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A SEARCH FOR THE "CITY OF SAINT MARIES"

Report on the 1981 Excavations in St. Mary's City, Maryland

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Abstract

This report presents the results of the 1981 archaeological excavations in St. Mary's City, Maryland. Funded by a grant from the National Endowment for the Humanities (#RO-20166), this was the first season of a three year project which seeks to study spatial patterning and the evolution of spatial behavior in the colonial Chesapeake. Primary goals of the 1981 excavations were to locate the center of Maryland's first European settlement and 17th-century capital, identify specific properties within it and, finally, link the historical documents to the archaeological record. To accomplish these goals and produce a firm data base for future study, a strategy of stratified random sampling at 7 percent was employed. This approach resulted in the recovery of a full range of prehistoric, 17th-century, and 19th/20th-century artifacts from the plowed soils of the site. Analysis of the colonial materials with the assistance of computer generated distribution maps of plowzone artifacts enabled all of these goals to be achieved. Among the major sites identified and discussed is the home of Maryland's first governor, Leonard Calvert (c. 1635), Smith's Ordinary (built 1666, burned 1678) and a 1675 structure known as Cordea's Hope. In addition, evidence is presented regarding a bastion of the 1634 fort detected during the final week of the 1981 season. The computer-aided spatial analysis of the plowzone artifacts discussed here not only revealed the early village and significantly altered ideas concerning its arrangement, but also provided the first graphic evidence of the birth, growth and death of this important early American community. In addition to the detailed consideration of the colonial artifacts, data regarding some 9000 years of prehistoric occupation at the site are presented. Finally, the efficacy of the sampling approach for 17th-century sites and the potential of plowzone data for understanding cultural processes are considered.

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I. INTRODUCTION

Although systematic archaeological investigations have been conducted since 1971 at the site of Maryland's 17th-century capital, St. Mary's City, it was not possible to locate the center of the original settlement until the state owned the land. All of the crucial area was acquired by late 1980, and a search for the center of the village began. In the following report, results of the first season of this search are presented. These excavations represent the first phase of a three-year research project, "Patterns of Spatial Organization and Use in a Chesapeake Community: 1634-1730", to investigate the spatial evolution of this early community and the sites within it. Archaeological study of the Village Center is made possible by a grant from the National Endowment for the Humanities, matching contributions from businesses and individuals, and support from the State of Maryland.

History of St. Mary's City

In March, 1634, English settlers aboard two ships — the Ark and the Dove — sailed into the Chesapeake Bay to found a new colony. Armed with a royal charter to the lands north of the Potomac River, the colonists entered the Potomac and ventured into an estuary now called the St. Mary's River. On the eastern shore of this stream, approximately six miles from its confluence with the Potomac, they discovered a small Indian village. The expedition leader, Leonard Calvert, negotiated with the Indians, purchased the village, and there established the colony of Maryland (Figure 1). The settlers quickly moved into the Indian houses, began construction of a fort for protection from possible attack, and erected small cottages within it for shelter. Next, work apparently began on a substantial home for Governor Leonard Calvert, and it was completed by 1635. Events soon proved the fort was unneeded, it fell into decay, and was torn down c. 1642-43. By that time, the colonists had dispersed along the St. Mary's and other rivers to establish individual plantations. During these first decades of colonization, the population of St. Mary's City was small, averaging between 75 and 100 people scattered over two square miles (Carr 1974; Stone 1982). Growth of this settlement during the 1640s and 1650s was deterred by political upheavals associated with the English civil wars, but the community began to expand during the early 1660s. The home of Leonard Calvert, who died in 1647, was purchased by the government in 1661, and it formed the nucleus of the expanding settlement.

A significant portion of this growth involved the establishment of numerous inns to serve the needs of planters traveling to the capital for personal or public business. Indeed, innkeeping rapidly became the primary economic activity in St. Mary's City. The reason for this undiversified economic base is that most commercial activities in the colony were decentralized. The marketing system consisted of ships going to individual plantations to sell goods and collect the crop of tobacco for market. Such a system hindered the development of commercial centers in the Chesapeake until the late 18th century.

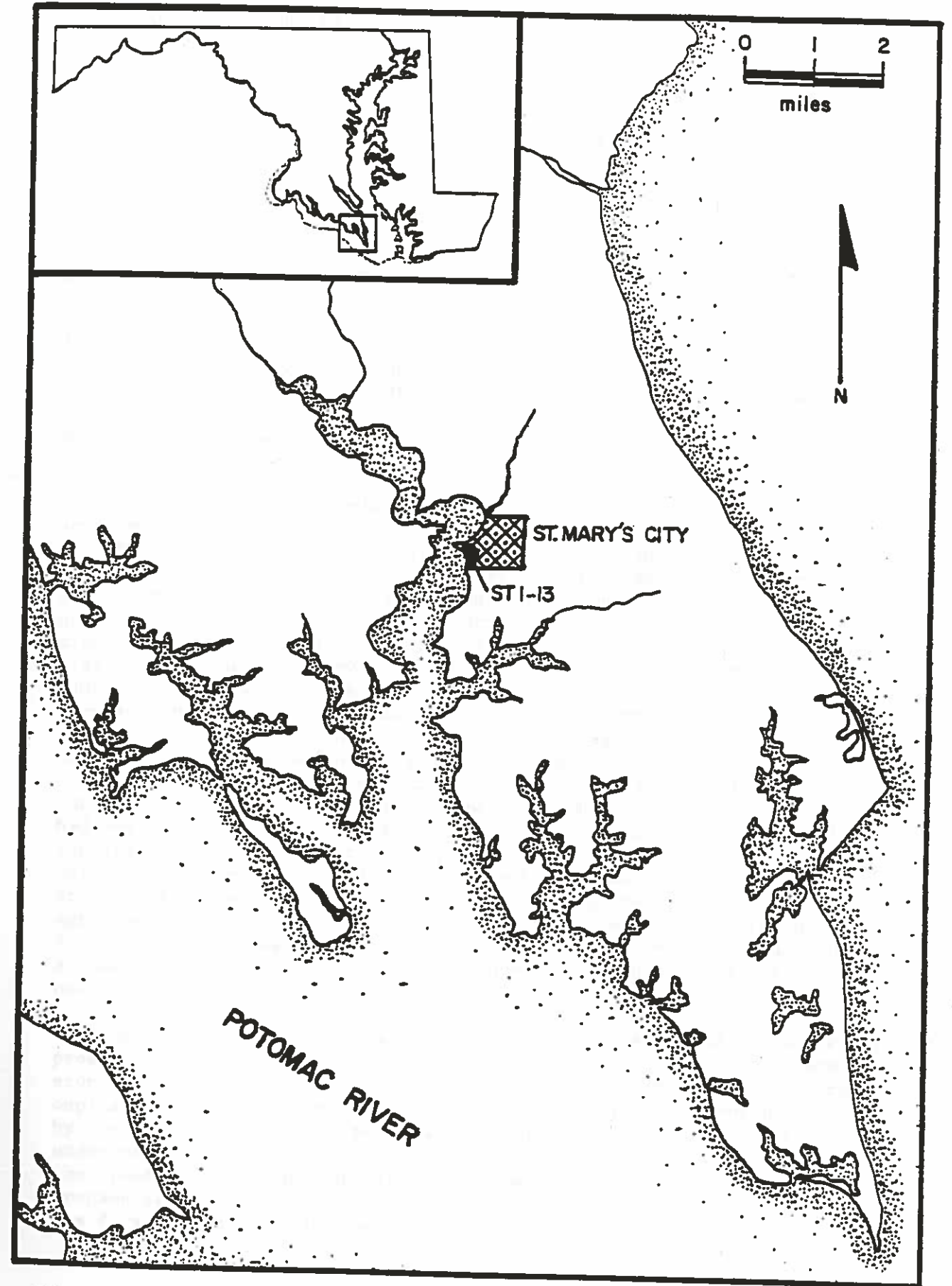


Figure 1. St. Mary's City, Maryland and the Village Center Site.

Even though labeled a city, St. Mary's was never larger than a typical English village. The number of permanent residents at its peak of development in the early 1690s was 175-200 people (Carr 1974). However, for short periods each year this population often doubled when the courts were in session and the government met. Throughout most of the year, there was also a steady stream of visitors who conducted personal legal business -- filing land claims, paying fines or consulting lawyers.

A small thriving community had thus been established on the shores of the St. Mary's River by the late 17th century, supported almost exclusively by government-related activities. This dependence upon judicial and legislative spinoff by innkeepers and other residents for economic livelihood was to be a key factor in the downfall of St. Mary's City. In 1694, the Maryland Assembly voted to relocate the capital in Annapolis. With this move, most of the residents followed the government to its new seat on the upper Chesapeake. A few county government functions continued in St. Mary's until 1708, but much of Maryland's first capital was abandoned. The buildings crumbled or were dismantled, and the village was transformed into an agrarian landscape of fields, pastures and wood lots.

A series of tobacco plantations occupied the lands of the former settlement during the 18th century. The population had stabilized at 75-100 individuals, and it remained at this level until the 20th century (Carr 1974). In the early 19th century, several small farms were scattered over the old townlands, and tobacco and wheat comprised the principal crops. Around 1840, two developments which were to have a significant impact upon the later history of St. Mary's occurred. The state established St. Mary's Female Seminary to commemorate Maryland's 200th anniversary. This school, which became St. Mary's College of Maryland, has grown considerably and today occupies substantial portions of the original site. The second development was when Dr. John M. Brome built a large house and numerous outbuildings in the area which had been the center of the former settlement. Brome ran a successful agricultural operation which eventually grew to encompass all of the lands which had been St. Mary's City, with the exception of small parcels occupied by the female seminary and an Episcopal church. The main house and outbuildings of the plantation have survived and remained in the ownership of Brome's descendants until 1980. Due in large measure to the size and agrarian emphasis of this plantation, most of the lands within the former settlement were protected from commercial development, and the archaeological remains have been preserved under the plowed fields and pastures.

Because of the historical importance of this site and its degree of preservation, the State of Maryland created the St. Mary's City Commission in 1966 to preserve, study and interpret the remains of its first capital. Large portions of the original townlands have been purchased by the state since that time, and their archaeological resources are under protection. Development plans formulated by the state involve the creation of an outdoor history museum to integrate the results of archaeological, architectural and historical research and interpret the first century of the Maryland colony.

Research Problems

Systematic archaeology has been conducted in St. Mary's City since 1971. It is one portion of a long-term research effort by the St. Mary's City Commission to investigate the development of society and economy in the Chesapeake Bay region. In its broadest context, this program is aimed at understanding the processes of adaptation and social evolution in the New World. Through a combination of documentary and archaeological study, researchers have been addressing questions concerning how a new society emerged during the first decades of settlement in the Chesapeake and the ways in which it grew and matured.

Within the context of this larger research theme, a three-year archaeological project was begun in 1981 to explore an important, but poorly understood, aspect of society -- spatial organization and use. Although the subject of spatial form and function has received little attention in historical archaeology, it is as much the product of learned behavior as any component of culture and capable of yielding rich insights into the structure and trajectory of social systems. With funding from the National Endowment for the Humanities and the State of Maryland, this project is the first systematic attempt to study spatial structure and artifact patterning in a 17th-century colonial community. The most fundamental questions to be asked concern how space was perceived, organized and used over time and how these spatial aspects articulated with the other elements of the culture. On a more specific level, questions relate to community development and patterning. Did colonists replicate traditional village and yard layouts, or did they create arrangements better suited to the new environment in which they had settled? Do sites in a community display uniform patterns of artifact distributions, or do the patterns vary according to site function, wealth level, or ethnic affiliation of the occupants? Do these spatial patterns display consistent trends of change through time? With spatial and temporal control over the distribution of artifacts, fences, structures and the sites which contain them, it is possible to address all of these problems.

This archaeological project is divided into two phases of investigation. The first is focused upon identifying the center of the 17th-century village and locating key properties within it. Since no map of the village layout survives, the precise identification of its center is crucial because that is where settlement first occurred and where subsequent occupation was most dense. The second phase of research will involve intensive excavation of specific sites to determine how the form and function of spaces varied through time. St. Mary's City is well-suited to explore these problems for it offers extensive, well-preserved archaeological remains dating from the beginning of settlement and continuing into the 18th century. In addition, previous study of the documentary record provides control over site function, wealth and ethnic variables.

II. VILLAGE CENTER EXCAVATIONS

Previous Research

The first archaeological explorations within the area of the Village Center were conducted in 1937 by Dr. Henry Chandlee Forman, an architectural historian. Forman located the brick foundations of a large building partially covered by the 19th-century Brome Plantation outbuildings. Through selective excavation, he was able to define the size and shape of the structure and reported the findings in his book, Jamestown and St. Mary's (1938). Based upon documentary research, Forman identified the building as Smith's Town House and possibly a structure called the Country's House, but was certain that the brick remains did not represent Leonard Calvert's home. Subsequent historical research has revealed that Smith's Town House, built in 1666 and destroyed by fire in 1678, was a separate structure from the Country's House. In 1940, Forman continued his search for Leonard Calvert's House, but found instead a rubbish-filled cellar. Located approximately 125 feet south-east of the large brick foundation, he described the feature as "Near the Leonard Calvert House" (Forman 1943). An impressive quantity of artifacts was excavated from this feature. Although these excavations proved informative, they did not deal with the artifactual materials in any systematic manner and could not provide detailed temporal data or positively identify the remains of the structures.

Following these initial excavations, little effort was directed at locating or understanding the layout of the Village Center until the late 1960s. Dr. Lois G. Carr began extensive historical research in 1968 under the auspices of the St. Mary's City Commission. Since no map of the 17th-century settlement survived, one of the first priorities of the research was to construct a model of the community's layout. Using the few remaining land records, other documents, the limited archaeological evidence and topographic data, Carr was able to produce a conjectural map of the town. This model, which is as detailed as the sparse data allowed, was presented for testing when new archaeological data came available (Carr 1974:134). According to the model, the center of the community was Leonard Calvert's former home, the Country's House. Flanking it on the east was a one-acre lot known as Cordea's Hope, and on the west, the three-acre tract labeled Smith's Townland. These three properties comprised the heart of the 17th-century capital, with roadways intersecting at the Country's House. Although this model suggested the spatial relationship of the properties, it could not locate them on the ground because of shore erosion, spring head migration, and other landform changes. Hence, the lots tended to float on the St. Mary's landscape. The best fit placed the Calvert House approximately 700 feet from the shore, with Smith's Townland between it and the river.

Following the State of Maryland's 1979 purchase of part of the land predicted to contain the remains of the center of the 17th-century settlement, the St. Mary's City Commission initiated an intensive survey of the area to test the historical model and locate Leonard Calvert's home. With funding provided by the Heritage Conservation and Recreation Service of the Department of the Interior, systematic

shovel testing, soil sampling and limited excavations were conducted over the area. These operations revealed a wide scatter of 17th-century artifacts and intact 17th-century strata, but failed to locate Calvert's house (Miller, Morrison and Stone 1980). Several test pits were excavated, and one probed a depression which later analysis demonstrated was the cellar tested by Forman in 1940. These excavations also detected undisturbed strata at the bottom of the cellar from which several exceptional artifacts were recovered (page 56). These artifacts indicated that a locus of 17th-century occupation had been detected.

Reconnaissance continued in 1980 with controlled surface collections of plowed fields inaccessible the previous year because of crops. While thousands of artifacts from the prehistoric and historic periods were collected, no evidence for intense occupation or major structures from the 17th century was recovered in the area predicted by the historical model. Test pits confirmed the results of the surface collection and indicated that 17th-century occupational debris were concentrated in the vicinity of the 1840s Brome-Howard House.

The Study Area

The results of the 1979-1980 surveys were employed to define the area to be subjected to archaeological investigation. This focused on the Brome-Howard House, the central building of a c. 1840 plantation. Figure 2 displays the topographic and cultural features which exist at the site. Excavations were conducted in the yards surrounding this structure and in the poultry yard/work yard, pasture and field to the east of it. The large field to the northeast of the house was under cultivation until 1980, when it was placed permanently in sod; the work yard and pasture east of the house have not been cultivated within recent memory (J. Spence Howard: Personal Communication). In all, approximately three acres were selected for intensive sampling during the 1981 season, and this general space is designated as ST 1-13 (Plate 1).

Research Goals, Strategies and Methods

The primary goals of the 1981 excavation season were to:

- a. Locate the center of the 17th-century community.
- b. Determine the location of property lines, roads and buildings and create a working map of the Village Center's layout.
- c. Link the below-ground remains with the documentary record through the identification of specific properties and buildings.
- d. Obtain sufficient spatial data to tentatively identify changes in the size and layout of the settlement.

If the first three goals were to be accomplished, it was absolutely essential to locate one key site -- Leonard Calvert's former home, the



Figure 2. 19th- and 20th-century Lay



Plate 1. Aerial view of Village Center excavations looking west.

Country's House. This was one of the earliest structures in St. Mary's City and the focal point around which the rest of the settlement grew. It served as a reference point in land records, and the village roads met at its porch. In addition to this structure, the location and identification of Smith's Townland and Cordea's Hope were quite important since they comprised the principal properties in the heart of the village.

To accomplish the above goals and acquire a body of high quality data to study artifact distributions, a strategy of stratified random sampling was employed. This was achieved by dividing, or stratifying, the study area into 50x50-foot blocks and randomly selecting seven 5x5-foot squares from each block for excavation. Selections were made by consulting a random numbers table. In determining which squares were to be dug, however, two operational decisions were made. The first was that if two squares were contiguous, they were redrawn since maximum coverage of each block was desired. Second, units located under fences, buildings or large trees were discarded and another square drawn. While not strictly in accordance with statistical procedures, this was considered necessary to conduct the project efficiently and protect surviving components of the 19th-century plantation.

Such a strategy was selected for three reasons. First, sampling is the most efficient and productive method of obtaining quality data from broad areas (Mueller 1975). It also allows collection of the required data while preserving most of the archaeological resources at a site for future investigation. Second, a random sample is essential for it provides the maximum probability of obtaining representative data from all portions of the study area (Hodder and Orton 1976). By following this procedure, it should be possible to apply parametric statistical tests to the data at later stages of analysis. Finally, the stratification of the sample area into blocks significantly reduces the tendency of random samples to cluster, or bunch up, and thus ensures more even and complete coverage of the study area.

The frequency of sampling within the Village Center is 7%, a size large enough to provide reasonable coverage of each 50x50-foot block and small enough to be excavated within a field season. As a guide in the selection of the most appropriate sampling percentage, an experiment was devised using information from St. John's (18 ST 1-23). This site, located in St. Mary's City, was constructed in 1638 and abandoned c. 1720. It was the subject of intensive excavations by the St. Mary's City Commission, and its structures and yard layouts are known in detail (Stone 1974; Keeler 1978). Since St. John's represents the same time period as the Village Center occupation and probably has structural and yard features which are comparable, it is of direct relevance for the project. Over the plan of this site, a 100-foot grid divided into four blocks was imposed, and multiple random samples of 5x5-foot squares, ranging in size from 4% through 12%, were drawn and separately plotted. This experiment revealed that 7% was the smallest sample size at which the outbuildings and fence lines were detected consistently and large gaps in the sampling frame ceased to be a major problem.

The specific area to be sampled in this manner, as determined by the 1979-1980 survey results, first was surveyed on a grid of 50-foot squares from a previously established north-south base line. This grid is integrated with that of the State of Maryland, and the last four digits of the Maryland coordinates were used to identify the points set in the study area. Elevation above sea level was used for vertical control.

Each of the 50-foot blocks was subdivided into 10-foot square horizontal excavation units and numbered sequentially on a base map. The numbering sequence is in literary style with the numbers running west to east, the starting number in the northwest corner and the final number in the southeast. The 10-foot square excavation unit is the standard employed on historic sites in the Chesapeake region and has been used on all archaeological excavations in St. Mary's City since the start of the program in 1971. For better spatial control of the artifacts, each of the 10-foot squares was subdivided into quadrants. This created 100 5x5-foot quadrants, from which seven were selected for excavation within each block. At least two 10-foot grid points were surveyed for each square excavated.

After removing the sod, all soil was excavated in observable stratigraphic units, in the reverse order of its deposition, and screened through 3/8" mesh. Both hand screens and a mechanical sifter were used. Each stratigraphic unit was given a letter designation (e.g., 1651G) and a descriptive name to identify it. All squares were excavated to subsoil or to the surface of undisturbed cultural strata. Numerous photographs were taken, plan drawings made, and at least one cross-section was drawn for each square. During the 1981 season, features generally were not excavated to insure completion of the sampling design (Plate 2).

Following excavation, the artifacts were conveyed to the Archaeological Laboratory where they were washed, identified, conserved, labeled and catalogued. The identification of artifacts from all units was made or checked by the Laboratory Director to ensure consistency and provide quality control over the catalogued data. All artifacts were boxed by provenience unit and stored in the Laboratory at St. Mary's City, where they are accessible for research purposes.

1981 Field Work

The 1981 excavation season began in late May and ended in early November. A crew of paid excavators and field school students excavated a total of 221 5-foot squares. These, and the earlier test squares, produced a large quantity of artifacts and uncovered a wide variety of structural remains, fence ditches and other features. Over the course of the season, it was possible to obtain a 7% sample from approximately 80% of the three-acre study area. Unfortunately, the unusual dryness of the summer caused the soils to become extremely hard and compact, and even after a thorough soaking, they retained a hard, concrete-like texture. Partially because of this, the excavations proceeded at a slower pace than would have occurred in a year of normal rainfall. By late July, the findings seemed to suggest that significant portions of



Plate 2. Excavation and recording of excavation units at the Village Center site.

the original town lay on the river side of the Brome house -- an area in which excavations had not yet begun. With the slower pace of excavation, it became obvious that time and funds would not permit full sampling of this potentially important area. It was, therefore, decided to decrease the sampling percentage in this area to 4%. While not a completely desirable situation, circumstances dictated such a course of action in order to meet the primary goals of the first season. The smaller sampling percentage makes the distributional information from that space somewhat less reliable, but still provides sufficient data to evaluate the cultural remains there.

Site Stratigraphy

Excavations over the study area revealed a range of stratigraphic variability, most of which is the direct result of the 19th-century and later occupation of the Village Center. The simplest stratigraphy (Figure 3) was encountered in the pasture and field where only plowzone was excavated to subsoil. Mean plowzone depth in the pasture was 0.90 feet, with deeper squares (averaging 1.25 feet) excavated along the old fence alignment between the pasture and poultry yard/work yard. In the field, mean plowzone depth was 0.80 feet.

In the yards around the Brome house, an essentially sterile topsoil, averaging 0.30 feet, overlay the plowzone. This probably developed after the house was constructed in the 1840s. The lack of artifacts in this stratum reflects the use of the yards as formal, rather than work, space. The underlying plowzone was distinguished readily by its increased artifact content and by the presence of a well-developed line of gravel on its surface in over 75% of the squares excavated. Mean plowzone depth was only 0.40 feet. This lack of depth probably resulted from shallow cultivation during the 18th and early 19th centuries and deflation through insect and root activity. Approximately 60% of the yard squares had an average of 0.25 feet of unplowed humus above subsoil; in the remainder, plowzone extended directly to subsoil or the surface of undisturbed cultural strata.

