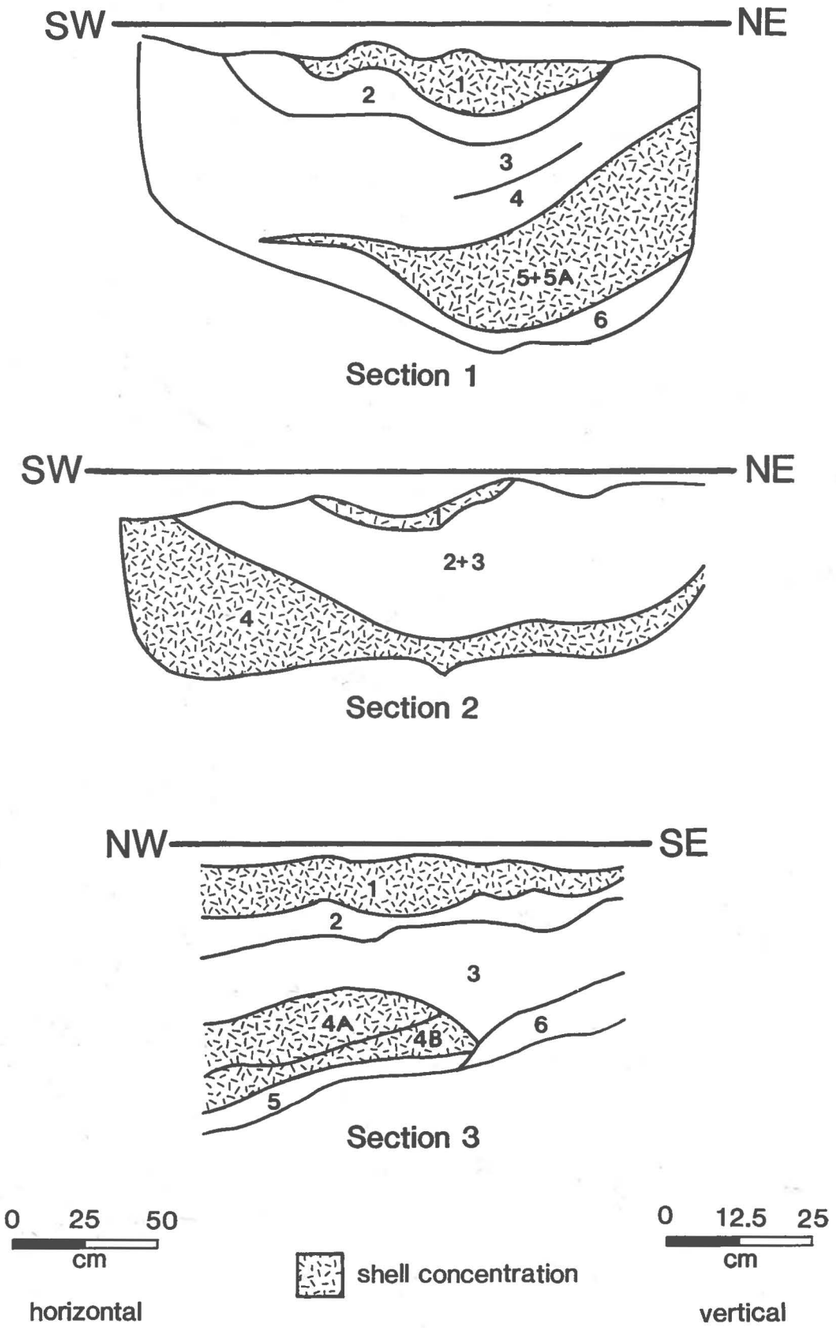


Table 1: Ceramic Surface Treatments - Feature 1 - Bay Vista Site

Ceramics	Section Number 1	2
Body Sherds		
smoothed	111	72
cord-marked	101	65
Rim Sherds		
smoothed-plain	9	8
corded	9	8

sequence. Figure 5 shows typical ceramics from this feature.

Ceramics were catalogued by signs of use alteration on their surfaces following the work of Hally (1983). Hally notes two basic kinds of surface alterations associated with vessel functions. Sooting, the deposition of distilled wood residues and solid carbon on vessel surfaces, is indicative of use of vessels for heating over open fires. Absence of sooting and interior pitting show that the vessel had not been so used. Oxidation discoloration is also associated with use of vessels for cooking over open fires. Table 2 shows the data on vessel surface alteration for Feature 1 and almost all show sooting and/or oxidation indicating that most of the ceramic sherds were derived from cooking vessels.

Systematic collection of ecofacts was not undertaken during the excavation of Feature 1; however, excavation notes and photographic records indicate that oyster and clam shells were present in the feature. Some whelk shell and a small quantity of fire-cracked rock were also present. Based on the range of artifacts collected, Feature 1 is probably a refuse pit

FIGURE 5

Typical Ceramics – Feature 1 – Bay Vista Site

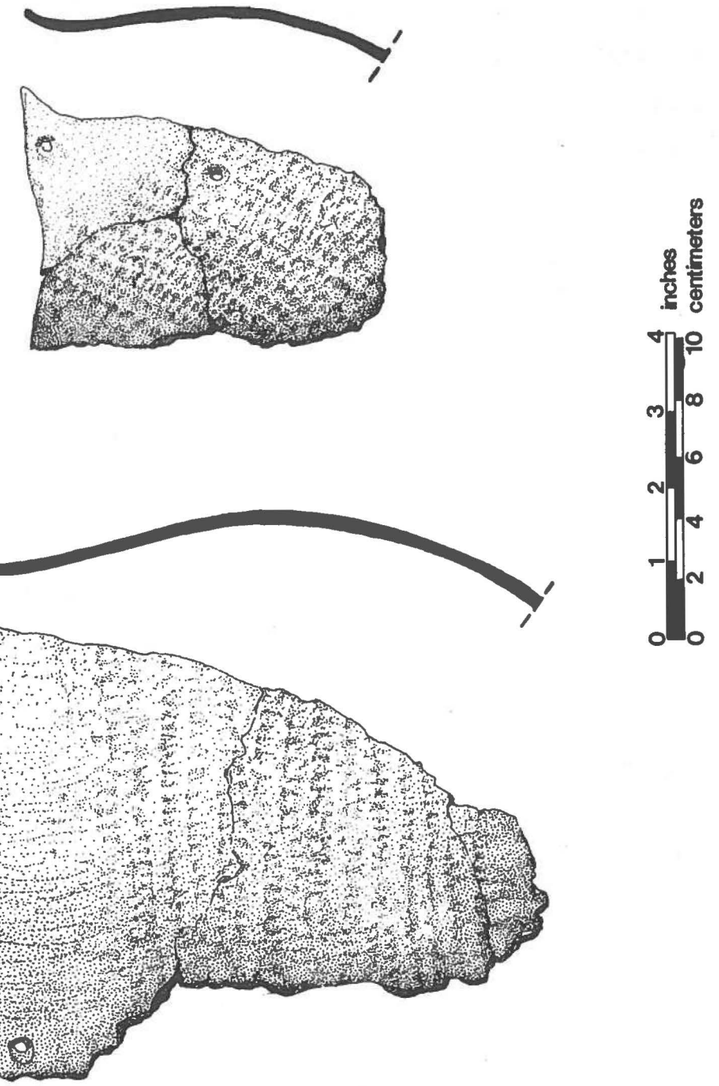


Table 2: Ceramic Surface Alterations - Feature 1 - Bay Vista Site

	Section Number	
Ceramics	**1**	**2**
Total Sherds	149	42
Sooting	106	38
Oxidation	137	37

Note - Sooting and oxidation are not mutually exclusive categories

containing discarded items from food preparation, including ceramic cooking vessels.

Feature 3

Table 3 lists the lithic artifacts recovered from Feature 3 and 77% of these artifacts show signs of cortex. The majority of the lithic artifacts (93%) are cryptocrystalline materials, and in general, the assemblage indicates that cobbles of cryptocrystalline materials were being reduced to produce flake tools. Most of the lithic artifacts were recovered from Section 1.