Seven squares¹ along the riverbank had been altered severely, apparently by grading. These squares had only remnants of plowzone present, or plowzone which appeared to be redeposited as a result of grading to improve the landscape of the river lawn. There was no topsoil development in any of these squares. Artifacts from these squares have been excluded from the distributional analysis of the site.

In the garden, an essentially sterile topsoil, averaging 0.20 feet in depth, overlay the plowzone. This topsoil probably developed after the garden ceased to be cultivated. Old photographs show the present arrangement of shrubs and well-developed sod in the area by 1925. The underlying plowzone had a mean depth of 0.70 feet and was excavated to subsoil; there was no unplowed humus present. A similar situation was encountered in the grassy median within the loop of the driveway, where an average of 0.30 feet of sterile topsoil overlay 0.60 feet of plowzone above subsoil.

1. These are Squares 1321, 1442, 1563, 1630, 1745, 1749 and 1751.

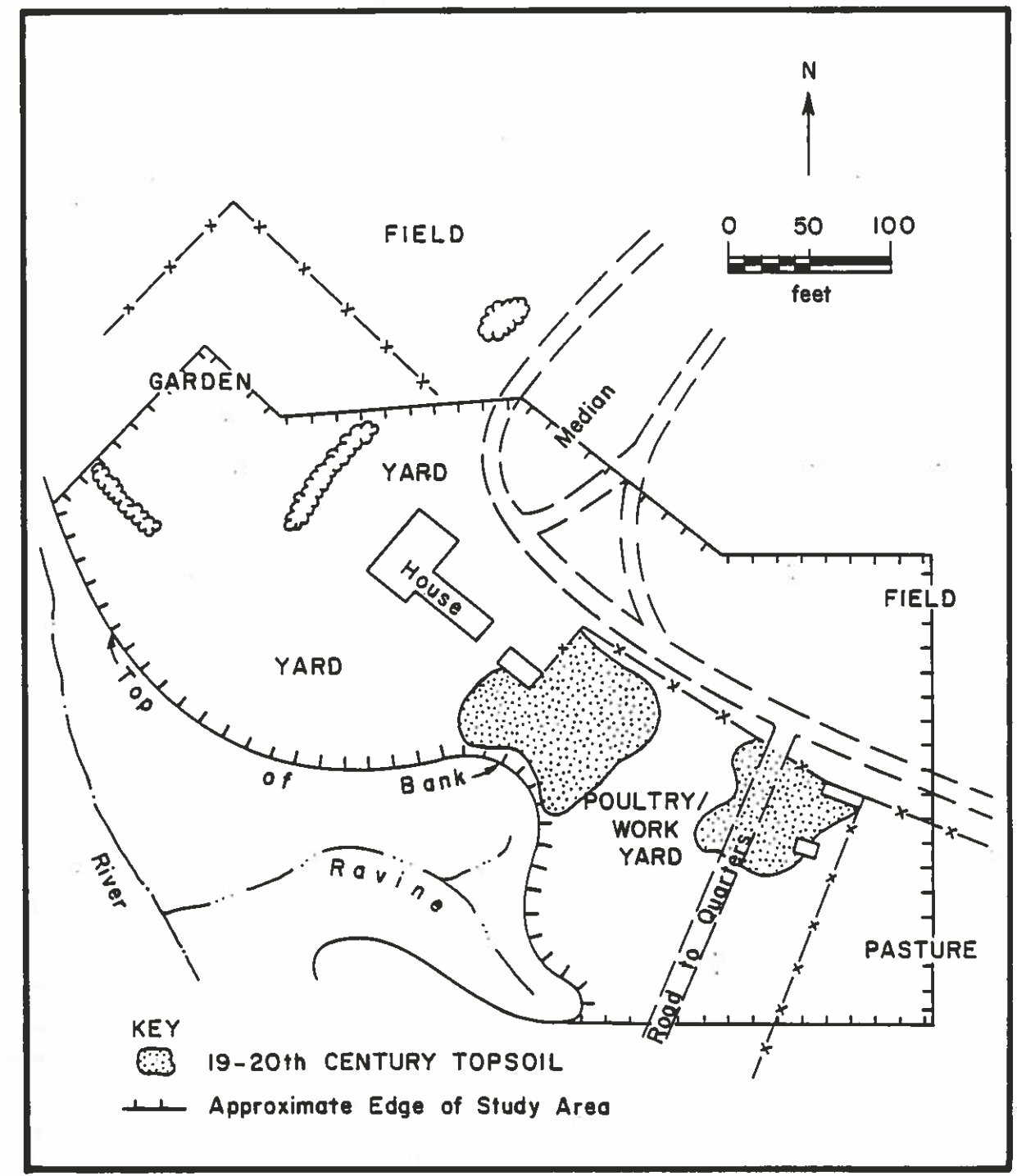


Figure 3. Site Areas and Distribution of Strata

The most complex stratigraphy occurred in the small field southeast of the house. Approximately 75% of the squares in the northern half of this area had a topsoil rich in 19th- and 20th-century artifacts overlying plowzone. This buildup is the result of the continuous use of this part of the field as a general work area, paddock and poultry yard. The topsoil had a mean depth of 0.45 feet, and it occurred in two concentrations (Figure 3). In most cases, this stratum was undifferentiated, but in others its origin could be identified (e.g., yard surface or midden, butchering, road fill). This stratum was absent in the southern portion of the field. Plowzone in this field averaged 0.60 feet in depth. When it underlay topsoil, the two strata could be distinguished by soil color differences and the change in the ratio of recent-to-early artifacts. Plowzone generally was excavated to subsoil or the surface of undisturbed cultural strata; unplowed humus occurred only in six squares in the northern corner of this area.

In spite of the variability discussed in the preceding, the soils at the site exhibited a consistency of depth. The mean depth of excavation to subsoil or the surface of undisturbed cultural strata ranged from 0.80 - 1.05 feet. This excavation data is summarized below.

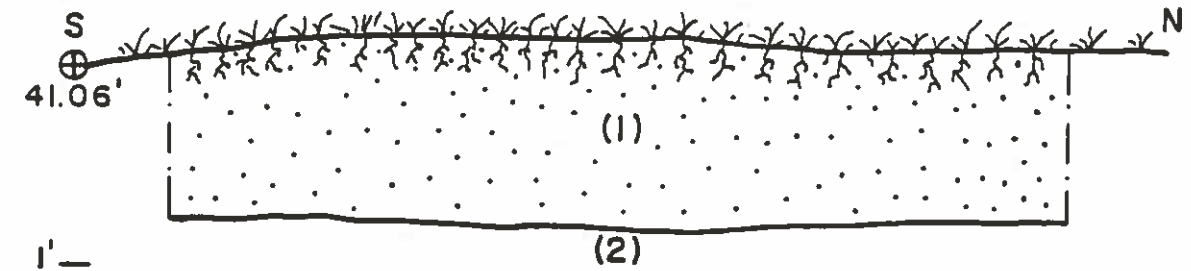
TABLE 1: MEAN DEPTHS OF EXCAVATED STRATA

Site Area	Topsoil	Plowzone	Unplowed Humus	Total Depth
Pasture	-	0.90 ft	-	0.90 ft
Field	-	0.80	-	0.80
House Yards	0.30	0.40	0.25	0.95
Garden	0.20	0.70	-	0.90
Median	0.30	0.60	-	0.90
Poultry Yard/ Work Yard	0.45	0.60	-	1.05

Examples of the stratigraphy encountered are illustrated in Figures 4 and 5.

The excavation of these strata produced a large quantity of artifacts for analysis and exposed a wide range of structural remains, fence lines and other features, and several areas of unplowed 17th-century midden.

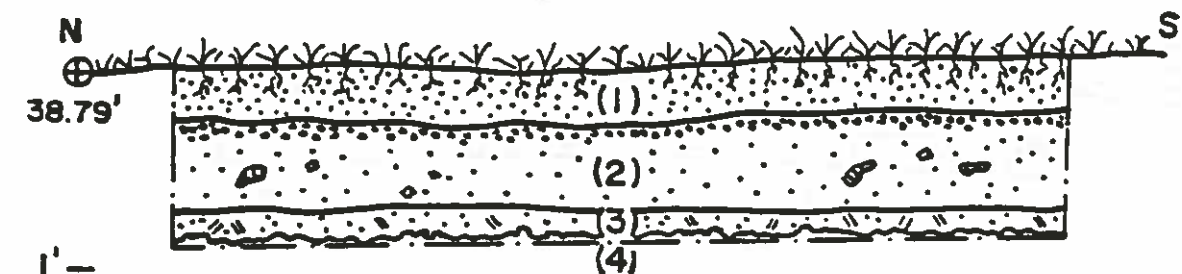
PASTURE: Square #2687 — West Wall



- (1) Plowzone: Dark yellowish brown (10YR4/4) loam.
- (2) Subsoil: Yellowish brown (10YR5/8) clay loam, mottled with 35% dark yellowish brown (10YR4/4) loam.



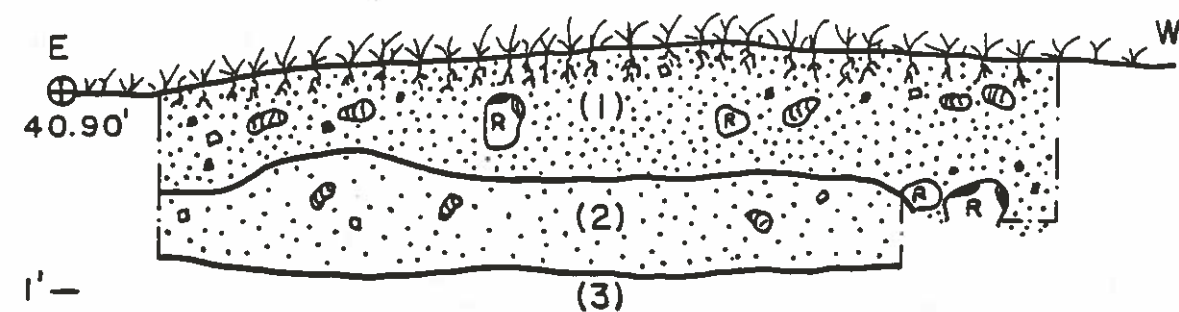
HOUSE YARD: Square #917 — East Wall



- (1) Topsoil: Dark brown (10YR3/3) loam.
- (2) Plowzone: Brown-dark brown (10YR4/3) loam, with 20% pebbles and occasional oyster shell and brick fragments.
- (3) Unplowed humus: Brown-dark brown (10YR4/3) loam, mottled with 40% yellowish brown (10YR5/6) clay loam.
- (4) Subsoil: Yellowish brown (10YR5/6) clay loam, mottled with 20% brown-dark brown (10YR4/3) loam.

Figure 4. Examples of Cross-Sections.

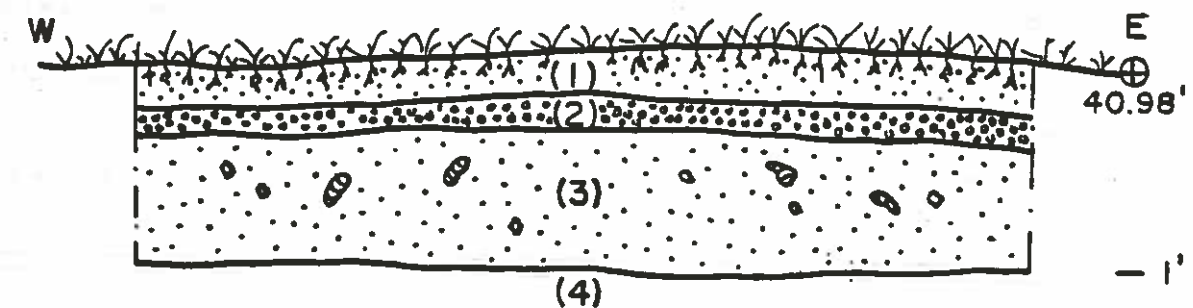
WORK YARD: Square #2255 -- South Wall



- (1) Topsoil: Very dark grayish brown (10YR3/2) loam with firecracked rock, charcoal, oyster shell and brick fragments.
- (2) Plowzone: Dark brown (10YR3/3) loam with occasional oyster shell and brick fragments.
- (3) Subsoil: Yellowish brown (10YR5/6) clay loam, mottled with 20% dark brown (10YR3/3) loam.



WORK YARD: Square #2199 -- North Wall



- (1) Topsoil: Brown (10YR5/3) loam.
- (2) Road Fill: Gravel and brown-dark brown (10YR4/3) loam.
- (3) Plowzone: Dark yellowish brown (10YR4/4) loam with occasional oyster shell and brick fragments.
- (4) Subsoil: Yellowish brown (10YR5/8) clay loam, mottled with 20% dark yellowish brown (10YR4/4) loam.

Figure 5. Examples of Cross-Sections.

General Findings

Excavations in 1981 resulted in the detection of 185 features or building remains and the recovery of 68,773 artifacts. In addition, large quantities of red brick fragments and oyster shell were retrieved. These were not counted individually, but were measured by volume, and 22.6 cubic feet of red brick and over 28 cubic feet of shell were recovered from the site. The artifacts evidence many occupations at ST 1-13; materials dating from most prehistoric periods, the 17th, 18th, and 19th/20th centuries have been identified. In Table 2 below, it can be seen that post-1840 materials are the most abundant in the collection and 17th-century/colonial artifacts are second. Relatively few 18th-century materials were recovered which suggests occupation was minimal at the site during that period. Prehistoric artifacts also were retrieved in significant quantities; most of these are lithic debris. Other materials such as bone and corroded metal could not be associated with any specific phase of occupation, although most are certainly post-contact in date.

TABLE 2: TOTAL ARTIFACTS RECOVERED DURING THE 1981 EXCAVATION SEASON

Type	Number	Percent
Prehistoric	8624	12.53
17th-century/colonial	15679	22.79
18th-century	26	.03
19th-20th-century	23462	34.11
Animal bone	17378	25.26
Other materials	3604	5.24
Total Artifacts	68773	99.96

Given the range and diversity of occupation in the Village Center area, it is necessary to divide the artifact collection into occupation phases for analysis and interpretation. A temporal approach is employed for this with the prehistoric occupations discussed first, and followed, in order, by the 17th-, 18th-, and 19th-20th-century occupations.

III. PREHISTORIC SETTLEMENT AT ST 1-13

The Village Center site is located within the fertile coastal plain of the Chesapeake Bay between two major river systems -- the Potomac and the Patuxent. This is a region which offered abundant and diverse resources to prehistoric people and supported a large Indian population at the time of European contact (Feest 1973). Thus, it came as no surprise when traces of prehistoric occupation were encountered in the very first test square and continued to appear in virtually every unit excavated during the 1981 season.

The 1981 excavations produced a total of 8624 artifacts which can be associated positively with the prehistoric or contact periods. Within the collection are 8231 lithic artifacts, 392 ceramics and one bone bead. Unfortunately, because of the shallow and plowed nature of the site, it was not possible to make stratigraphic segregation of the prehistoric remains, nor could they be separated from later materials.

Some fire-cracked stones, apparently of prehistoric origin, were found during excavation. Others, however, were found in a large concentration which dates to the 19th or early 20th centuries. They were used to heat water in hog scalding activities. Because of the mixed origins of the fire-cracked rocks, no detailed evaluation of these artifacts will be made at this time. In the following sections, the general characteristics of the assemblage will be discussed briefly, and the history of aboriginal settlement will be outlined through the use of temporally diagnostic artifacts.

There are 270 tools and one stone tobacco pipe in the lithic assemblage, with the remaining 7960 specimens consisting of waste flakes from tool production. One of the primary means of dividing these is by raw materials and this breakdown is given in Table 3. From this it is clear that quartz and quartzite were the most commonly used raw materials, accounting for almost 56% and 40% of the entire collection respectively. Both are available locally in the form of cobbles. Jasper and chert, which can be found occasionally as cobbles in the southern Maryland area, were less frequently used, and rhyolite, an imported stone, is not common at the site.

There is one notable difference between the imported and locally available materials at the site. The proportion of stone tools in each raw material class is quite uniform for all except rhyolite. While the others display a range of from 2-4% of the total as tools, the imported stone's percentage is over three times as large. There are several possible explanations for this. Most of the rhyolite may have been brought to the site as finished points, and the few, small flakes which were found derived from the reworking of these points. Even more likely is the hypothesis that the materials were traded to the southern Maryland area as preforms. Therefore, the initial steps in tool production were completed at the quarry, and only the final stages in tool shaping or later retouching occurred at the site. Neither of these operations would have produced large quantities of debitage.

TABLE 3: LITHIC ARTIFACTS BY RAW MATERIAL

	Total Lithics	%	Tools	% of Tools	Debitage	% of Debitage	Tool % in each Raw Material Class
Quartz	4620	56.13	165	61.11	4455	55.96	3.57
Quartzite	3252	39.51	89	32.96	3163	39.73	2.73
Jasper	151	1.83	5	1.85	146	1.83	3.31
Chert	103	1.25	4	1.48	99	1.24	3.88
Rhyolite	54	.60	6	2.22	48	.60	11.88
Other	50	.60	1	.37	49	.61	2.00
	8230		270		7960		

The tools in the collection are primarily projectile points, but a number of bifacially worked objects, some probably scrapers, also were found. Determining the function of stone tools is always a difficult task, especially with those made from quartz or quartzite. Therefore, it was decided that until a thorough assessment of the collection could be made by a prehistoric specialist, the use of very general categories for the tools would be most appropriate. Detailed analysis of the collection probably will increase the percentage of tools for all lithic types. Among the tools manufactured from quartz are 101 projectile points or point fragments, 61 bifacially worked objects, and three apparently retouched flakes. Forty-six of the quartzite tools are projectile points, 42 are bifaces, and one is a retouched flake. There are three points, one biface and a drill manufactured of jasper. All of the chert and rhyolite tools are projectile points, while the single tool in the "Other" category is a biface made from an unidentified igneous stone.

Debitage comprises the bulk of the prehistoric collection, but it generally lacks temporally distinguishable traits. There appears to be some chronological differentiation between the use of quartz and quartzite, with the quartzite generally earlier. Identification of the types ofdebitage, i.e., primary flakes, cores, etc., and their plotting could reveal spatial associations with specific point types and thus provide more temporal control. This approach also may permit recognition of functional differences and similarities between occupations. Thus, the potential of thedebitage collection is considerable, but it is beyond the scope of this first year report.

In the following sections, the temporally diagnostic projectile points and ceramics are used to trace prehistoric settlement at the site. These time markers indicate that multiple occupations occurred within the study area over a 9000 year time span.

Early Archaic Period

The earliest evidence for settlement at the site consists of two projectile points. One is classified as a St. Albans side notched, Variety A point which is dated c. 7000-6000 B.C. (Steponaitis 1980:13). This is a small point manufactured from rhyolite, a material which is not locally available, and must have been imported (Plate 3a). The other is a Kirk Stemmed point which has serrated blade edges, is made from quartz, and is generally dated to c. 7000 B.C., although it may have persisted in use somewhat later (Plate 3b). At the time these objects were deposited, the St. Mary's City area probably was an upland forest. The river probably was little more than a small freshwater stream, since sea level was approximately 70 feet lower than at present (Kraft 1971). Evidence for occupation during this period is rare in the St. Mary's River Valley, and it is likely that the two points represent only sporadic occupations.

Middle Archaic Period

The following temporal period also is sparsely represented, and only three points are attributed to the Middle Archaic. These are all of the Guilford type which is dated c. 4200 B.C. (Steponaitis 1980:14). One of these specimens is of gray quartzite while the other two are made from a reddish quartzite. These few points again suggest that the site saw only sporadic, short term occupations during this period when the sea level was on the rise, but still far below modern levels. It is possible that these points represent small hunting encampments on the high grounds overlooking the stream which was to become the St. Mary's River, but with such limited data, this cannot be demonstrated conclusively.

Late Archaic Period

Beginning about 4000 B.C., with the advent of the Late Archaic, occupation of ST 1-13 seems to have intensified. A total of 68 points, representing six different types associated with the Late Archaic, have been identified in the collection. These are the Piscataway, Vernon, Holmes, Savannah River, Lehigh/Koens-Crispin, and the Orient Fishtail points. Perhaps the earliest of these is the Piscataway point, although it is not dated by radiometric methods. This form is tentatively assigned to the period 4000 - 3000 B.C. by Steponaitis (1980:14). Sixteen points were recovered and of these, 14 are made of quartz, one is of quartzite, and the last is of a fine grained, greenish stone (Plate 3c, d). These specimens were scattered over the entire study area, although two apparent concentrations were recognized. One cluster contains four points and is in the vicinity of coordinate N8250/E3000. The other concentration is in the southeast corner of the study area, near N8100/E3050, and contains three points. Piscataway points also have been recovered during controlled surface collections in the fields bordering the study area and one large, isolated site has been identified approximately 300 feet north of the ST 1-13 boundary. This marked increase in the quantity of points, compared to the Early and Middle Archaic, appears to be a consistent pattern. Steponaitis (1980: 14) found that a similar increase in Piscataway points occurred on the Patuxent River.

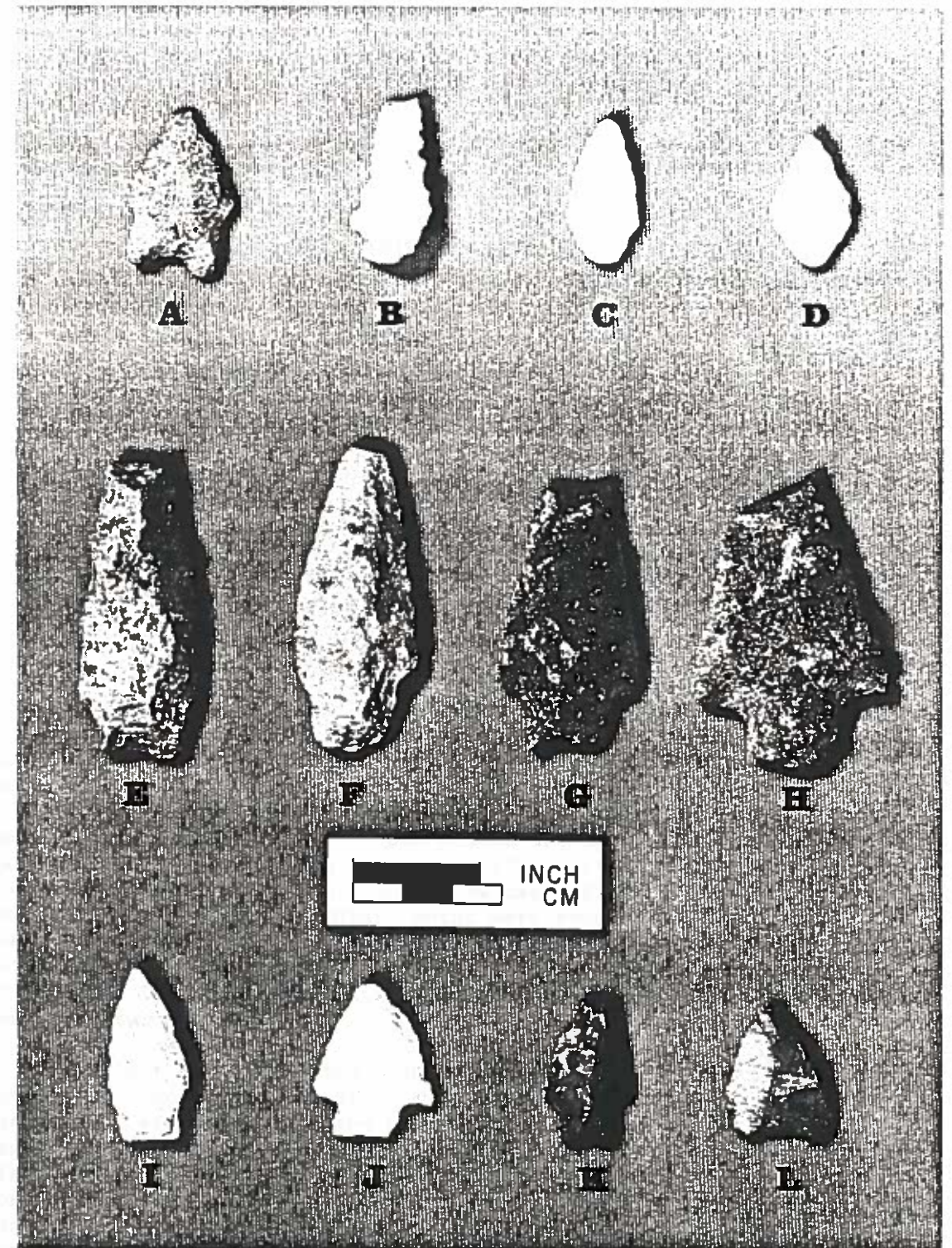


Plate 3. Projectile points recovered from the Village Center site, ST 1-13

The Vernon point also was common in the study area, with 17 specimens identified (Plate 3j, k). This artifact type is tentatively assigned to the c. 3000 - 2000 B.C. period (Steponaitis 1980:14). Quartz is the predominant raw material from which these points are made, with 12 examples. Two are of jasper, two are of a dark gray to black flint, and one is of quartzite. Even though examples of this point type were found over most of the sampling area, they tend to be concentrated within the southeast corner. Of the 17 specimens, nine were found south of line N8190 and east of E2970. Thus, over 50% of the points were recovered from less than 20% of the area sampled, a space of approximately 17,000 square feet. This suggests that the locus of the occupation was in that direction.

The most well represented type in the collection is the Holmes point, with 27 examples (Plate 3e, f, g). This style has been radiocarbon dated by Potter (1982:303) to the period c. 2200 - 1900 B.C. Seventeen of the specimens are of quartzite, and the remaining 10 are manufactured from quartz. Of all the points recovered, this type displays the greatest tendency for clustering within the study area (Figure 6). Only five were found east of the E2850 line, and the majority were located west of the Brome-Howard house. Thus, this occupation appears to have been more spatially concentrated, and possibly more intense, than any of the earlier ones. Such a finding correlates well with data from the Potomac and Patuxent drainages, where the Holmes point is abundant (Steponaitis 1980:26).

Also associated with the Late Archaic are three other point types: the Savannah River Stemmed, Lehigh/Koens-Crispin Broadspear, and the Orient Fishtail. The Savannah River type is represented by one quartz and three quartzite specimens, while the four Broadspear points are all of quartzite (Plate 3h). Suggested dates for both of these are c. 1900 - 1700 B.C. (Steponaitis 1980:26), even though both probably have a somewhat longer temporal span. These points are much less abundant than the preceding Holmes or Vernon types, and Steponaitis (1980:27) reports an identical trend on sites within the Patuxent River drainage. Only two examples of the Orient Fishtail point were recovered from the site area; one is manufactured from quartz and the other of quartzite. This point style is considered terminal Archaic to Early Woodland and is dated c. 1500 - 750 B.C. by Steponaitis (1980:28), who found it to be uncommon on the Patuxent River.

Likely to be associated with the Broadspear and Fishtail points are steatite or soapstone vessels. Even though McNett and Gardner (1975) state that steatite bowls are not found on the lower Potomac, three specimens were recovered during the 1981 excavations. Two of these are fragments, but the third is a wall sherd from a bowl or pot and displays one drilled hole, probably for the suspension of the vessel. The exact date for the use of these is uncertain since the use of steatite vessels spans a long period from c. 1900 - 900 B.C. (Steponaitis 1980) and they were not directly associated with any point type at the site. Their recovery in St. Mary's City clearly demonstrates that soapstone, a non-local material, was imported and used on the lower Potomac drainage.

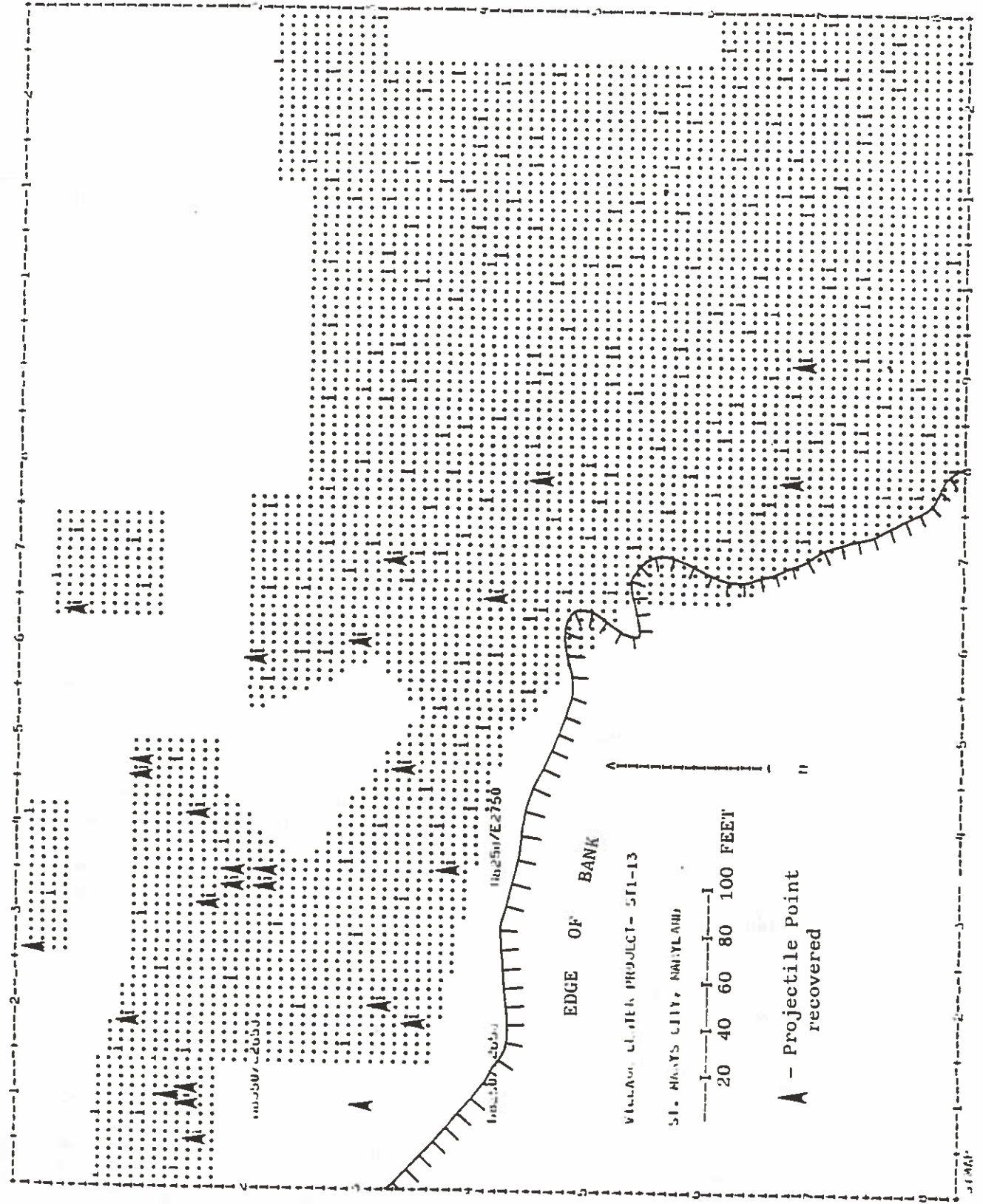


Figure 6. Spatial Distribution of Holmes Projectile Points

Early Woodland Period

The next episode of settlement seems to have occurred in the later portion of the early Woodland period and is the first occupation represented by ceramics. The presence of Accokeek Cord Marked pottery was first determined in 1979 when a controlled surface collection was made of the field in the northeast section of the sample area. During this operation, 44 sherds were discovered concentrated within 100 square feet. Subsequent testing uncovered an additional 121 sherds and revealed a large feature from which the ceramics had come (Miller, Morrison and Stone 1980). Excavations during the 1981 season produced an additional 126 sherds from the site and enabled the extent of occupation to be determined (Plate 4a). A suggested date range for the Accokeek phase on the Potomac River is 750 B.C. to c. 400 B.C. (Steponaitis 1980:15).

To assess the spatial aspects of the Accokeek occupation, the SYMAP computer graphics program was employed. This program converts the data from excavation units into a map which displays the varying densities of materials over a site in a manner analogous to topographic maps. On the graphics discussed here, the lowest level, which indicates few or no artifacts, is represented by small dots, while the highest concentrations of materials are indicated with black squares. Other symbols define the intermediate density levels. (For a discussion of SYMAP and how it is used in this analysis see pages 108 and 109.)

Only 212 of the excavation units could be used for artifact mapping. It was necessary to disregard the others because of extensive 19th- and 20th-century disturbances.

The distribution of Accokeek pottery is shown in Figure 7. The sherds occur in three major and several secondary concentrations. The most northerly of the large concentrations is in the vicinity of the feature discovered in 1980. The other two main clusters occur to the south and are separated by a 70 foot gap over which lesser densities of sherds are scattered.

The large feature detected in 1980 is in Square 1785. It occupies the northeast corner of the excavation unit and appears to be a 3x3-foot portion of a large circular intrusion (Figure 8). Excavation revealed the feature to be shallow, extending approximately 0.35 feet into subsoil. The 1980 excavation recovered only Accokeek pottery and fire-cracked rocks; no oyster shell was found. At the bottom, there were four dark brown intrusions. Two seem to be post molds -- one contained Accokeek sherds, and the other indicated a post which leaned to the east. This feature may be the remains of an Accokeek phase house, but additional excavation is necessary to test this hypothesis (Morrison 1980).

Features also seem to be associated with the other Accokeek clusters. The central concentration occurs in the area of Squares 2197 and 2199. Two small intrusions in 2197 may be post molds, and 2199 contains a circular feature, with a few oyster shells and fire-cracked rocks, which may be a hearth. The southern cluster includes Square 2497 in which is found a large feature of undetermined origin and a smaller intrusion containing a small quantity of charcoal. One of the secondary clusters on the western edge of the study area also corresponds with a feature.

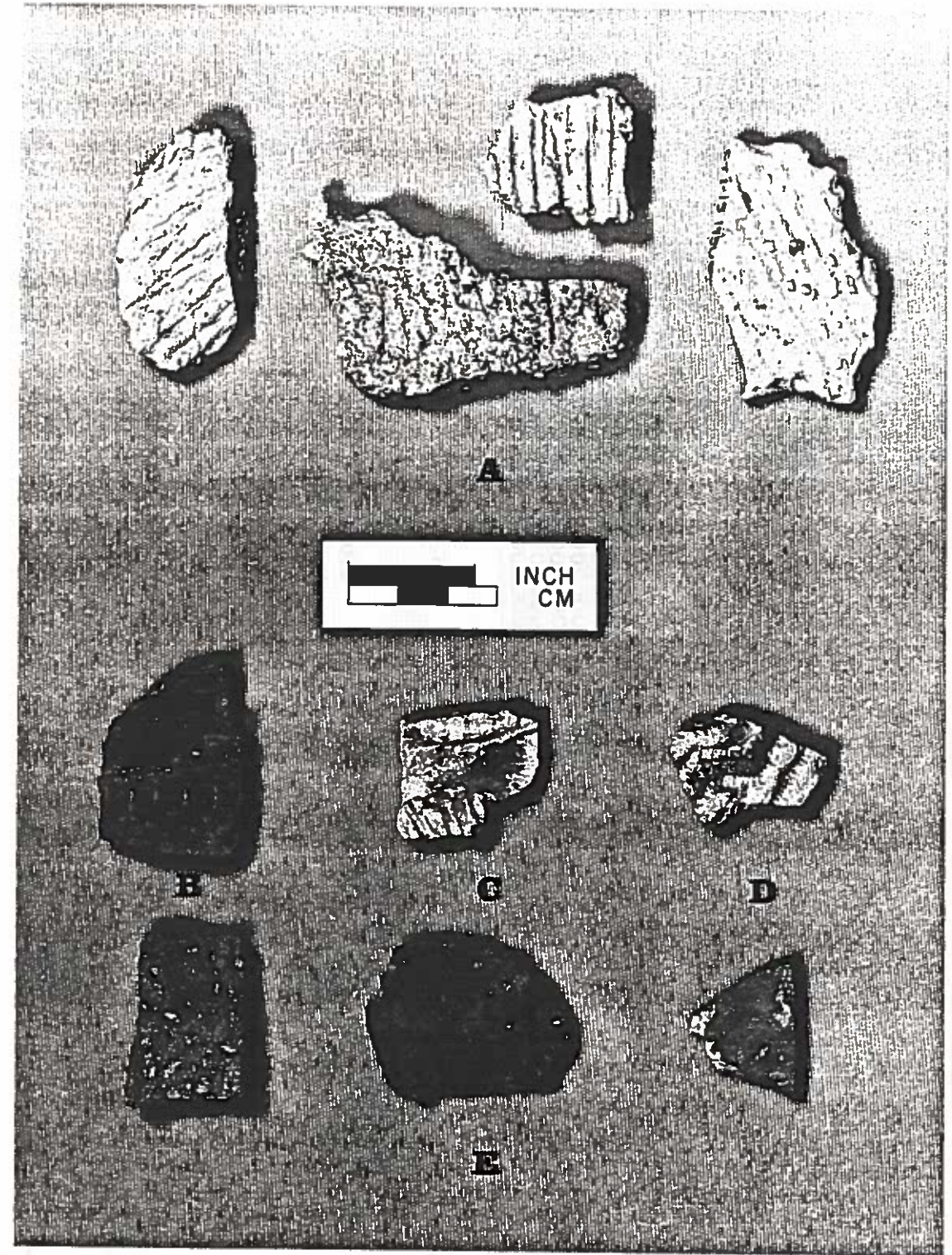


Plate 4. Aboriginal Ceramics Recovered from the Village Center Site, ST 1-13

Figure 7. Spatial Distribution of Early Woodland Accokeek Pottery

Mapping Level Symbolism

Level	1	2	3	4
	++++ ++++ ++++ ++++ ++++	00000000 00000000 00000000 000030000 000000000 000000000	

Number of test units in each level:

161	32	16	3
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Value Range applying to each level:

Minimum	.00	.90	3.00	8.00
Maximum	.90	3.00	8.00	25.00

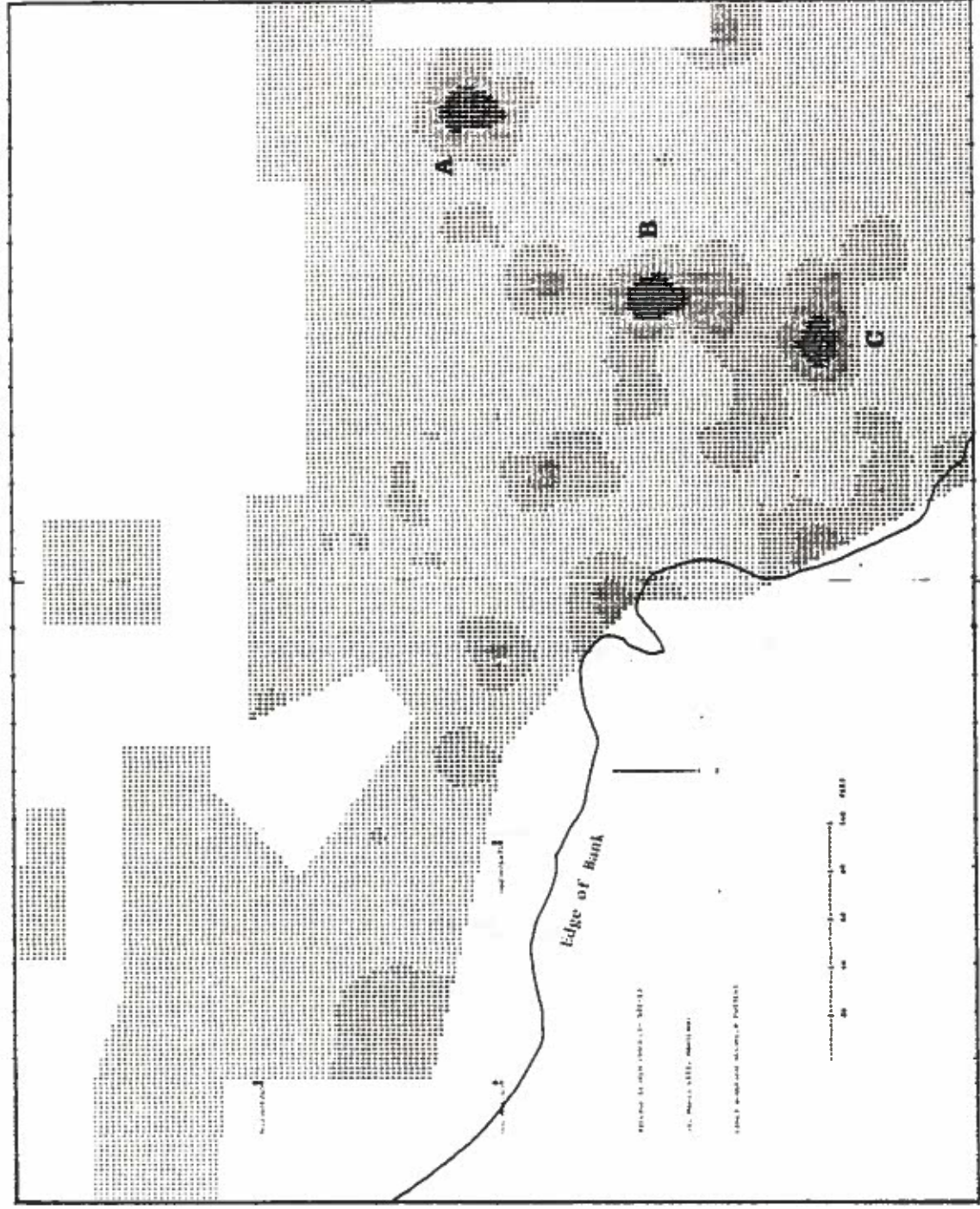
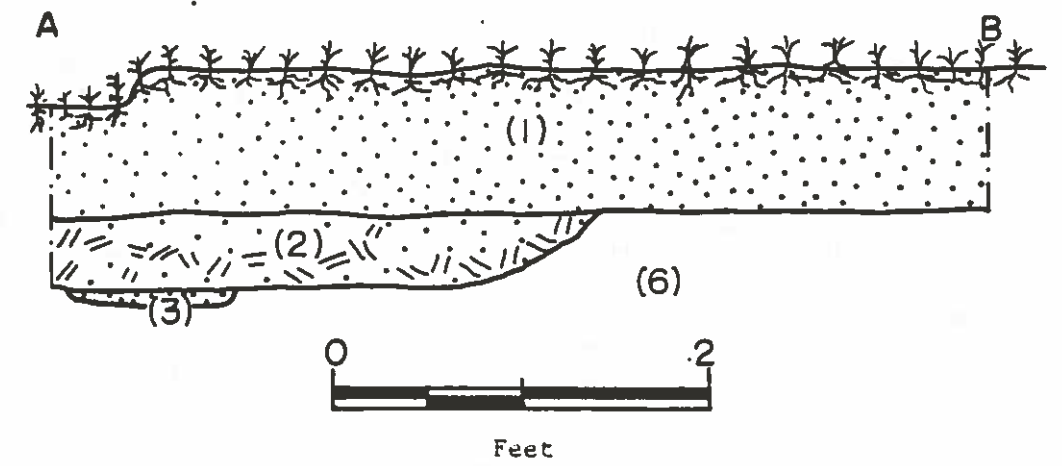
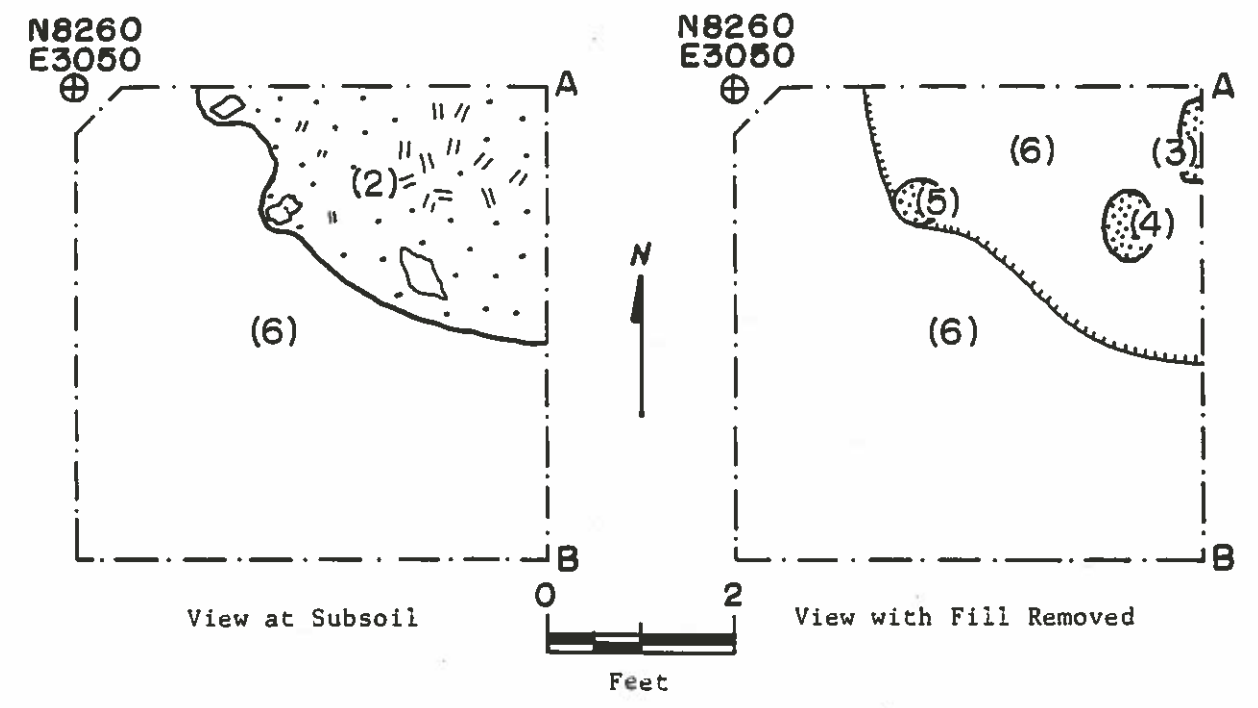


Figure 7. Spatial Distribution of Early Woodland Accokeek Pottery



- KEY**
- (1) Brown-dark brown (10YR4|3) loam [Plowzone]
 - (2) Yellowish brown (10YR5|6) loam mottled with 45% brown-dark brown (10YR4|3) loam filled with Accokeek ceramics [Feature]
 - (3) Dark brown (10YR3|3) soft loam
 - (4) Dark brown (10YR3|3) soft loam [Post mold]
 - (5) Dark brown (10YR3|3) soft loam filled with aboriginal ceramics [Possible post mold]
 - (6) Yellowish brown (10YR5|6) loam [Subsoil]

Figure 8: Plan View and Cross-Section of Accokeek Feature.