Tables 4 and 5 summarize the surface treatments and surface alterations for ceramics from Feature 3. All of the ceramics belonged to the Townsend series. As was the case in Feature 1, smoothed and cordmarked Townsend body sherds and plain rims with some simple cord-marked designs are predominant. Following Griffith's (1977; 1982) studies of Townsend ceramics, these

Table 3: Lithic Artifacts - Feature 3 - Bay Vista Site

	Raw Materials				
	Quartz	**Quartzite**	**Chert**	**Jasper**	**Other**
Flakes with cortex	1	4	27	22	1
Flakes without cortex	0	0	9	10	0
Flake tools with cortex	0	0	0	1	0
Cores with cortex	0	0	2	4	0

Table 4: Ceramic Surface Treatments - Feature 3 - Bay Vista Site

	Section Number			
Ceramics	**1**	**2**	**3**	**4**
Body sherds				
smoothed	219	16	94	20
cord-marked	188	5	85	20
Rim Sherds				
smoothed	37	2	22	4
cord-marked	36	2	18	4
incised	0	0	1	0

Table 5: Ceramic Surface Alterations - Feature 3 - Bay Vista Site

	Section Number			
	1	**2**	**3**	**4**
Total Sherds	317	72	179	33
Sooting	25	16	37	5
Oxidation	65	22	33	5

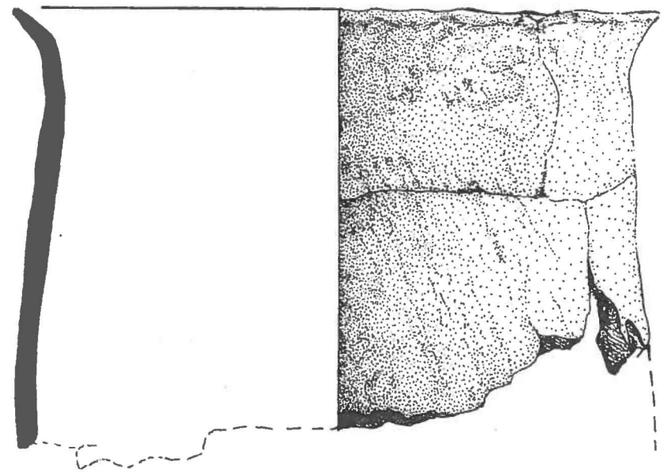
sherds should fall late in the Townsend ceramic chronology. Many of the sherds show sooting and oxidation indicative of use of vessels for cooking and heating.

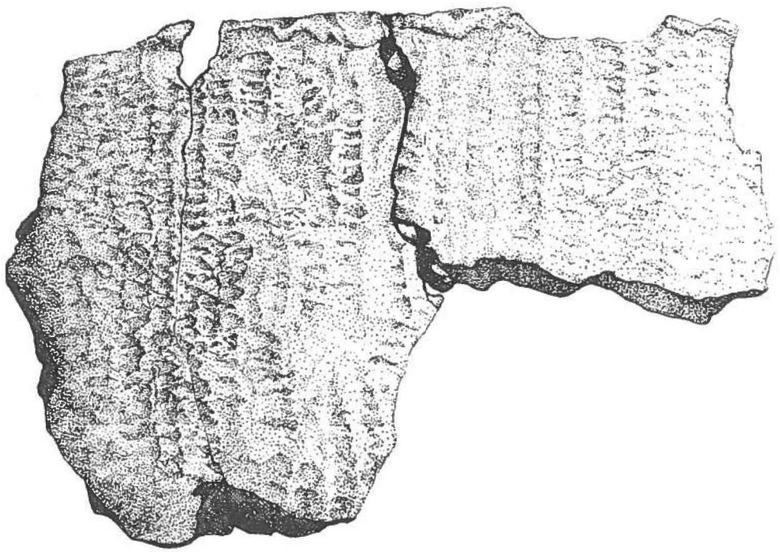
No systematic collection of ecofacts was undertaken for Feature 3; however, the collections contain some scattered floral and faunal remains. These ecofacts include clam, oyster, and whelk shells, turtle shell fragments and bone, and numerous unidentified burned bone fragments. A sample of oyster shell from the feature was radiocarbon dated to A.D. 1100 (850 ± 55 B.P. - UGa-1440). Figure 6 shows fragments of two vessels associated with the radiocarbon date.

The artifact and ecofact assemblage from Feature 3 is similar to that of Feature 1 and is comprised of domestic refuse associated with food preparation. However, the size and shape of Feature 3 (Figure 3) indicate that it is more than a simple refuse-storage feature. Feature 3 is similar in size and shape to semi-subterranean house features identified by Artusy and Griffith (1975) at other late prehistoric sites in the southern Delaware Coastal Plain. Furthermore, four postmolds associated with Feature 3 are similar to post molds associated with pit-house features at other sites. Thus, Feature 3 represents an abandoned pit house that was filled with domestic refuse. The varied stratigraphy suggests that filling of the feature took place in discrete episodes over a period of time with the bulk of the domestic refuse being deposited last. Similar sequences of pit filling episodes have been noted by Moeller (1975) at late prehistoric sites in the Upper Delaware River Valley.