In Square 2065 an intrusion filled with oyster shell and some cobbles was uncovered; five Accokeek sherds and one Late Woodland sherd were found in the overlying soils. The feature is probably a hearth. These findings strongly suggest that cultural features associated with the Accokeek occupation have survived in the Village Center, but additional excavation is required to evaluate their nature.

The three major concentrations are quite similar in appearance and suggest the locations of houses and associated domestic activities. The secondary clusters also may represent house sites, or hearth locations. If these are contemporary deposits, the clusters may indicate the locations of houses within a small village or camp and suggest something of the layout of the Accokeek phase settlements.

While contemporaneity cannot be demonstrated at present, the discrete nature of the concentrations and the relatively small quantities of sherds recovered suggest that the occupation was comparatively brief. In contrast to this, the type site for this ware -- Accokeek Creek -- saw a large, probably long-term occupation. The sherds of Accokeek pottery were found in all occupied sections of the site, with no particular concentration in any one area (Stephenson and Ferguson 1963). Differences between this broad scatter and the tight concentrations of pottery at St. Mary's City probably are the result of differing lengths or intensities of occupation.

Besides pottery, it is also possible that Calvert projectile points are associated with the Accokeek occupation (Wright 1973; Potter 1982). Ten points of this type were unearthed during the excavations, and all are of quartz (Plate 3i). Over the eastern section of the site, single Calvert points were found in Squares 1533, 2007, 2069, 2319; two specimens came from Square 2197. They co-occur with Accokeek sherds only in the middle cluster; no points were found near the other concentrations. Four points also were retrieved on the western side of the study area in Squares 917, 1148, 1206 and 1267. These are approximately 100 feet from the nearest Accokeek sherd. If these two artifact groups are associated, the spatial isolation of the points in the western area may indicate the location of some special activity. However, the findings from this excavation do not demonstrate a strong spatial association between them. This lack of correspondence suggests either that the points and sherds are not related, or that activities involving these artifacts generally were conducted at spatially distinct locations during the occupation. Future excavations may be able to resolve this problem and shed light upon this poorly known prehistoric culture.

Middle Woodland Period

In contrast to the extensive occupation in the preceding period, relatively little evidence for settlement during the early Middle Woodland period was found. The chief diagnostic artifact is Popes Creek Net Impressed pottery, and only three sherds of this sand-tempered ceramic were recovered. Two sherds are from Square 1406, and one is from 1515. This ceramic type generally is dated 400 B.C. to c. 200 A.D. (Steponaitis 1980:30). The few sherds recovered are in marked contrast to the upper Potomac where there is abundant evidence for Popes Creek occupations (Stephenson and Ferguson 1963; McNett and Gardner 1975).

Numerous sherds have been identified on the upper and middle portions of the Patuxent River drainage, but like the Lower Potomac, the Lower Patuxent sites of this period are not as numerous as those in the preceding Accokeek phase (Steponaitis 1980:30). This apparent sparsity of Popes Creek materials from the Lower Potomac has been noted by Handsman and McNett (1974). They suggest that Popes Creek people were adapted to the brackish areas of the Chesapeake estuary, rather than the higher salinity of the lower sections of the rivers. The sparse indications of occupation from ST1-13 tend to support this observation of limited settlement on the lower Potomac, and the location of the site adjacent to high salinity waters does not refute the hypothesis of a brackish water adaptation for Popes Creek people.

There is slightly more substantial evidence for occupation during the later portion of the Middle Woodland with the appearance of the first shell tempered pottery — Mockley Ware. There were 16 sherds of this type excavated from the Village Center; nine are decorated with net impressing, two have plain surfaces, and surface treatment on the remainder is undetermined because of their small size. Mockley ceramics are dated to the period from ca. 200-800 A.D. (Steponaitis 1980: 16). Analysis of the distribution of these sherds indicates that the Mockley occupation was concentrated in the west-central portion of the study area, approximately in the location of the 1840s Brome house. On the north and east sides of this structure, 11 of the 16 sherds were recovered. The other pottery fragments were widely dispersed over the site. This concentration of ceramics and the small number of sherds may indicate that only one significant Mockley occupation occurred within the Village Center. Although Selby Bay points normally are associated with sites of this phase, none were recovered in 1981.

Late Woodland Period

The final episode of aboriginal settlement within the study area began at some point during the Late Woodland (after ca. 800 A.D.) and ended with the landing of the English colonists and the founding of St. Mary's City in 1634. In that year, an "Indian Towne" stood at the site, and some record of this "Towne" has survived in the early descriptions of Maryland's founding. Jerome Hawley, a member of the original expedition, described the settlement and Leonard Calvert's negotiations for it:

They went up this river [the St. Mary's] about 4. Leagues, and anchored at the Towne of Yoacomaco: from whence the Indians of that part of the country, are called Yoacomacoes:

At their coming to this place, the Governour went on shoare, and treated friendly with the Werowance there, and acquainted him with the intent of his coming thither....To make his entry peaceable and safe, hee thought fitt to present the Werowance and the Wisoes of the Towne with some English Cloth (such as is used to trade with the Indians),

Axes, Howes, and Knives, which they accepted very kindly, and freely gave consent that hee and his company should dwell in one part of their Towne, and reserved the other for themselves; and those Indians that dwelt in that part of the Towne, which was allotted for the English, freely left them their houses, and some corne that they had begun to plant: It was also agreed between them that at the end of harvest they should leave the whole towne; which they did accordingly (Hall 1910: 73-74).

Father Andrew White, a Jesuit Priest who accompanied the settlers on the founding voyage, provided a short description of the Indian houses he saw and added that "some few Indians are here to stay by us till next year, and then the land is wholly to be ours alone (Hall 1910: 42)." White also notes that:

On the one side of this river lives the king of Yoacomaco, on the other our plantation is seated, about halfe a mile from the water, and our towne we call St. Maries (Hall 1910: 42).

This statement, and the fact that a portion of the Indian settlement was vacated so rapidly, probably indicates that the main village of the Yoacomaco was located on the opposite side of the St. Mary's River and is where the displaced Indians moved. If so, the settlement at St. Mary's City probably represents a satellite village such as an agricultural hamlet.

The archaeological evidence for this final phase of aboriginal occupation consists of projectile points and ceramics. Two projectile point forms which date to this period have been identified. The earlier of these is the Levanna point, which generally is associated with the first half of the Late Woodland and is dated c. 800-1250 A.D. (Steponaitis 1980: 16). Three specimens are in the collection; two are manufactured from quartz and the third is from a dark gray-to-black flint. Two specimens of Potomac Creek Points (Plate 3L), a type normally attributed to the terminal Late Woodland also were unearthed. One of quartz and the other is of a brown flint; they date from ca. 1300 A.D. to the time of European contact.

Ceramics that date to the Late Woodland period also were recovered (Plate 4b-e). The most abundant of these is the Townsend Series shell tempered pottery, with a total of 94 sherds recovered at the site. Of these, 45 can be classified as Rappahannock Fabric Impressed, 45 have smooth surfaces, and four are decorated. Townsend Series pottery can date as early as ca. 800 A.D., but several pieces of evidence suggest that these specimens came from near the end of the Late Woodland. Nearly half of the pottery sherds display plain surfaces. During the Late Woodland, there seems to have been a general trend toward the production of more smooth surfaced ceramics. That trend may have culminated in the burnished or polished Colono-Indian pottery of the Colonial period. Henry (1980: 118) suggests that there should be a high proportion of plain surfaced sherds on sites occupied just prior

to contact. In work directly across the Potomac on the Northern Neck of Virginia, a similar high frequency of smooth surfaced ceramics also has been found on sites dating just prior to or at contact. These ceramics have been labeled Yoacomaco ware and dated ca. 1510-1690 by the radiocarbon method (Potter 1982: 138).

The decorated sherds also seem to point to an occupation dating to the terminal portion of the Late Woodland. Three are decorated with incising and two are sufficiently complete to identify the motif that was used. This motif consists of a series of horizontal lines parallel to the rim, with short lines perpendicular to and below the horizontal ones (Plate 4b, c). This motif has been classified as RI 2 by Griffith (1980: 36) who states that it occurs during the Late Woodland in Delaware and probably was manufactured up to Contact. Gardner and McNett (1975) have identified a similar style in the Potomac River Valley and predict that it continued up to European Contact. The other decorated sherd is very lightly shell tempered and displays cord wrapped stick impression in a zig-zag pattern (Plate 4d). Such a decorative motif on shell tempered pottery is classified as Townsend Herringbone, but the zig-zag pattern is normally executed by incising. Stick impressing generally appears as another element in the Herringbone design, but its use to create the zig-zag is apparently rare. This decorative technique and motif date the sherd to the period after c. 1300 A.D. (Griffith 1980: 31-32).

Another Late Woodland pottery type found within the study area is the crushed quartz and sand tempered Potomac Creek ware. This ceramic is represented by seven sherds, of which two contain crushed quartz temper and display cord wrapped stick impressions. The others are tempered with fine sand and have smooth surfaces; they are similar to Potomac Creek Plain sherds excavated from the Camden site, a probable 17th-century Indian dwelling along the Rappahannock River in Caroline County, Virginia (MacCord 1969). Potomac Creek ware probably originate in the Piedmont of Maryland and Virginia and arrived in the Lower Potomac area sometime after ca. 1300 A.D. It continued to be made in the Contact period.

The ceramics therefore suggest an occupation during the terminal Late Woodland period. Most of the sherds are thin, have either plain or fabric impressed surfaces, and the predominant tempering agent is crushed shell. Steponaitis (1980: 34) predicts that an abundance of thin, shell tempered pottery, Rappahannock incised decoration, and a few Potomac Creek sherds are what should occur on Contact period sites on the Patuxent River, and it seems reasonable to expect this on the Lower Potomac as well. Thus, there is an excellent probability that many of these sherds derive from the Indian village purchased by the colonists in 1634. The excavation of features in the following seasons should produce evidence to demonstrate this.

Late Woodland Ceramic Distribution

The distribution of Late Woodland ceramics over the Village Center (Figure 9) reveals that the sherds are found almost exclusively in the western portion of the sample area. They surround the 19th-century Brome

house and occur in three discrete concentrations. One of these is within the square sample block on the north side of the site, and the other two occur in the lower western portion of the study area. The edges of these discrete clusters are approximately 80 feet apart.

It is quite likely that these clusters represent the locations of aboriginal houses, or at least, the cooking fires associated with buildings, around which the pottery would have been used. The scattered nature of these concentrations would certainly be in keeping with the agricultural hamlet type of settlement proposed for the aboriginal occupation. This is also what might be expected from the observations made by John Smith in 1608. He states that "their houses are in the midst of their fields and gardens....In some places from two to 50 of these houses together, or but a little separated by groves of trees" (Smith 1624: 31).

On the basis of several pieces of evidence, it seems possible that one of these "huts" could have been occupied by the English during the first months of settlement. In the same area as the most westerly sherd concentration, the excavation squares also yielded a blue glass bead, Indian made terra cotta pipe fragments, a few wrought nails, and several sherds of early 17th-century European pottery, but no other European artifacts were identified in this portion of the site. It is known from the surviving historical records that the colonists used these buildings, and the first Roman Catholic chapel in Maryland was established in one of these Indian houses. Father White related this when he wrote that:

In one of these houses we now doe celebrate [mass],
having it dressed a little better than by the Indians...
(Hall 1910: 43).

These findings agree with what would be expected from such an aboriginal house briefly occupied by the colonists. While more excavation is required in this area, it seems possible that one of the buildings used during the first weeks of settlement in Maryland has been discovered.

One very unusual potsherd that may provide evidence for the interaction between the aboriginal and European cultures in early Maryland was discovered. The fragment is from an Indian made, shell tempered vessel with smoothed interior and exterior surfaces. Its most intriguing characteristic is the rim configuration which flares slightly at the mouth and has an applied ridge or band on the exterior below the lip. Judging from the alignment of particles in the paste, the entire rim and ridge sections were formed by folding over the vessel wall. Such a rim form is unusual for Townsend wares from the Chesapeake area (Wayne Clark 1981: Personal Communication), although folded rims and applied strips are known to occur on some late Woodland Potomac Creek ceramics (Stephenson and Ferguson 1963: 144). This sherd is quite different from Potomac Creek ware and tends to display an admixture of ceramic traditions. Another sherd somewhat similar to this has been found at an aboriginal site on the Northern Neck of Virginia in ca. 1650 contexts (Stephen Potter: Personal Communication).

What is remarkable about this rim is not the possible admixture of aboriginal traditions, but the fact that it bears a close resemblance to the rim configuration of southeast England Surry ware pipkins of the first half of the 17th century. As Figure 10 illustrates, there are a number of attributes these two specimens share, even though one is handmade and the other is wheel thrown. The possibility therefore exists that this Indian vessel could represent an attempt to duplicate a European vessel form. Judging from the early accounts, there were apparently numerous opportunities for the aboriginal potters to observe English vessels. This is indicated by Jerome Hawley who wrote in 1635 that:

During the time that the Indians staid by the English at Yoacomaco, they went dayly to hunt with them for Deere and Turkies....their women and children came very frequently amongst them (Hall 1910: 75).

Even more telling is Hawley's description of the difficulties the colonists first had in properly preparing corn:

...and the Indian women seeing their servants to bee unacquainted with the manner of dressing it, would make bread thereof for them, and teach them how to doe the like...(Hall 1910: 75).

While the apparent similarity between this sherd and Surry pipkin rims could be fortuitous, the recovery of the sherd from the general area of the contact village, its location within one of the Late Woodland ceramic clusters, and its resemblance to one of the first types of vessels the colonists would have brought to Maryland argues strongly that the vessel was produced by one of the Yoacomaco Indians living at St. Mary's. If so, this vessel represents one of the earliest examples of the direct copying of European vessels by aboriginal potters in the Middle Atlantic region. The Indians were in contact with traders during the decades prior to the arrival of the Maryland colonists, but sustained close contact only occurred after St. Mary's was established.

The Yoacomico Indians left the St. Mary's River area by ca. 1635 and later Indian-made pottery is not found on 17th-century sites in St. Mary's City. It is hoped that with additional excavation, the discovery of other fragments will enable the true nature of this object to be determined.

- The most unusual object discovered at St. Mary's City in 1981 is an Indian tobacco pipe (Figure 11). This extremely well made clay pipe is decorated elaborately in the form of a human face. It is made from a medium textured orange clay which contains some fine sand and a quantity of small ochre specks. Since the pipe is only represented by the bowl, the configuration of the stem is unclear, but the human effigy faced the smoker. The face is executed on a smooth oval surface with slightly raised brow ridges, cheeks, a prominent nose and sunken eyes. The decoration consists of rows of fine impressions, and traces of white clay are present in the eye, mouth and face impressions, probably to highlight them. The impressions are small, regularly-spaced, square indentations of extreme uniformity. They bear a close

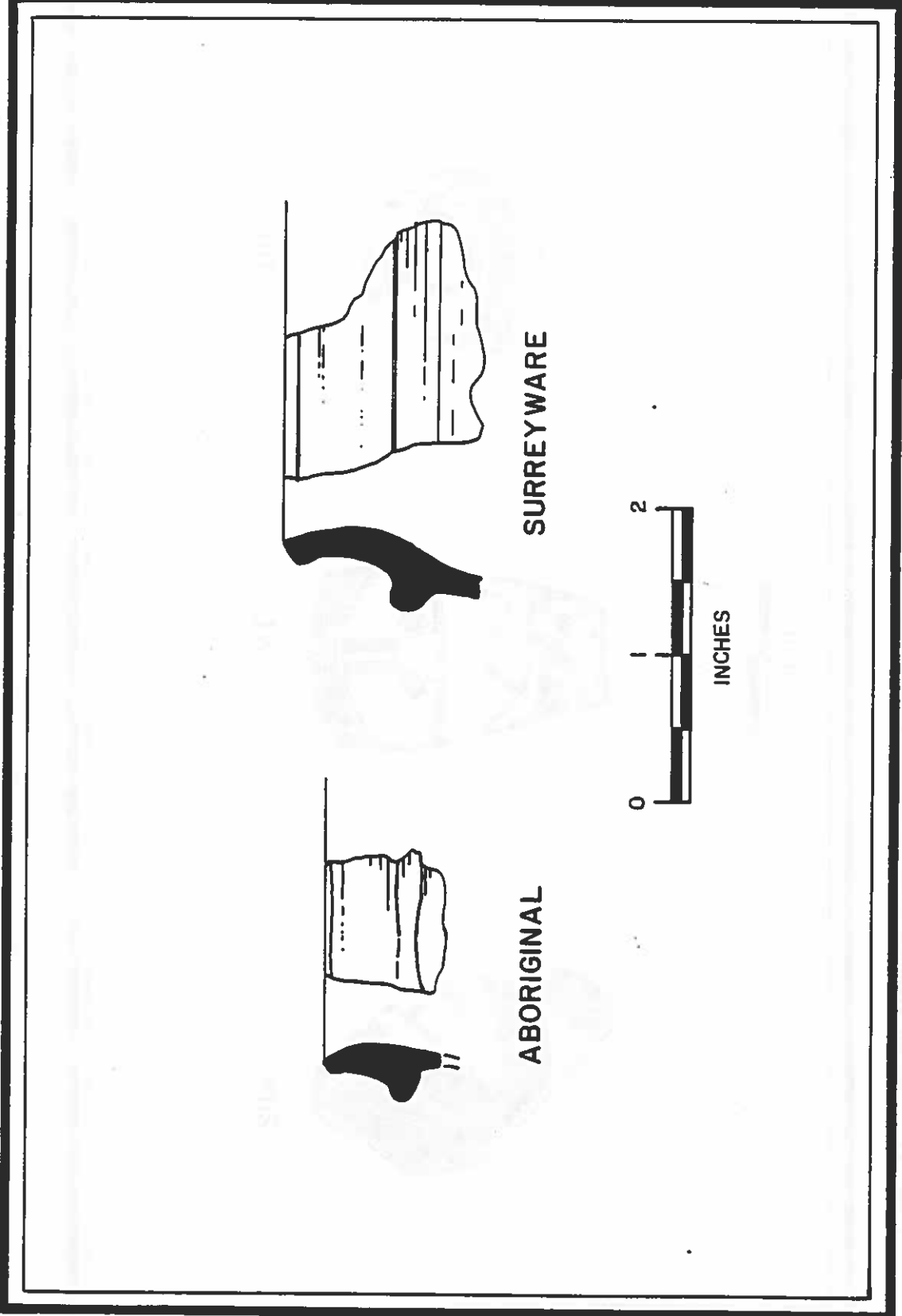


Figure 10. Comparison of aboriginal and Surrey ware rim fragments.

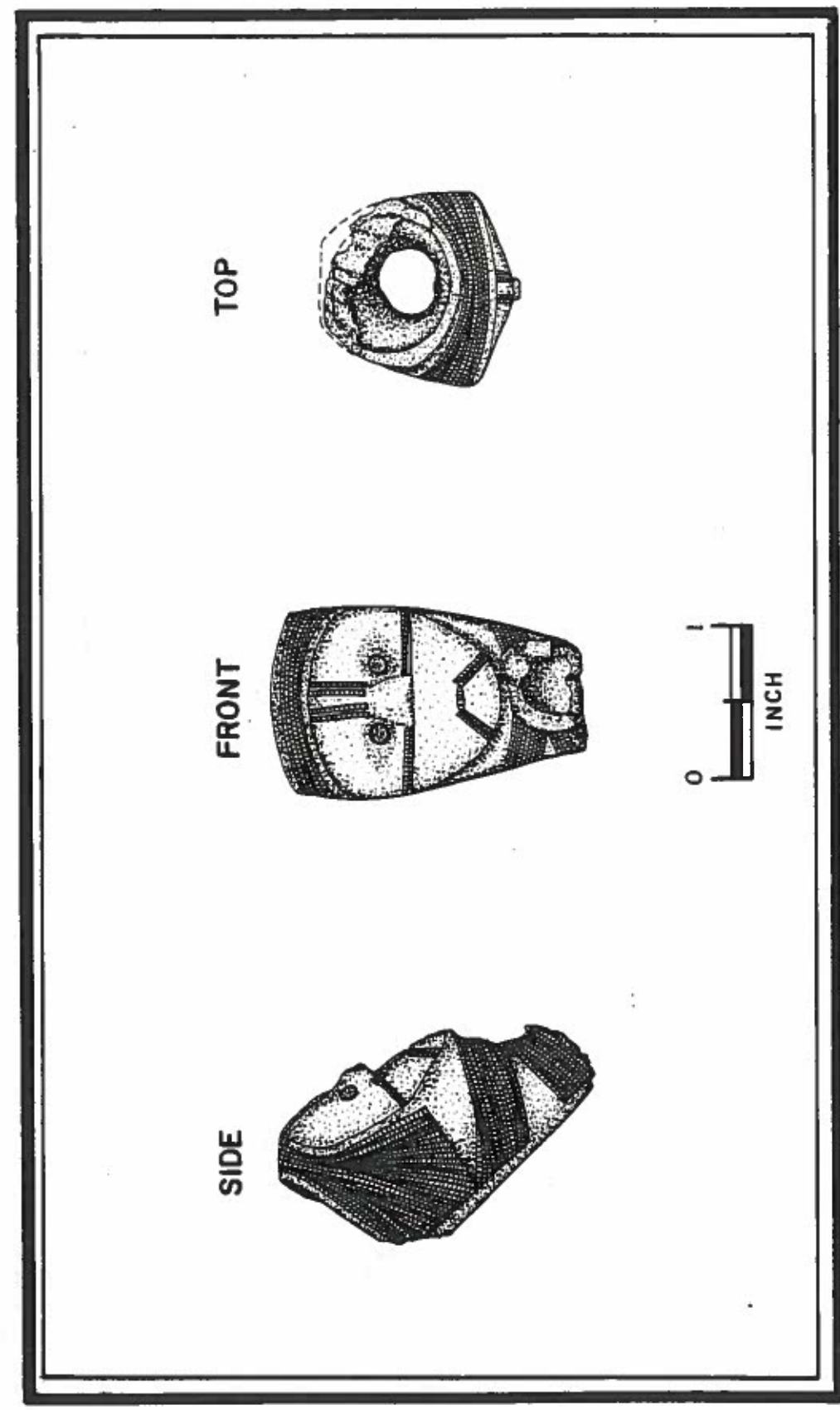


Figure 11. Indian Tobacco Pipe recovered from the Village Center site, ST 1-13.

similarity to the rouletting found on the rims of 17th-century European pipes. Such precision and uniformity suggest that the decoration was made using a machine-made object such as the gear wheel from a watch. If so, this would mean that the pipe was made after European Contact. Unfortunately, the specimen came from the fill of a 20th-century utility ditch, so it cannot be dated archaeologically. However, this trench had cut through portions of an early 17th-century trash-filled pit, and it is possible the pipe came from there (see Feature 1221 Discussion, page 63). The origin of the pipe is even more uncertain than its date. It is unlike pipes made by the Iroquois in New York (Charles F. Hayes III 1981: Personal Communication), the Susquehanna in Pennsylvania (Barry Kent 1982: Personal Communication), or by the Indians of Virginia or North Carolina (Keith Egloff 1981: Personal Communication). The Piscataway people of the Potomac River did produce pipes decorated with impressed lines, using fossil sharks' teeth, and some of these have white clay highlighting in the impressions just as the effigy pipe does (see page 71). Therefore, it is possible that the pipe was produced by Indians living in Maryland, but it is unlike any pipe known from the area. Because of its fineness and apparent uniqueness, it seems likely this object was intended for a ceremonial purpose. If it had been deposited in the ca. 1650 trash-filled pit, as seems likely, there is the possibility this specimen was a gift to the colonists.

Two non-ceramic artifacts, probably associated with the Late Woodland period, also were found. One of these is a stone tobacco pipe manufactured from meta-basalt. This specimen is an elbow pipe, with a short stem and tapered hole to receive a reed. All surfaces are polished. The other object is a bead made from a shark's vertebra. The center of the bone was drilled out to allow stringing, but it was otherwise unaltered. A near duplicate has been found at the St. John's site in St. Mary's City, but this constitutes the only other example known at this time.

Prehistoric Summary

As an outgrowth of sampling the center of the 17th-century village, the 1981 excavations revealed a rich and diverse record of prehistoric settlement in St. Mary's City. Evidence for the earliest occupation some 8,000-9,000 years ago is sparse, suggesting that the site was the scene of only short-term, small encampments. Such a trend appears to have continued over the next 3,000-4,000 years since few Middle Archaic artifacts were recovered. This apparently changed after about 4,000 B.C. when projectile points, such as the Piscataway, Vernon, and Holmes, became more abundant in comparison to earlier types. This is suggestive of more frequent or larger occupation, and it is likely that an increase in the aboriginal population may be partially responsible for the higher frequency of Late Archaic artifacts. However, this fails to explain why ST 1-13 was selected for settlement. Certainly, the high ground, with well-drained, fertile soils, and nearby springs of fresh water would have helped make the spot an appealing location for aboriginal settlement, but other factors probably are involved.

Even more significant may have been the resources available in the area. The kinds of resources available in the Chesapeake area,

and hence, the aboriginal use of them, are intimately linked with the rise of sea level. During the Early Archaic, sea level was approximately 80 feet below modern levels; in the Middle Archaic it rose to approximately 40 feet below modern levels (Kraft 1971: 2155). During that span of time, the St. Mary's River was little more than a small freshwater stream and the site area probably was covered with an upland forest of oak and pine. Food resources would have been much the same as found over the other inland areas of Southern Maryland.

As sea level rose into the area in the Late Archaic, the stream valley was inundated slowly, and the nature of the aquatic vegetation and animals would have undergone a gradual transformation. One likely product of this would have been the creation of large fresh to brackish water swamps at the upstream edge of the rising waters (Michael Smolek 1981: Personal Communication). Such swamps would have offered an abundance of resources including cattail (*Typha* sp.), a starchy tuber known as tuckahoe, and a variety of other plants (Robert Shaw 1981: Personal Communication). The tubers, shoots and/or pollen of these plants are rich sources of carbohydrates and could have comprised major breadstuffs for non-agricultural people. Even at Contact, according to Captain John Smith, the tuckahoe was a dietary staple of the Indians of the Chesapeake area (1624: 26). In addition to plants, the rising waters also would have extended the availability of a number of estuarine animals, including fish and mollusks, up the stream valley. This would have been especially true of the spring anadromous fish runs which extend into the fresh or slightly brackish waters at the heads of streams.

Sea level rose into the St. Mary's City area beginning about 5,000 years ago (Kraft and Brush 1981:5). The water level was approximately 25 feet lower than at present, and evidence for a cattail swamp dating to that period has been recovered. In 1980, core samples of sediments were taken in St. John's Pond, a partially enclosed estuarine inlet located approximately a third of a mile from the site. Analysis of the pollen in these sediments revealed that a cattail swamp was in existence there by 3300 B.C. (Kraft and Brush 1981). This swamp may have extended over a large area, considering the wide, relatively flat river bottom at St. Mary's City. The pollen record of forest vegetation, while displaying minor fluctuations over the past 5,000 years, remained essentially stable until the arrival of the Europeans.

During the Early and Middle Archaic periods, when evidence for occupation is sporadic, the food resources available at ST 1-13 probably were relatively undifferentiated from those over much of the surrounding area. After about 4,000 B.C., though, certain elements of the local environment were transformed slowly by the rising waters, and this is the period during which the first evidence for more intensive occupation of the site is found. In fact, the majority (53) of the points found at the site date to a 2,000-year time span, beginning about 4,000 B.C. It is suggested that the occurrence of these Late Archaic settlements, evidenced by the Piscataway, Vernon, and Holmes points, is related to the arrival of these brackish swamp and fish resources in the site area and their ready availability to people who settled at ST 1-13. A geological analysis of the St. John's pond sediments indicates that brackish to salt water species of mollusks, which are typical of the Chesapeake Bay today, were present by approximately 1000 B.C. (Kraft

and Brush 1981: Figure 6). This indicates that the transition from fresh-water to full estuarine conditions at the site was completed by that date.

In the absence of faunal or floral samples from this period, the only definite statement regarding food procurement which can be drawn from the archaeological data is that hunting was important. This is based upon the frequency of projectile points at the site. However, the appearance of these points at the same time sea level was rising into the St. Mary's River area may suggest that other resources played a significant role in subsistence. Given the hypothesis that the Late Archaic period represented a diversification of subsistence practices (Gardner 1978), it would be expected that spring fish runs and/or the vegetable products obtainable from cattail swamps and other marsh environments might comprise an important component of the Late Archaic subsistence cycle. If correct, one test implication would be that, as the sea level continued to rise and swamp environments and fish spawning areas were pushed further upstream, the intensity of occupation would be expected to decrease as the resources became less accessible. Such a situation does seem to occur at ST 1-13 where the terminal Archaic points are rare in comparison to those of the Late Archaic. Of course, this could be related equally to demographic changes in the aboriginal population, or cultural shifts in settlement preference. Obviously, much additional research is necessary to understand the nature of these Late Archaic occupations, and to verify or refute this inference. It does specify one environmentally induced change, sea level rise, which could produce the variability in the intensity of Archaic settlement and which may be significant for understanding settlement patterning during this period in the coastal plain.

The first major Woodland settlement is represented by the Accokeek pottery. One notable characteristic of this occupation is its location in St. Mary's City. The most intense settlement during the phase occurred on the upper Potomac River, and this site represents the southern most occupation known on the Maryland Potomac shore (Wayne Clark 1981: Personal Communication). Although many Accokeek sites are associated with shell, there is only minimal evidence for oyster exploitation at ST 1-13. None was observed in the large feature partially excavated in 1980, and there are no shell concentrations near the Accokeek ceramic clusters. Oysters were very likely available in the St. Mary's City area by the time of this occupation, since the St. John's pond corings indicate that saline waters appropriate for oysters were present by ca. 1000 B.C. (Kraft and Brush 1981). It is, of course, possible that the occupants were collecting and opening oysters elsewhere, but this would be unusual since oysters occur on many other sites of this phase. Perhaps the St. Mary's occupation represents a sequence in the seasonal subsistence cycle when oysters were not used.

A settlement model for this phase has been proposed by McNett and Gardner (1975) who recognized two settlement types. One is a base camp which occurs in estuarine zones and is characterized by its large size and the presence of many ceramics and tools. The other settlement type is a small inland hunting camp, signified mostly by tools and few,

if any, ceramics. The presence of sherds spread over a sizable area at ST 1-13 and the location of the site within the estuarine zone would argue for its being a base camp. However, the quantity of sherds is not large and, unlike many of the base camps, there is no associated shell. It seems probable that this site represents a third settlement type -- a seasonal camp. Excavation of the possible house and other features should provide data regarding the function and season in which the site was inhabited.

The most significant aspect of this occupation is its spatial characteristics. The distribution maps indicate the locations of three or more possible houses. The intensive sampling of the site also permits some estimation of the size of the overall encampment, assuming that the artifacts represent a single occupation. The results of the 1979-1980 surveys indicate that few materials lie beyond the eastern edge of the sample area. If all these artifacts are associated, the camp size is approximately 140,000 square feet. If only the three main clusters are considered contemporaneous, their spacing indicates an area of primary occupation of approximately 70,000 square feet. Clearly additional excavation and detailed analysis of the assemblage will be necessary to refine this and enable precise assessment of the occupation. Even at this initial stage of investigation, however, the site has provided the first insight concerning intra-site patterning during the Accokeek phase and will permit inferences regarding social organization, population, and site spatial structure during this poorly understood period of prehistory.

Throughout the rest of the Woodland period, the use of the site was apparently sporadic except at the very end. The final large occupation occurred at European Contact, and according to historical documentation, it was agricultural. The presence of excellent, well-drained soils and abundant freshwater springs may have been major factors in determining the Indian Village location. This is one of the most exciting aspects of the prehistoric record since the site was inhabited during the early phases of European Contact. Not only can it provide one of the few precisely dated samples of Late Woodland artifacts in the Chesapeake area, but its study also will yield insights regarding how the aboriginal culture responded to the forces of European Contact and acculturation. In addition, since the English purchased and lived in the Indian houses, the remains of this village may offer a rare opportunity to explore how the same buildings and spaces were used by two radically different cultures.

IV. SEVENTEENTH-CENTURY OCCUPATION

The 1981 excavations produced a large quantity of artifacts and detected a variety of sub-surface features. Many of these features are demonstrably of 17th-century origin and are illustrated in Figure 12. Among them are two apparent cellars (Squares 2130 and 2434), many structural post hole/molds, possible borrow pits, and ditch segments which are likely to have derived from wattle or pale fences. In addition to these, remains of two 17th-century structures of major historical significance were detected -- the Fort of 1634 and the home of Leonard Calvert.

The Fort of 1634

When the colonists arrived at the site of St. Mary's City in 1634, one of their first tasks was to erect a fortification for defense against the Indians and English enemies of the Calverts' Maryland enterprise. Historical documentation concerning the fort is limited, but it is known that construction began soon after the colonists' arrival. It seems the emphasis quickly shifted to the building of houses, but rumors of possible Indian troubles sprang up and:

This caused them to lay aside all other workes, and to finish their Fort, which they did within the space of one month, where they mounted some ordinance and furnished it with some murtherers and such other meanes of defence as they thought fit for their safeties: which being done, they proceeded with their Houses and finished them...(Hall 1910: 76).

The only detailed description of the fort is by Governor Leonard Calvert. In a letter dated 30 May 1634, he wrote that the colonists were seated:

within a pallizado of one hundred and twentie yarde square with fower flankes, we have mounted one piece of ordinance, and placed six murtherers in parts most convenient; a fortification (we thinke) sufficient to defend against any such weak enemies as we have reason to expect here (Calvert 1634: 21).

The Council apparently met within the fort during the 1630s and early 1640 but by 1641, it apparently had fallen into disrepair. Stone (1982: 21) suggests that Calvert demolished the Fort ca. 1642-43, shortly after he had taken official ownership of the land.

The fort has long been the subject of speculation and many hypotheses concerning its location have been proposed. These have been summarized by Lois Carr (1969), and based on the historical documentation, she placed the fort near Church Point. Aerial photographs taken in 1969 indicated a large, approximately square feature in the fields near the



Figure 12. Plan View of Excavation Squares and 17th-century Features at the

Brome House, but archaeological testing in that year failed to locate subsurface remains.

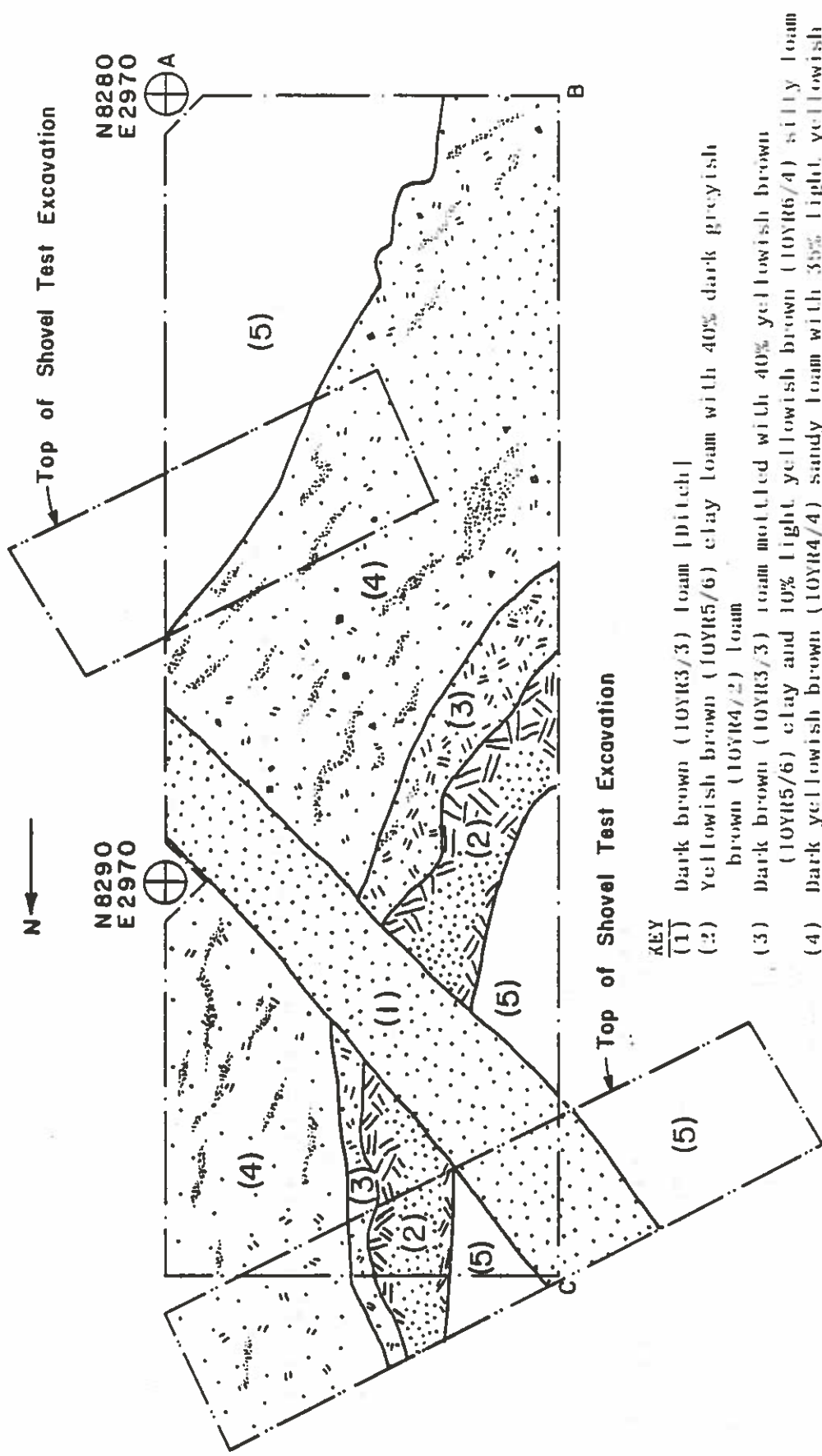
Given the elusive nature of the fort, it was hoped that some portion of it might be identified by intensive sampling in the Village Center area. During the summer of 1981, a wide trench was found in Square 744 and a 3x7-foot segment of it was excavated. This yielded only 17th-century and aboriginal artifacts, and it was suggested that this trench might represent a portion of the fort wall or a defensive ditch. Subsequent shovel testing revealed that it extended far to the west, while to the southeast, the ditch seemed to turn southward near grid point N8300/E2950. To clarify this, it was decided to open a larger area and thus, during the last week of the 1981 season, a final 5x15-foot test trench was excavated.

In plan view (Figure 13), an unusual complex of features was observed. The long ditch extends through the excavated area and intrudes a larger feature. This long trench is now thought to be an 18th/early 19th-century field boundary ditch probably associated with the Mackall Plantation. Due to extreme soil dryness, stratigraphic changes could not be observed until the excavation area was moistened thoroughly. The cross-section (Figure 14) revealed that 1.0-1.2 feet of plowzone and 0.4-0.7 feet of subsoil and feature tops had been excavated together as one stratum. The intruded feature is five feet wide at the surface at which it first was observed; it extends from the north to the south and curves toward the west. It is unlike any previously encountered in St. Mary's City.

The outer portion of the curving feature is filled with dark yellowish brown sandy soil which contains a high percentage of lighter silt. Few artifacts were observed in this except for charcoal and brick specks and an occasional bone fragment. Along the inner curve, there is a band of humus and displaced subsoil which appears to be associated with the silty fill, rather than intrusive into it. The cross-section of the trench's west wall shows that this band is sealed by the deposition of the silty fill.

It appears that a wide ditch was excavated into subsoil, and the cross-section of the south wall suggests that its original width was greater than eight feet. Because of the size and configuration of this feature, it is tentatively identified as a portion of the 1634 St. Mary's Fort. The curve of this feature suggests that it is an outside part of a palisaded bastion of the Fort. The defenders' height advantage may have been increased by using soil removed from the ditch as fill to build up the ground level within the palisade (Figure 15). Additional fill may have been obtained from nearby features thought to be borrow pits (Squares 1359, 1415, 1539, and 1717). Although the relationship of curving palings in Squares 1533, 1538, 1594 and 1598 is not known, they may represent a secondary defensive line beyond the ditch. Coring indicates that 0.5-0.75 feet of fill remains in the ditch. Additional work is required before the mode of construction, size, and layout of the Fort can be established positively.

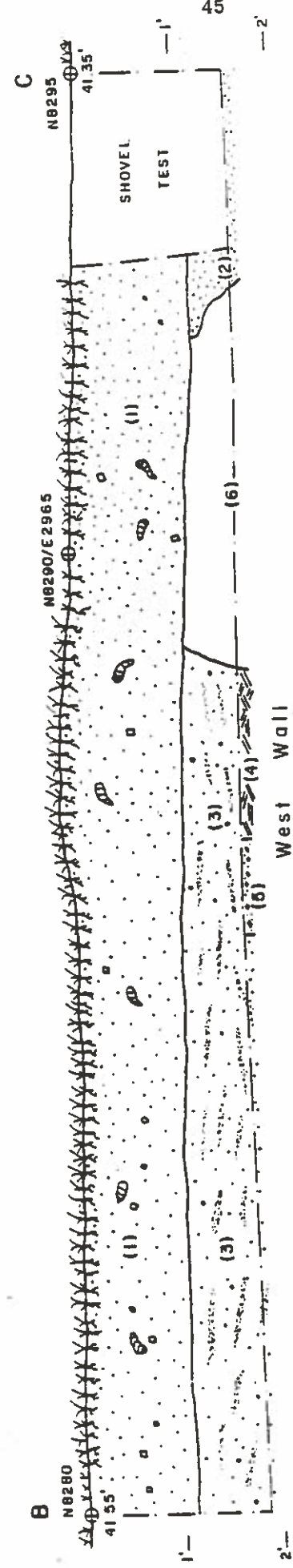
The discovery of a portion of the 1634 Fort is extremely significant for it represents the first decade of settlement in the new colony of



KEY

- (1) Dark brown (10YR3/3) loam [Ditch]
 - (2) Yellowish brown (10YR5/6) clay loam with 40% dark greyish brown (10YR4/2) loam
 - (3) Dark brown (10YR3/3) loam mottled with 40% yellowish brown (10YR5/6) clay and 10% light yellowish brown (10YR6/4) silty loam
 - (4) Dark yellowish brown (10YR4/4) sandy loam with 35% light yellowish brown (10YR6/4) silty loam and areas of dark brown (10YR3/3) loam, occasional brick and charcoal specks [Bastian Ditch]
 - (5) Yellowish brown (10YR5/6) clay [Subsoil]
- A, B, C keyed to Profile Drawing, Figure 14.

Figure 13. Plan View of Features Representing the 1634 Fort.



KEY

- (1) Dark brown (10YR3/3) loam thoroughly mixed with brick and oyster shell fragments [Plowzone - 1536A, 1536B, 1596A]
- (2) Dark brown (10YR3/3) loam [Ditch]
- (3) Dark yellowish brown (10YR4/4) sandy loam with 35% light yellowish brown (10YR6/4) silty loam and occasional brick and charcoal specks [Bastion Ditch]
- (4) Brown to dark brown (10YR4/3) loam mottled with 10% yellowish brown (10YR5/6) clayey loam [1596F]
- (5) Dark yellowish brown (10YR4/4) sandy loam with occasional charcoal and brick specks [1596E]
- (6) Yellowish brown (10YR5/6) clay [Subsoil]

A, B, C - Keyed to Profile Drawing, Figure 14.

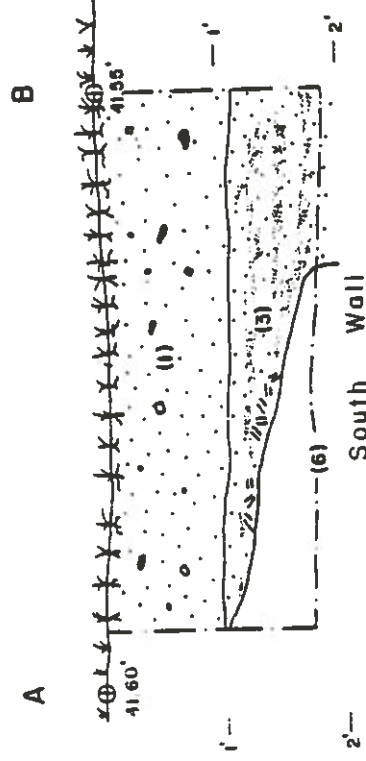


Figure 14. Cross Section of the Top Portion of the Fort Ditch.