FIGURE 6

Ceramics from Feature 3 – Bay Vista Site





COLE SITE

Excavations at the Cole Site focused on a single pit feature which was exposed during construction activity on private property. Part of the feature was disturbed by a backhoe, but a large portion remained intact. Figure 7 shows a plan view of the feature and Figure 8 shows section views.

Table 6 shows the lithic artifacts recovered from the Cole Site pit feature. As was the case with the lithic artifacts from the Bay Vista Site, the assemblage from the Cole Site shows the reduction of cryptocrystalline cobble cores to produce flake tools. The early stage biface reject with cortex shows that cryptocrystalline cobbles were also being bifacially reduced at the site. Table 7 shows the distribution of lithic artifacts through the feature's varied horizons and it can be seen that the artifacts are primarily found in the top four levels.

Table 8 shows the frequency of ceramic treatments and rim designs. All ceramics belong to the Townsend series. For the most part, smoothed body sherds are predominant. There are insufficient rim sherds present to suggest a date based on the Townsend ceramic chronology. As was the case with the lithic artifacts, all of the ceramics were found in levels 1 - 3. Table 9 shows the frequency of vessel surface alterations. Many (27-29%) of the sherds show sooting and oxidation indicative of vessels used for cooking. In addition to the ceramic vessel sherds, pipe fragments were also recovered (Figure 9).

Unlike the Bay Vista excavations, systematic flotation of the Cole Site feature was undertaken and numerous ecofacts were