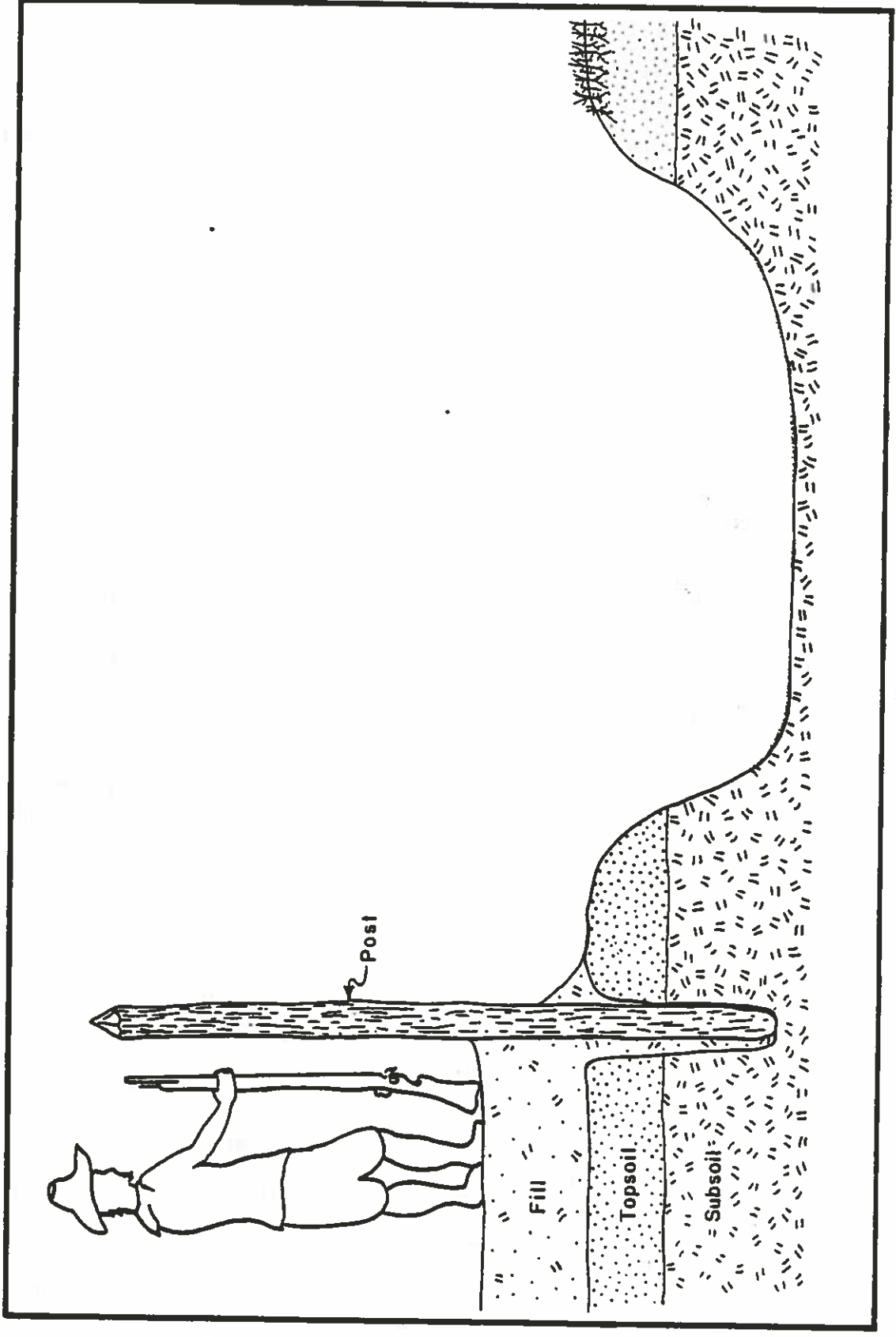


Figure 15. Conjectural view of the 1634 Fort Bastian.

Maryland. Judging from the original size of the ditch and its curvature, the construction appears to have been more substantial than other early 17th-century fortifications, such as Martin's Hundred (Noël Hume 1982) along the James River in Virginia. This is perhaps to be expected with a fort reportedly 360 feet on a side. Within the Fort the first cottages were built, and the fragile remains of these could indicate the initial responses made by the colonists as they began the process of adapting to a foreign, unknown land. Thus, further excavations could yield evidence dating from the very first weeks of colonization, and provide insights regarding the architecture, spatial organization, activities, material culture, and subsistence practices of a people coping for the first time with the New World.

The Leonard Calvert House

Approximately 70 feet from the Fort bastion, several segments of a brick wall foundation of a large building were encountered (Plate 5). This structure had been discovered by Henry Chandlee Forman in 1937 who was able to determine its size and shape through selective excavation and probing (Forman 1938). Although the precise location of this building was not known to the St. Mary's City Commission archaeologists, the segments uncovered in 1981 conform extremely well with Forman's 1938 plan, and it is certainly the same site. The plan view of the overall structure is shown on Figure 16.

Architecturally, this building is quite unusual. It apparently measured 67.5x40 feet and is a very large building by 17th-century standards. The brick work suggests that it was a double-pile structure - essentially two one-story, single gabled buildings built side by side with a possible central passage (Forman 1938: 269-70).

Forman tentatively identified this structure as William Smith's "Townhouse" and thought that it also may have been a structure named the "Country's House," but not the home of Leonard Calvert. During 1940, Forman continued his search for the Calvert House and reiterated the identification of the brick building as Smith's (Forman 1943). Subsequent historical research has indicated that Smith's Townhouse, or ordinary, was built in 1666 and burned in 1678 (Carr n.d.). Excavations around and within the brick foundation did not reveal evidence of a fire destruction (e.g., ash, charcoal, melted glass, or burned nails) thereby placing in doubt its identity as Smith's Ordinary.

Site History

Leonard Calvert was instructed by his brother, the Lord Baltimore, to construct a "convenient house...for his Lordship and his Governor" during the first year of the colony (Stone 1982: 171). Since Lord Baltimore was unable to travel to Maryland because of continuing political difficulties in England, Governor Leonard Calvert apparently used the house as his residence and formally acquired it and the fort lands in 1641 (Stone 1982: 21). Little is known of the building's appearance or construction except that it is described as a "large fram'd house" in Calvert's 1647 will. It was apparently one of the

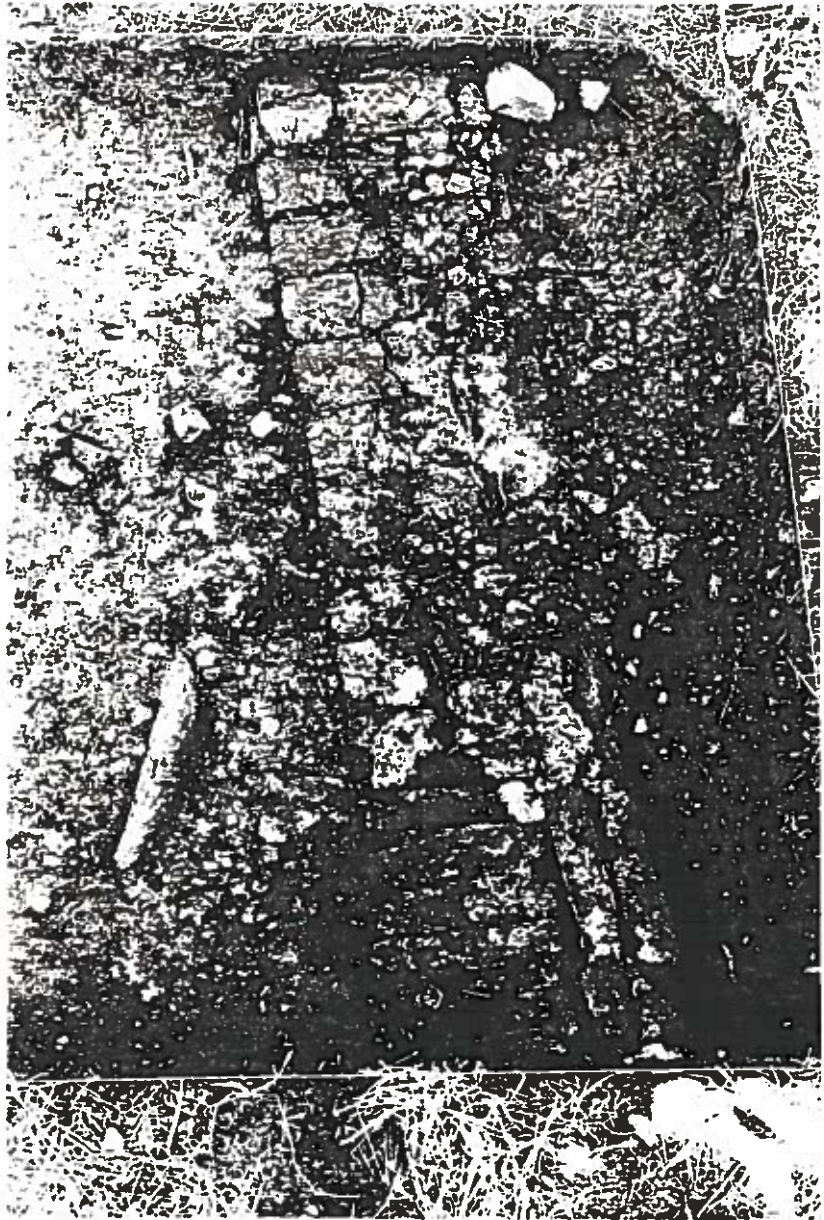


Plate 5. Brick wall foundation of the Leonard Calvert House.

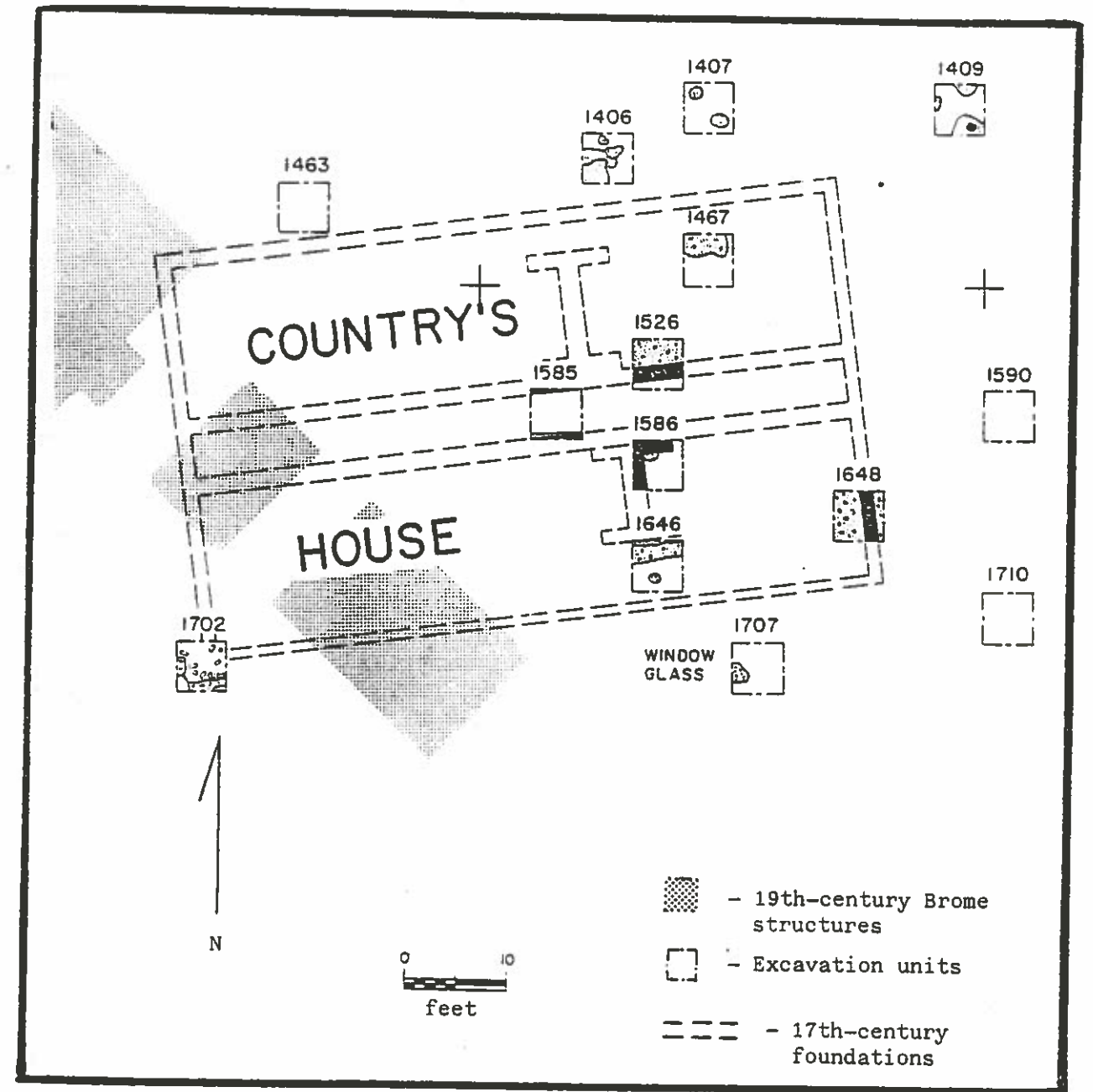


Figure 16. Plan view of the Leonard Calvert house.

largest structures in the new colony and saw frequent use as the meeting place of the Council. Following Calvert's death, Governor William Stone occupied the house and used it as his St. Mary's residence until his death in 1659. The province of Maryland purchased the structure from the Calvert family in 1662, and it became known as the "Country's House" after that date. Although leased as an ordinary from then on, the building continued to serve governmental functions and was the first State House of Maryland. As one of the earliest substantial structures built, the rest of the village grew up around it, and the Country's House became the focal point of St. Mary's City.

Beginning in 1661, a series of innholders occupied the Country's House until the end of the century. The last historical reference is a petition in 1695 for the renewal of the lease for the building. This was granted, and occupation probably continued into the early 18th century. Therefore, the historical evidence indicates an occupation span of at least 70 years.

Archaeological Evidence

The uncovering of a substantial brick foundation would, at first glance, seem to contradict the historical evidence which described Calvert's house as a large frame structure. However, the last documentary reference to the site resolves this problem. The 1695 petition regards

...a certain messuage in St. Mary's City commonly known by the name of the Countrey house...which said messuage was leased to John Baker...That the sd John Baker in his life time and the sd Elizabeth since his death has expended about thirty thousand pounds of tobacco in making Brick walls and Chimneys and other reparations about the sd house... (Assembly Proc. 19: 120).

The brickwork uncovered in 1981 can be most reasonably linked with the occupation of John Baker during the late 17th-century and, therefore, does not negate the Calvert association with the structure.

Stronger evidence for the identification of this building as the Country's House exists in the form of paling fence ditches which demarcated the property boundaries. Excavation revealed parallel, double fence ditches, probably resulting from replacement, on the east and south sides of the brick foundation, while on the west side, a possible fence ditch was found. In addition, a thick midden covers the area at the west end of the structure, and this midden terminates in the same location as the possible western fence -- suggesting a yard boundary of some type (Figure 12). What makes these fence segments of significance is a 1666 lease which states that the Country's House was enclosed by a pale fence (Prov. ct. Proc., Lb. 10, f351-52). A 1678 lease gives the property dimensions as 8 perches, 6 feet (138 feet) by 24 perches (396 feet) (Pat. Lib. 20, f381). Although the archaeologically detected paling ditches are not absolutely straight, it is possible to measure approximately the distance from the east pales to the edge of midden and possible fence on the west. This distance is about 140 feet, which is remarkably close to the lost width given in the 1678 lease.

Also bearing upon this is the fact that, unlike the 1.25-acre Country's House lot, other properties in St. Mary's City were laid out in one-acre increments. The standard formula for this is 12x13.3 perches or 198x220 feet. All but one of the documented home lots had these dimensions; the exception is Triple Contract which measured 247.5x176 feet (Carr n.d.). Hence, the dimensions of the Country's House lot were apparently unique, and the close correspondence between the documentary and archaeologically determined lot widths seems compelling evidence for the identification of the brick structure as the Country's House.

Although the fence data argues for the Country's House, these lot dimensions may be post-1660 in date and do not prove that the site was the earlier home of Leonard Calvert or William Stone. Historical data indicates that the Calvert structure was one of the longest occupied sites in St. Mary's City. It was built ca. 1635 and destroyed around 1710. (St. John's is the only other comparable structure, dating 1638-ca. 1720.) Therefore, archaeological remains surrounding this structure should reflect its long history. Artifacts dating from the first decades of settlement, as well as materials from the second half of the 17th and early 18th centuries, should be associated with the structure.

Some of the earliest European ceramics in Maryland are southeast England "Surry" type wares and Flemish coarse earthenware. Both occur in direct association with this structure. An example of early 17th-century Dutch tin glazed earthenware and one sherd of Rhenish stoneware made in a mold dated 1617 (see page 66) also were recovered from the disturbed fill of a large pit immediately north of the building. Early tobacco pipes are concentrated near this structure. The early pipes include several bowls which display the initial 'EB' and have been tentatively identified as made by Edward Bird in Amsterdam between 1635 and 1665 (McCashion 1979: 92). Another variety of pipes decorated by molding or impressed with fleur-de-lis were unearthed and were apparently of early Dutch origin. The molded stems are dated ca. 1635-1660 (Duco 1981: 384). The distribution map of these (Figure 17) reveals that they form a virtual ring around the brick foundation and are especially concentrated on the west end, suggesting that the building was occupied during that period.

Later artifacts also are associated with the structure. Mid to late 17th-century ceramics found there include Morgan Jones earthenware (ca. 1661-1680), North Devon Gravel Tempered Ware, Staffordshire Slipware (post 1680), and Thin Brown English stoneware (post 1690). Tobacco pipe bowls dating to the 1660-1700 period were recovered, and a number of these displayed makers' marks, such as those of Llewellyn and William Evans (1661-1678; 1661-1696). Thus, artifacts dating throughout the 17th-century are present within the immediate area of this building. The range of artifacts found is quite comparable to that from the St. John's site, which had an occupation nearly as long as the Country's House.

One particularly telling artifact is a glass bottle seal (Plate 6). This specimen of dark green glass bears the letters 'IB' which are probably the initials of John Baker, one of the most prosperous inkeepers

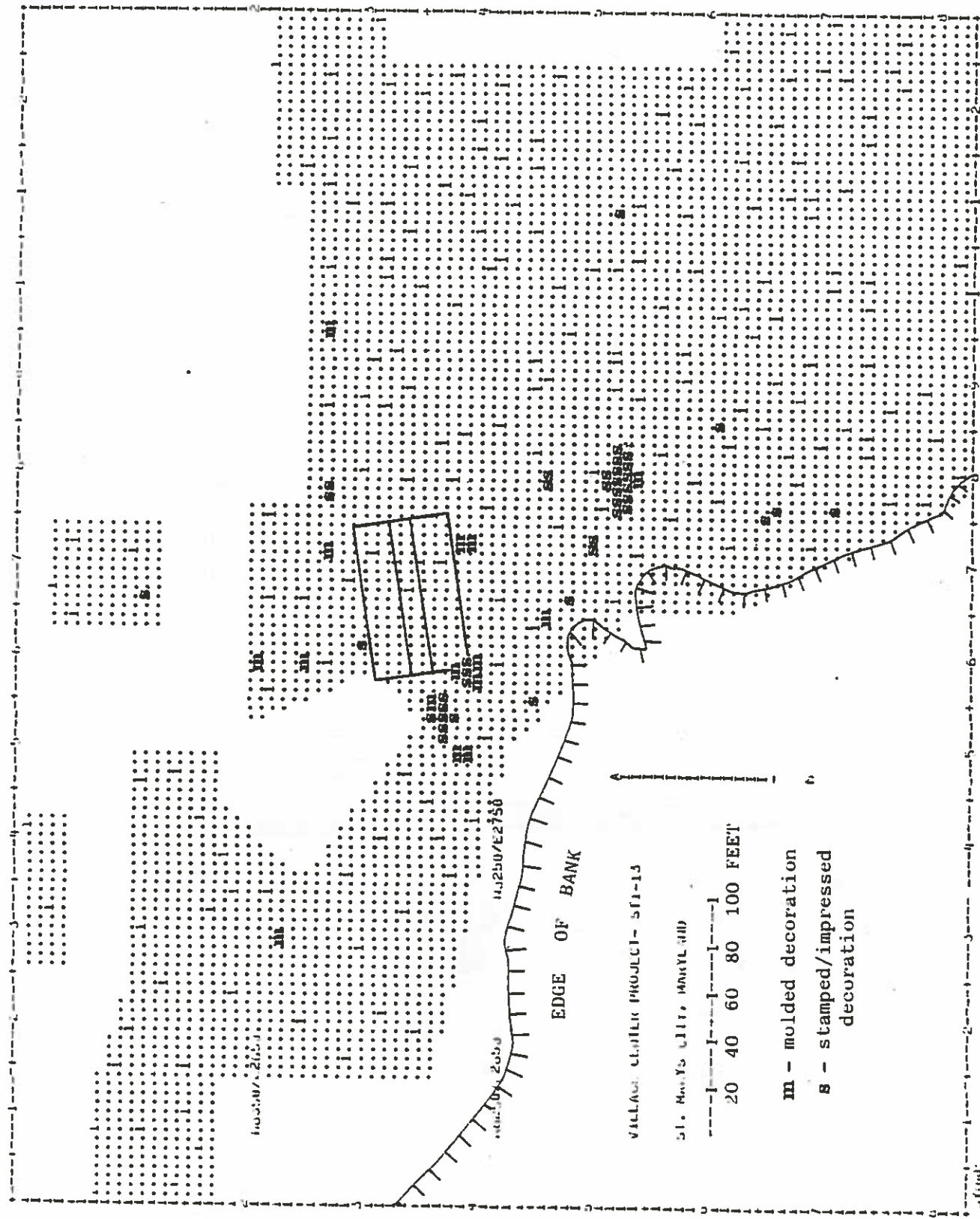


Figure 17. Spatial Distribution of Dutch Tobacco Pipe Stem Fragments

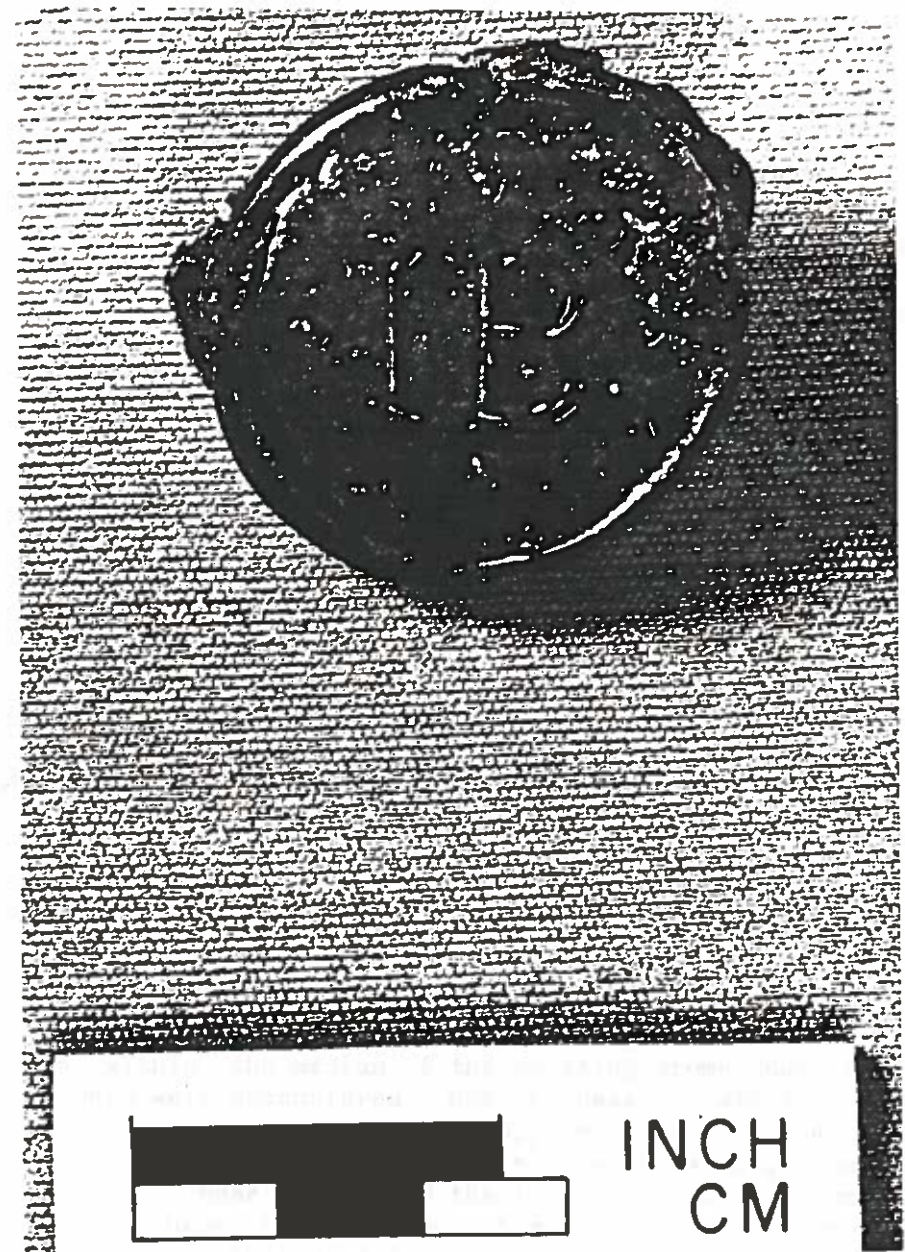


Plate 6. Glass bottle seal of John Baker recovered from the Leonard Calvert House.