FIGURE 7

Cole Site Feature – Plan View

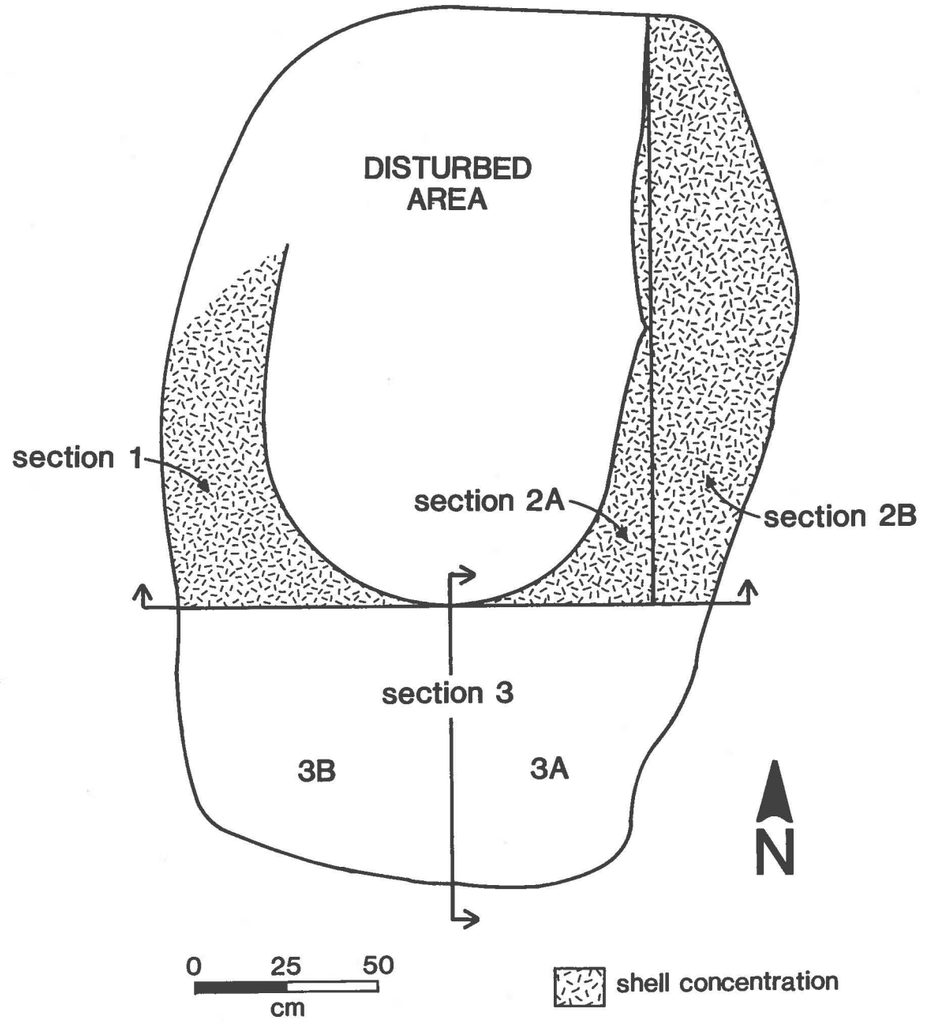
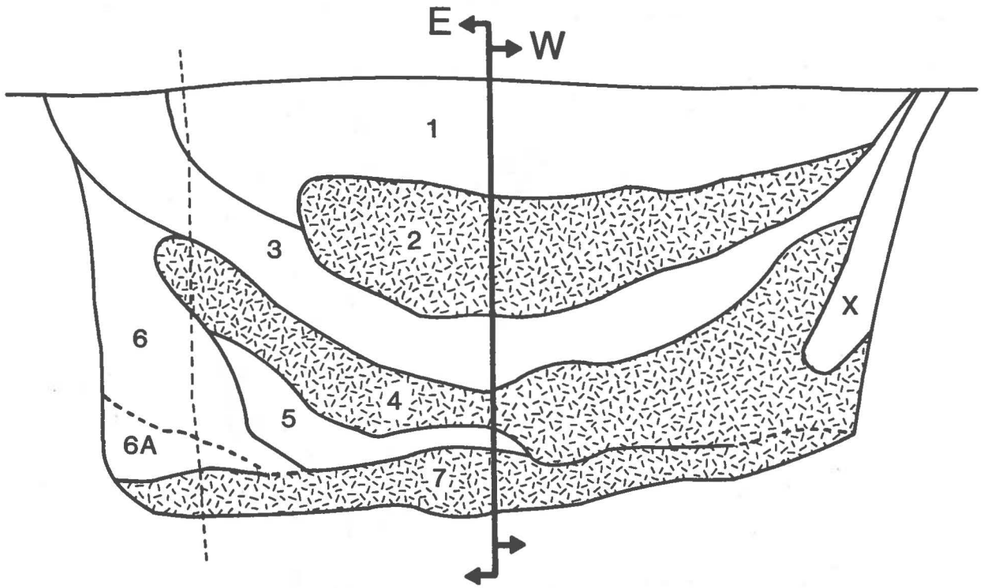


FIGURE 8

Cole Site Feature – Section Views



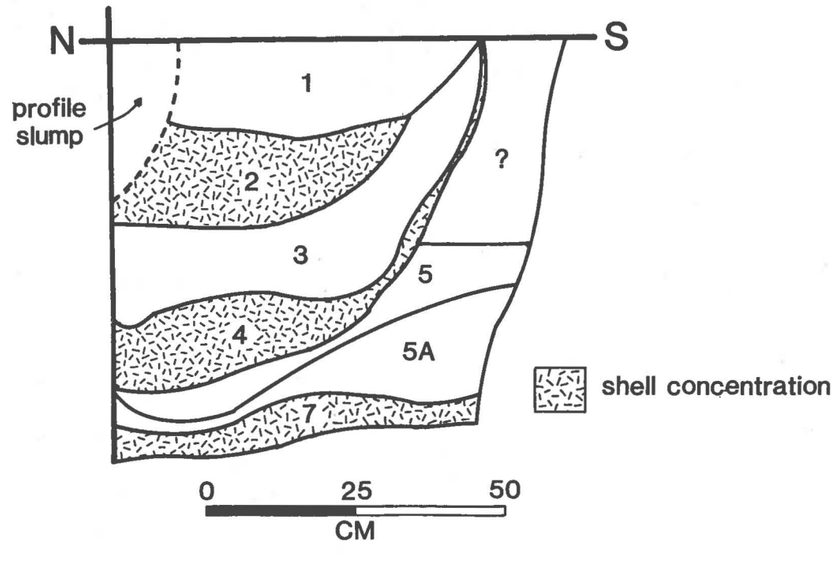
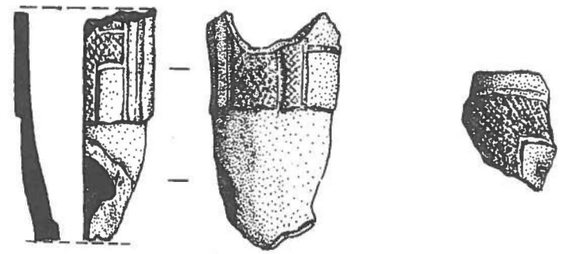


FIGURE 9

Ceramic Pipe Fragments – Cole Site



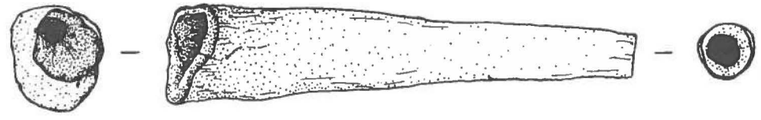


Table 6: Lithic Artifacts - Cole Site

	Raw Material		
	Chert	Jasper	Other
Flakes with cortex	9	7	0
Flakes without cortex	7	19	1
Early stage biface rejects with cortex	0	1	1
Cores with cortex	1	0	0

Table 7: Lithic Artifact Frequency by Level - Cole Site

	Level						
	1	2	3	4	5	6	7
Artifact Count	2	27	17	10	0	0	0

Table 8: Ceramic Surface Treatments - Cole Site

	Level						
	1	2	3	4	5	6	7
Body sherds							
smoothed	4	1	28	0	0	0	0
cord-marked	0	1	11	0	0	0	0
Rim sherds							
smoothed	0	2	5	0	0	0	0
cord-marked	0	2	4	0	0	0	0
incised	0	2	2	0	0	0	0

Table 9: Ceramic Surface Alterations - Cole Site

	Level						
	1	2	3	4	5	6	7
Total sherds	4	8	50	0	0	0	0
Sooting	4	3	10	0	0	0	0
Oxidation	2	3	13	0	0	0	0

recovered. Table 10 shows a summary of the varied ecofacts recovered from each level of the feature. It can be seen that a wide variety of aquatic and terrestrial food sources are represented. Of special significance are the finds of corn kernels. In spite of the wide range of late prehistoric sites excavated in southern Delaware (see Custer and Griffith 1986), corn remains have been recovered from only one other site, the Ritter Site, located near Lewes (Omwake 1951; 1954a; 1954b). However, it is important to note that there are abundant wild plant foods (hickory, walnut, and Chenopodium) in the midden along with the domesticated corn.

Oyster shells from the midden were analyzed for collecting environment and season-of-death using techniques developed by Brett Kent (n.d.) of the University of Maryland. All of the oyster shells from the Cole Site show little evidence of parasite bore holes indicating a low salinity environment. Based on morphometric analysis, 86% of the oyster shells are mud flat oysters which live on shallow tidal flats. Most of these shells show ribbing which indicates that oysters were collected from shallow tidal flat settings. Table 11 shows the data on oyster

Table 10: Summary Ecofact Data - Cole Site

Level	Ecofacts
1	charred bone fragments, hickory nut
2	clam, whelk, and oyster shell, unidentified fish and small mammal bone, walnut
2B	none
3	corn kernels, unidentified charred bone fragments, hickory nut
4	corn kernels, Chenopodium, hickory nut, walnut, clam, oyster, and scallop shell, unidentified bone fragments, unidentified fish bone, crab shell
5	corn kernels, walnut, unidentified bird, fish, and small mammal bones, oyster, clam, and scallop shell
5A	clam, whelk, scallop, and oyster shell, split deer bone, unidentified bird, fish, and small mammal bone
6	walnut and hickory nut, fish bone, clam and oyster shell
6A	bone fragments
7	clam and oyster shell

age and season-of-death which were determined from analysis of growth lines on the hinge. It can be seen that the majority of the oysters from the Cole Site were collected during the spring.