in St. Mary's City. Baker leased Calvert's former home as an ordinary from 1678 until 1688, and he bricked its walls and chimneys during his tenancy. The seal was recovered from Square 1646 inside the structure. While not conclusive in itself, when taken in conjunction with all the other data, the discovery of this seal is very strong evidence for the identification of the foundation as the Country's House, and hence, Calvert's former home.

There is little evidence to support an identification of these remains as William Smith's Ordinary. Documentary research indicates that Smith's Ordinary was occupied for a relatively brief time period, ca. 1666-1678, and was reported to have "burned to ashes." There is no evidence for a fiery destruction within the brick foundation, and the artifacts indicate a long occupation instead of the 12-year span expected for Smith's. In summary, the evidence strongly indicates the remains as those of Calvert's House instead of Smith's Ordinary.

This identification is of utmost importance, for the Calvert House was at the heart of 17th-century St. Mary's City. Around it the village grew and roads intersected. Its remains will permit study of the evolution of architecture, lifestyle, and space usage from the first years of settlement until the end of the 17th-century. Historically, its role as the first governor's residence, Maryland's first State House, and a key center of political and social interaction in Maryland's first capital makes it a site of major significance.

The area around the Country's House foundation contained a variety of archaeologically detected features. Figure 12 illustrates the excavation squares and features. As noted earlier, the area to the west of the foundation contained what seems to be a broad sheet midden. The extensive nature of this deposit suggests that the space was used as a dump and service yard for the building at some point in time. To the north of the brickwork, traces of fence lines, several large pits, and other features were identified. A mid-17th-century, trash-filled pit is located just north of the foundation (see pages 63-73 for discussion). Fence ditch segments served to demarcate the backyard of the Country's House, and those immediately associated with the foundation (Squares 1221, 1345, 1470) conform precisely with its orientation. Further north, within the median of the existing Brome House driveway, two fence ditches were encountered. One of these (Square 747) is oriented east-west, while the other (Square 925) appears to be angling in a south-eastern direction. This fence has been intruded by a large feature, possibly a cellar. These fences and the large pit indicate some type of activity occurred there, and it is possible a building once stood in the vicinity. Also within this area lies the 18th-century field ditch (Square 744) which led to the discovery of the Fort.

Other Features

The 1981 excavations revealed many features which were not directly associated with the Country's House lot; all are displayed in Figure 12, Page 42. South of the Country's House in Square 2130, a large concentration of bone and brick rubble was encountered. This appears to be the last fill in the top of an abandoned cellar hole (Plate 7). To the southwest of



Plate 7. Mapping of possible cellar hole located south of the Country's House lot.

this feature, an unexpected architectural discovery was made in Square 2607. At the bottom of plowzone, the fragile remains of a fallen plaster wall were revealed (Plate 8). Within a matrix of brownish-yellow rough-coat plaster, lay the impression of a wall stud which is oriented east-west and measures $3\frac{1}{4}$ inches in width. At right angles to this stud mold are the impressions of at least three lath segments. There were apparently riven strips of wood with the only measurable specimen approximately two inches in width; distances between them are approximately $2\frac{1}{2}$ inches. The exposed materials are a thick layer of undercoat plaster with a thick layer of fine, finish-coat plaster lying beneath it. The orientation of the wall stud and lath, and the facedown position of the interior wall surface, indicate this is either an east or west wall of a structure which collapsed inward. Although only a small portion of the intact plaster has been uncovered, there is an excellent possibility it extends over a larger area and conceals a 17th-century living surface. All the nails found with the wall are wrought, and no 19th/20th-century artifacts were recovered from the associated soil stratum. Several other features probably are associated with the plaster wall. These include a row of post holes (Square 2488), a possible robbed foundation of a chimney (Square 2489), and a concentration of brick rubble (Squares 2551 and 2611).

Just to the east of this building is a cellar partially excavated by Henry Chandlee Forman in 1940 (1943) and tested by the St. Mary's City Commission in 1979 (Figure 18). This test yielded a rich sample of artifacts, including a magnificent Rhenish Stoneware ewer (Plate 9). This dates to the second half of the 17th-century. Although no structural features associated with a building over the cellar were found, elements of the 17th-century yardscape were encountered in Square 2433. This complex of fence ditches, located just northwest of the cellar, may define one corner of a yard which enclosed the cellar structure.

Further to to the east, post holes were discovered in Squares 2505, 2562, 2563, 2622, and 2682. While these post holes do not form any immediately recognizable pattern, a clustering of five posts within a 40x40-foot area suggests that some type of post-supported structure once stood there. The holes in Squares 2621 and 2622 contain 17th-century brick in their fill. To the southeast of these posts, several fence line segments, which may intersect to form the corner of the yard, were uncovered.

Just north of these post holes and along the eastern edge of the sample area, additional indicators of architecture were uncovered. In Square 2325, a large, rectangular structural post, 1.9x2.7-feet, was detected. Fifteen feet to the northeast, in Square 2266, what seems to be a large pit intruded by a paling fence ditch was uncovered. Another intrusion of undetermined nature, containing 17th-century Dutch brick, was found in Square 2443. All of these features indicate considerable human activity in the area and suggest that a structure stood there. It is likely that the locus of this occupation lies to the east just outside the study area.

A confusing variety of features were detected to the north. In Square 1541 there is an apparent structural post hole with a nine inch

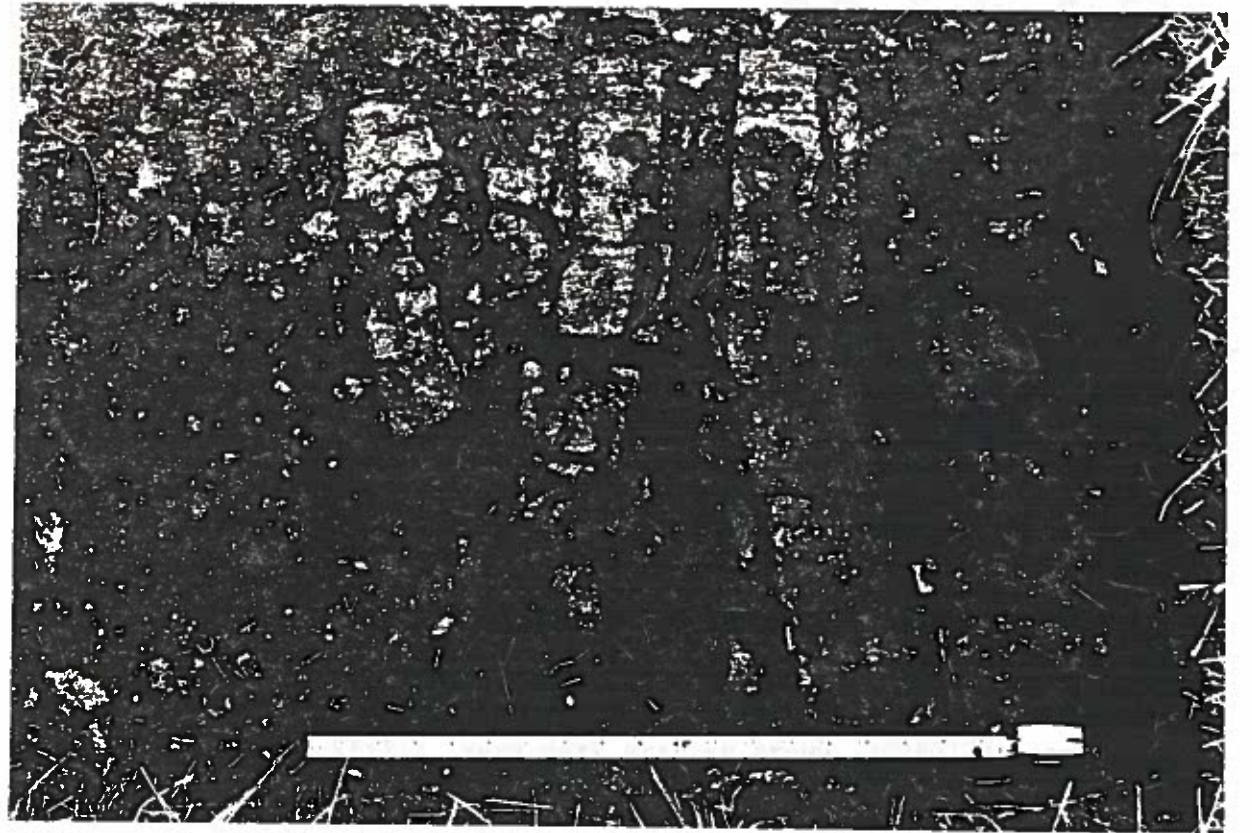
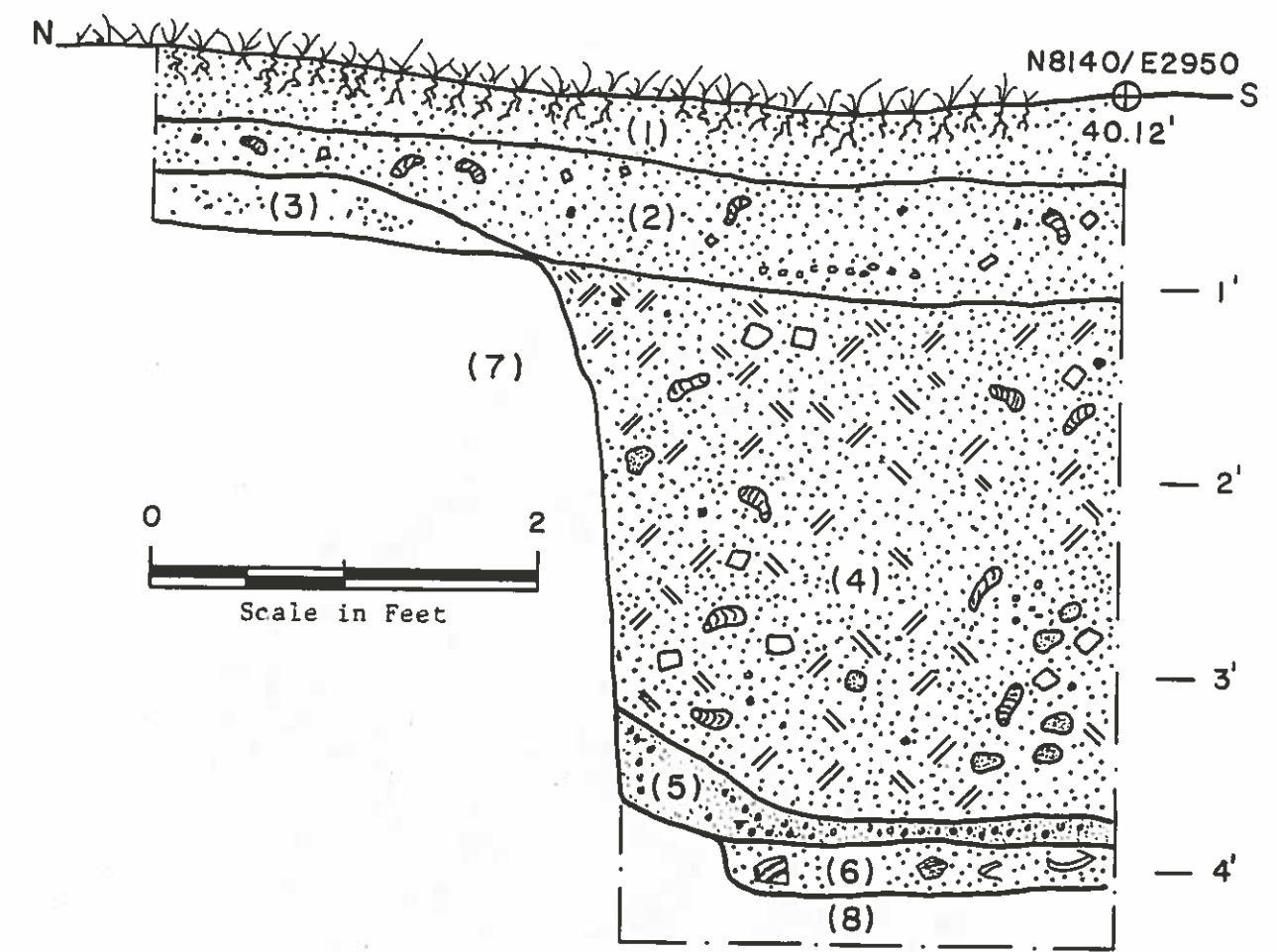


Plate 8. Collapsed plaster wall section revealed at the bottom of plowzone.

Square #2434 -- East Wall



- (1) Topsoil: Very dark grayish brown (10YR3/2) loam [2434A].
- (2) 1940s Backfill: Very dark grayish brown (10YR3/2) loam with oyster shell, brick, and charcoal fragments [2434E].
- (3) Plowzone: Dark yellowish brown (10YR4/6) loam, mottled with 25% very dark grayish brown (10YR3/2) loam [2434F].
- (4) 1940s Backfill: Very dark grayish brown (10YR3/2) loam, mottled with 45% dark yellowish brown (10YR4/6) loam and fragments of oyster shell, brick, mortar/plaster, charcoal and bone [2434F].
- (5) Gravel Lens: Dark yellowish brown (10YR4/4) sandy loam and gravel [2434F].
- (6) Occupation Fill: Brown-dark brown (10YR4/3) loam with artifacts [2434G].
- (7) Subsoil: Yellowish brown (10YR5/6) clay loam, mottled with 20% brown-dark brown (10YR4/3) loam.
- (8) Subsoil: Yellowish brown (10YR5/6) sandy, gravelly loam.

Figure 18: Cross-section of Cellar Fills.



Plate 9. Rhenish stoneware ewer recovered from occupation fill in the cellar.

square post mold (Plate 10). An even larger post hole occurs in Square 1603 and has a mold approximately 16 inches in diameter. Square 1600 also contains a large intrusion which may be a post hole. While each of these features may be associated, their differing orientations and sizes suggest that they either derive from buildings of different periods, or represent a main structure and additions.

In the far northwest corner of the study area, indications of another structure were unearthed. Several small post holes occur here, although no pattern can be discerned. The most well-defined hole, in Square 905, measures 1.3 feet in width and contains a mold half that size. A fence ditch segment appears in Square 845, and pits of some type occur in Squares 847 and 780. Therefore, subsurface evidence for human activity in this area exists, and it is likely that a structure of some type was located within or near this portion of the sample area.

The remains of fences define property boundaries and yards, and segments of many fencelines were found throughout the study area (Plate 11). Three varieties of 17th-century fences involved the digging of a ditch. The first of these is a wattle fence constructed by digging a narrow trench, working stakes or sticks into the soil at intervals, backfilling around these, and then weaving brush between them to form a solid barrier. Pale fences, on the other hand, require a ditch and post holes and thus, are a more rugged type of fencing. Long, thin slats of wood (pales) are placed closely together in a ditch, the soil is packed around them, and they are united by nailing a horizontal strip near the top. The horizontal strips could be affixed to posts normally set at 8-, 10-, or 12-foot intervals for support, although with deeply set pales, this is unnecessary. Even more rugged is the palisade type of fence which employs larger timbers, sometimes quartered logs, set into a deep trench and held in place by tamped earth. Each of these fence types displays varying degrees of durability, ruggedness, and cost, and thus, served different functions or stood at different times at a site. They usually can be distinguished by careful excavation, and each type almost certainly was used in the Village Center. However, because feature excavation was not a component of the 1981 excavation strategy, it is not possible at this time to ascertain which type is represented by a specific fence ditch segment. Other types commonly in use were the post-and-rail and worm fences. The former are difficult to detect archaeologically without opening large areas; plowing can be expected to obliterate traces of worm fences.

While a few of the ditches appear to be associated with the 1634 fort, some were clearly elements of the Country's House yardscape. Other fence segments encountered in Squares 1948, 1950, 2074, 2372 and 2433 seem to have defined yards surrounding buildings indicated by cellars in Squares 2130 and 2434. The majority of the fence lines are oriented approximately north-south or east-west, which suggests that they were laid out with reference to compass bearings. Many of the ditches appear to be at a slight angle to the site grid; this is expected since magnetic north in the 17th century is estimated to have been approximately 2 degrees west of current magnetic north (Lois Carr 1981: Personal Communication). Because property boundaries in the center of St. Mary's City generally were laid out north-south or east-west with a compass, and given the propensity of the fence segments to display a similar orientation, it seems likely that many demarcate property lines or were placed in reference to them.

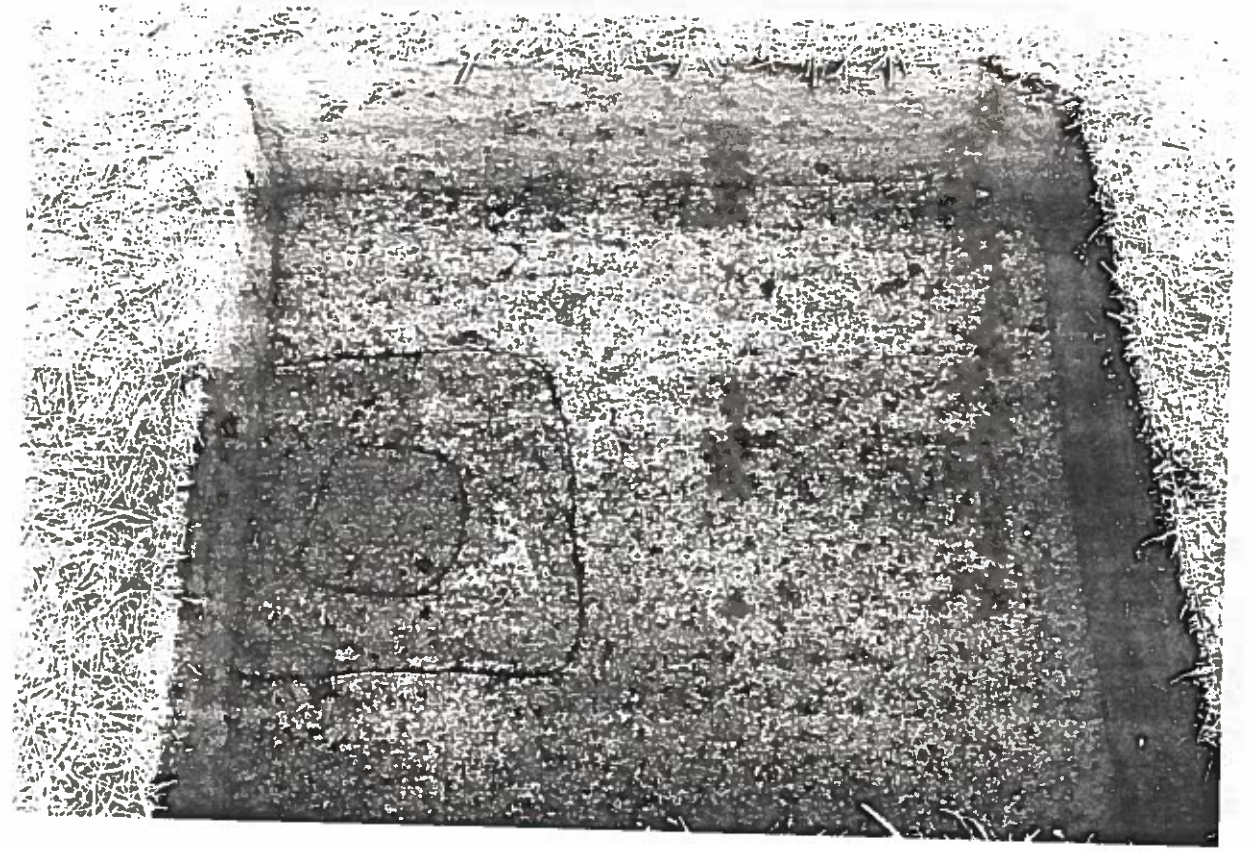


Plate 10. 17th-century structural post hole and mold.