Seasonality data derived from oyster shell analysis can be combined with seasonal data derived from floral remains to study the internal stratigraphy of the midden. Table 12 shows a summary of the seasonal indicators within each stratum shown in Figure 8. Most of the plant food resources are available during the late summer and fall months and there is a dichotomy between strata with plant food remains from these seasons and strata with spring gathered oysters. Noted in Table 12 are two, and possibly

Table 11: Oyster Data - Cole Site

Level	Mean Age	Season-of-Death
2	8.25	late April - early June
5A	7.54	March - April
7	7.98	early April - early June

Table 12: Seasonality Summary - Cole Site

	Seasonality Measures	
Level	Floral	Oyster
1	late summer-fall	--
2	--	late April - early June
2B	--	--
3	late summer - fall	--
4	late summer - fall	--
5	late summer - fall	--
5A	--	March - April
	DISCONTINUITY	
6	late summer - fall	--
6A	--	--
7	--	early April - early June

three, episodes of spring-fall sequences among the strata of the Cole Site feature. Levels 6, 6A, and 7 represent one sequence. Because the field excavation records note that the shells in Level 7 were purposefully placed for drainage, it is likely that

these levels represent the original feature's stored contents with the shell in Level 7 being part of the prepared storage facility. Level 5 includes an early spring oyster shell deposit which must postdate the underlying late spring shells of Level 7 by at least one year. Levels 2B through 5A may represent a separate depositional event. Overlying Level 3 is a late spring shell deposit which could have occurred during the same year as the deposition of Level 5A. Because this is a storage feature, it is possible that the floral remains of Levels 3, 4, and 5 were gathered in the late summer or fall, stored, and then consumed and/or discarded during the same spring season as the shell deposits of Levels 2 and 5A. Thus, Levels 1 through 5A represent a relatively rapid filling of the feature over the original contents in Levels 6, 6A, and 7. The distribution of domestic refuse artifacts, which are concentrated in Levels 1 through 4, supports this interpretation.

INTERPRETATIONS

It is difficult to provide interpretations of the Bay Vista and Cole Site data because in each case only isolated features were excavated and there is no way to relate these features to a broader community or site. Nonetheless, analysis of the artifact and ecofact data does provide insights into Woodland II Slaughter Creek Complex lifeways. For one thing, the pit house feature at Bay Vista reinforces the notion that a certain degree of sedentism was characteristic of Woodland II Slaughter Creek Complex lifeways (see discussion in Custer and Griffith 1986:

40-42). Lithic utilization data also reinforces the notion that secondary lithic resources were of major importance on the Low Coastal Plain (Custer and Galasso 1980).

The radiocarbon date from the Bay Vista Site is something of an anomaly. The ceramic rim sherd assemblage from this site is primarily composed of simple corded designs and plain wiped rims. According to Griffith's (1977; 1982; Griffith and Custer 1985) studies of Townsend ceramics, these simple designs should date to later periods of the Townsend ceramic chronology, probably post-dating A.D. 1300. However, the radiocarbon date from the feature is ca. A.D. 1100. There are two explanations for the early date. First, and least likely, it is possible that simple ceramic designs characterize the entire time span of Townsend ceramics. Rather than a replacement of complex designs by simple designs, which is the current interpretation of the Townsend ceramic chronology, it may be possible that the complex designs drop out of the Townsend ceramic design repertoire, which originally included both simple and complex designs. The second, more likely, explanation is that the date, which was based on oyster shell, is too old. There are problems with shell dates on the Delmarva peninsula (Custer 1984a:64; 1984b) and for the most part shell dates tend to be too old. For shells that are 2000 to 2500 years old, the shell dates may be as much as 2000 years too old (Custer 1986b). For shells that are 500 to 700 years old, the dates may be up to 400 years too old (John Noakes, University of Georgia Center for Applied Isotope Studies, personal communication, 1985). Further study of shell and non-shell dates will be necessary to resolve this issue.

The floral and faunal data from the Cole Site feature show that Woodland II diets included both domesticated and wild plant foods with the wild plant foods predominant. Similar food resource utilization patterns have been noted at other Slaughter Creek Complex sites (Custer and Griffith 1986:44-49). The seasonal data from the varied strata in the feature indicate that food storage features were used for at least one year (spring-to-spring) and a certain degree of residential stability is implied. The data on seasonality of oyster usage is significant in that the utilization is consistently focused in the spring months indicating that shellfish utilization is a seasonally-specific, not a year-round, activity. Similar patterns of shellfish utilization have been noted at other Slaughter Creek Complex sites (Custer and Griffith 1986:47-49).

In sum, although the features excavated at the Bay Vista and Cole Sites cannot be placed within a wider site context, analysis of their contents provides useful data on Woodland II lifeways. Consequently, the excavation and salvage of these kinds of features should remain a high priority for archaeological research in southern Delaware.

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