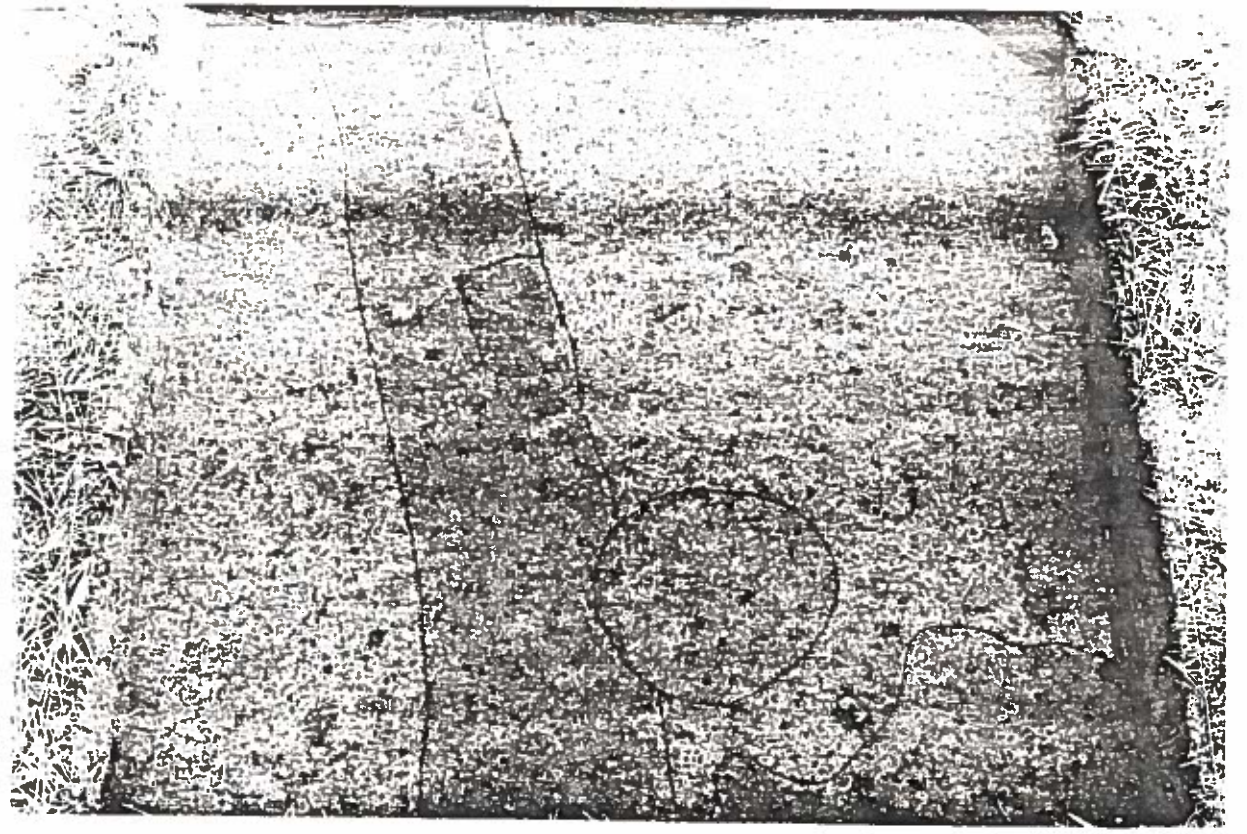


Plate 11. Section of fenceline ditch exposed during Village Center excavations.

Before property boundary locations can be determined and specific lots identified, it is necessary to consider other components of the 1981 findings. One of these is the only 17th-century feature excavated; it can provide some indication of the potential of sub-surface cultural remains at the site. The other is the information derived from the artifacts which were recovered. Not only will this information help confirm or deny the existence of structures suggested by the sub-surface evidence, it will provide an essential temporal perspective on occupation within the Village Center.

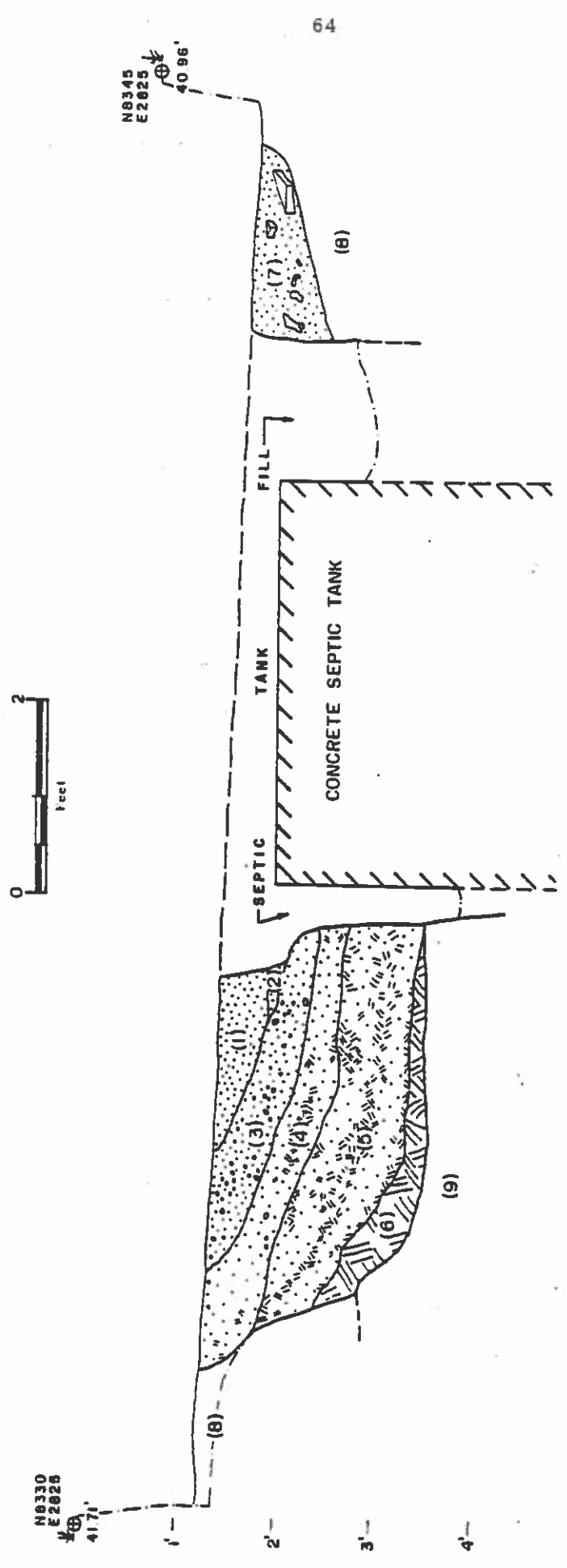
Feature 1221

During the course of the 1981 season, it became necessary to replace the septic tank which served the Brome-Howard House. Preliminary investigations to expose portions of the old, collapsing tank produced many colonial and aboriginal artifacts. Subsequently, rescue excavation was undertaken to recover as much archaeological data as possible and to provide the contractor with the dimensions of the original hole so it would not be exceeded by the installation of the new tank.

To facilitate recording and subsequent study of the artifacts, the site grid was extended over this area, and the 1950's tank, hole, and associated pipe trenches were found to lie in parts of squares 1221-1223 and 1281-1282. The mixed brown loam fill, which contained many artifacts, was shoveled from each of these areas and screened through three-eighth-inch mesh. Excavation was halted when the sides of the hole and top of the metal tank were reached. All four walls were cleaned, photographed, and drawn in cross-section to the top of the tank.

At this point, the old tank collapsed and was removed. With that tank gone, it was clear that the fill around and below it was the same as that above it, not subsoil. This soil was excavated mechanically and set in a pile to be screened; provenience by individual squares was no longer maintained. During lulls in construction, the cross-section drawings were completed. These show clearly that the 1950s septic tank excavation had cut through and mixed together several 17th-century strata and/or features, as well as the overlying plowzone and topsoil (Figure 19). Natural strata to the bottom of the hole were recorded only for the north wall.

Numerous artifacts were recovered by screening the fill, and the total count is 7,314. The majority of these were bones, as indicated in Table 4, but significant quantities of ceramics, pipes, and bottle glass were also found. Because intact portions of the feature remain to be excavated in the following season and additional artifacts will assuredly be recovered, no exhaustive analysis of the assemblage will be conducted at this time. The materials will be briefly described, and the more datable artifacts will be discussed to ascertain the date of deposition.



KEY

- (1) Very dark brown (10YR5/2) loam evenly mixed with grayish brown ash with charcoal and brick [12823]
- (2) Very dark grayish brown (10YR3/2) loam evenly mixed with dark ash and large bits of charcoal [12824]
- (3) Dark yellowish brown (10YR4/4) loam with silt wash lenses of yellow (10YR8/6) and pebbles, charcoal [12825]
- (4) Dark yellowish brown (10YR4/4) loam mottled with 20% yellowish brown (10YR5/8) clay and wash lenses [12826]
- (5) Brown-dark brown (10YR4/3) loam with 25% large mottles of yellowish brown (10YR5/8) clay and wash lenses [12827]
- (6) Strong brown (7.5YR5/6) clay mottled with 5% dark brown (10YR3/3) clay loam and wash lenses [12828]
- (7) Dark yellowish brown (10YR4/4) loam mixed with bone, brick, occasional charcoal flecks [12829]
- (8) Yellowish brown (10YR5/8) clay mottled with 20% dark yellowish brown (10YR4/4) loam [12830]
- (9) Strong brown (7.5YR5/6) sandy clay with gravel [12831]

Figure 19. Cross Section of Feature 1221 Below Plow Zone

TABLE 4: TOTAL ARTIFACTS FROM DISTURBED PORTIONS
OF FEATURE 1221

Type	Number
White Clay Tobacco Pipes	266
Terra Cotta Tobacco Pipes	327
17th-Century and Colonial Ceramics	116
Bottle and Table Glass	242
Colonial Window Glass	51
Tin Glazed Flat Tile	1
Orange Flat Tile Fragments	138
European Flint	64
Wrought Nails	402
Other Materials	285
Aboriginal Ceramics	8
Aboriginal Lithics	155
19th-20th-Century Ceramics	12
19th-20th-Century Bottle & Table Glass	30
19th-20th-Century Window Glass	45
Cut and Wire Nails	55
Animal Bone	5127
Total	7314

A variety of ceramics were removed from the fill, and these are listed in Table 5 below. While a few late 17th-century ceramics, such as Staffordshire-style slipware and manganese mottled ware, were present, many of the sherds appear to be earlier, and such mixing of materials is expected due to the provenience of the assemblage. One early vessel is a tin-glazed basal sherd with a "Dutch-style" footring (Plate 12a). It has a salmon-colored paste and displays a lead-glazed exterior. Blue decoration occurs on the interior surface in the form of intersecting lines which comprise a network of squares. An identical decorative motif appears on a Netherlands vessel dated to the beginning of the 17th century (Korf 1963: 37, #49), and it seems quite likely that the St. Mary's specimen is also of Netherlands origin and dates to the first half of the 17th century.

TABLE 5: 17th-CENTURY CERAMICS RECOVERED FROM FEATURE 1221

Ware Types	Sherd Count
Rhenish Blue and Gray Stonewares	11
Rhenish Brown Stoneware	11
French Stoneware	27
Lead Backed Tin Glazed Earthenware	2
Tin Glazed Earthenware	16
North Devon Sgraffito Ware	2
Staffordshire Style Slipware	1
North Italian Slipware	1
North Devon Gravel Tempered Ware	3
Black Glazed Red Earthenware	3
Orange Chalky Pasted Ware	2
Gray Bodied Ware	3
Manganese Mottled Earthenware	1
Flemish Coarse Earthenware	7
Iberian Earthenware	1
Miscellaneous Earthenware	<u>25</u>
Total	116

Another sherd is the earliest dated ceramic object yet found in Maryland and perhaps in the Chesapeake region. It is blue and gray Rhenish stoneware and displays a large portion of an applied medallion (Plate 12b). The decoration on this medallion depicts a man walking over a grassy surface carrying a large cluster of objects resembling grapes. An identical sherd appears in Steinzug (Von Bock 1971: #565), where the scene is identified as having a Biblical theme and represents men carrying the fruits of the Land of Canaan. A date of 1617 appears on the illustrated specimen. It is probable that the same date occurred on the St. Mary's vessel and both were made in the same mold. Although a mold could have been used over a long time span, the decoration on the Maryland sherd is clear and in high relief, suggesting that the mold had not been long in use when the vessel was made. Other early sherds include several tin glazed earthenware galley pot fragments which are decorated with blue and purple in a style of the early to mid 17th

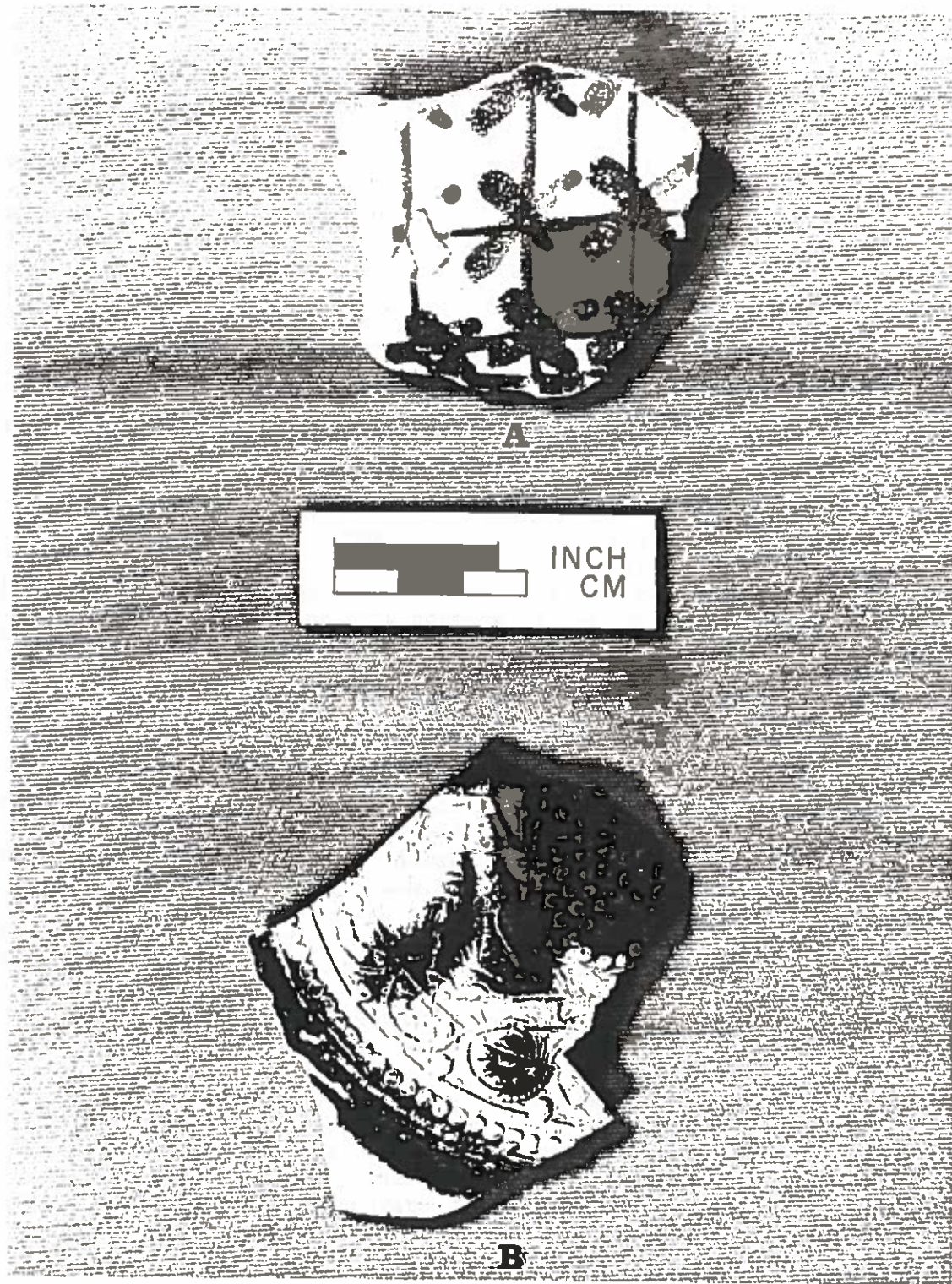


Plate 12. Two early 17th-century ceramic fragments from Feature 1221.

century (Noël Hume 1977: 24-26). Seven sherds of Flemish or Dutch coarse lead glazed earthenware also were collected from this deposit, and they are identical to fragments found at St. John's in ca. 1640-1660 contexts.

Many sherds of French stoneware are in the collection and these warrant some discussion since this ceramic has not been identified previously in Maryland. The 27 fragments are all thin, the exteriors are reddish brown in color, and the interior surfaces are red. A hard, medium textured clay with few inclusions comprises the paste, and a thin carbon streak appears on most of the sherds. Throw lines are well-defined on both surfaces. These fragments apparently represent a bottle or flask form similar to one of French origin recovered in Southampton (Platt and Coleman-Smith 1975: 152, #1101). Two bottle necks identical in form to the English specimen and in paste and color to the St. Mary's fragments were recovered from Jamestown, Virginia in a feature labeled Refuse Pit 1. Associated artifacts show that these bottle necks were discarded ca. 1640-1660 (Cotter 1958: 151). Noël Hume discusses this ceramic and states that it is most common during the first half of the 17th century (1972: 76-77).

In addition to the ceramics, much bottle glass was retrieved and all of it is, without exception, from case bottles. These flat-sided bottles were used throughout the 17th and 18th centuries, but prior to c. 1650, they were the only bottles in use (Noël Hume 1972: 62). Round bottles did not reach the colonies until after that date. While the presence of only case bottles is not indicative by itself, when taken with the other data, this fact strengthens the argument for an early date of deposition.

Tobacco pipe remains also imply an early date for the feature. Bowl forms (Figure 20) tend to date to the c. 1640-1670 period, and the identified maker's mark is in agreement. This mark is EB and has been identified as the initials of Edward Bird, an Amsterdam maker who worked from 1635 to 1665 (McCashion 1979: 92-93; Duco 1981: 306). An MB mark occurs on several pipe bowls which can be dated to the c. 1645-1665 period, but the maker has not yet been identified. Finally, several stems display fleur-de-lis marks which indicate pipes dating prior to c. 1665. Because of the large quantity of Dutch materials in this assemblage, stem bore dating is not considered appropriate and has not been employed.

Besides the European pipes, large numbers of locally produced terra cotta pipes were recovered. These occur in two varieties: 1) European-style molded pipes of local clay (Figure 21: A-C); and 2) Handmade, decorated pipes produced by the Indians (Figure 21: D-N). The Indian-made pipes are typically decorated with geometric designs or an animal motif labeled the "Running Deer," but in this feature two new designs appear. One is the image of a human standing over, or on the back of, a large water bird (Figure 21: J). It is the first representative of a human to be identified on terra cotta pipes. The other notable fragment appears to depict fish, perhaps a catfish (Figure 21: I). Large numbers of these pipes were found at the St. John's site in deposits of c. 1640-1665.

FIGURE 20: EUROPEAN-MADE WHITE CLAY TOBACCO PIPES
FROM FEATURE 1221

(All pipe bowls, actual size; Makers
Marks 2X)

- A. A small, bulbous bowl with a heel. This form resembles several pipes in the literature including a possible London product dated c. 1640-1680 (Rutter and Davey 1980: Figure 7, #50), and a York pipe of the c. 1640-1660 period (Lawrence 1979: 68-69, Type #5).
- B. Similar to the above in form and probable date. However, this specimen is too fragmentary for precise dating.
- C. A bulbous form with a spur. It shares a number of attributes with a Chester pipe form dated c. 1640-1680 (Rutter and Davey 1980: Figure 10, #103, 104), but is slightly larger. In Oswald's general typology, it most closely resembles a form dating 1640-1670 (1975: Figure 4, #17). Stem Bore: 7/64ths inch.
- D. This pipe has a large bowl and a small heel. It may be of Dutch origin. Dating is difficult, but a c. 1640-1670 assignment is likely. Stem Bore: 8/64th inch.
- E,F. A Dutch pipe with a small heel into which are stamped the letters EB. The bowl form is similar to "Belly Bowl" pipes found on c. 1640-1670 sites in New York State. The maker is Edward Bird of Amsterdam (1635-1665) as indicated by McCashion (1979: 92) and Duco (1981: 399,463). There are six specimens in the collection and all have 9/64ths inch bore diameters.
- G. This EB mark occurs on a fragmentary bowl which apparently was slightly larger than the other specimens. It is probably a somewhat larger variety of the Edward Bird mark. Stem Bore: 8/64ths inch.
- H. One stem fragment bearing this mark was retrieved. The S over W mark has been found in Lincolnshire (Wells 1979: 163), London (Oswald 1975), Plymouth (Oswald and Barber 1969: 136), and in Virginia (Noël Hume 1966). It may be the mark of a London maker who operated sometime between c. 1650 and 1690, but other sources have been suggested (Wells 1979: 163). Stem Bore: 8/64ths inch.
- I. There are six examples of this bowl form in the collection and none is marked. The shape and heel form is close to that of pipes from A Dutch ship, the *Vergulde Draeck*, which sank in 1656 (Green 1977: 156-57, GT 1021). The St. Mary's specimens have polished surfaces and well executed rouletting at the rim. Five have bore diameters of 8/64ths inch and one is 7/64ths inch.
- J. Two heel fragments are impressed with this mark. The heels are large, flat, and round in shape. This mark has not been identified. Stem Bore: 8/64ths inch.
- K,L. Three pipe bowls bear this mark. The bowl shapes are similar to those dated by Noël Hume as c. 1645-1665 (In Walker 1977: Figure 6b-1, #8), and examples found at Martin's Hundred, Virginia in c. 1640-1670 contexts (A. Noël Hume 1979: 23-24). The maker of these MN pipes is unidentified, but a Dutch origin is likely.
- M. A large, quite bulbous bowl form represented by two specimens. This form bears some resemblance to Oswald's general type 5B which is dated c. 1640-1670 (In Walker 1977: Figure 1b, #5b). Stem Bore: 8/64ths inch.
- N. Pipe with a large bulbous bowl and a flat, circular heel. One distinguishing characteristic of the pipe is that the bowl is taller than the others. Although this pipe is unmarked, it is similar in shape to a Bristol pipe made by Philip Edwards (1649-1683), but somewhat larger (Jackson and Price 1974: #84). Stem Bore: 8/64ths inch.
- O. Fragmentary portion of a pipe bowl with molded decoration. The raised molding depicts a man in 17th-century dress with a jumping dog at his side. Identical specimens have been found at the St. John's site and at Pemaquid, Maine (Camp 1975: 57). This is probably of Dutch manufacture.

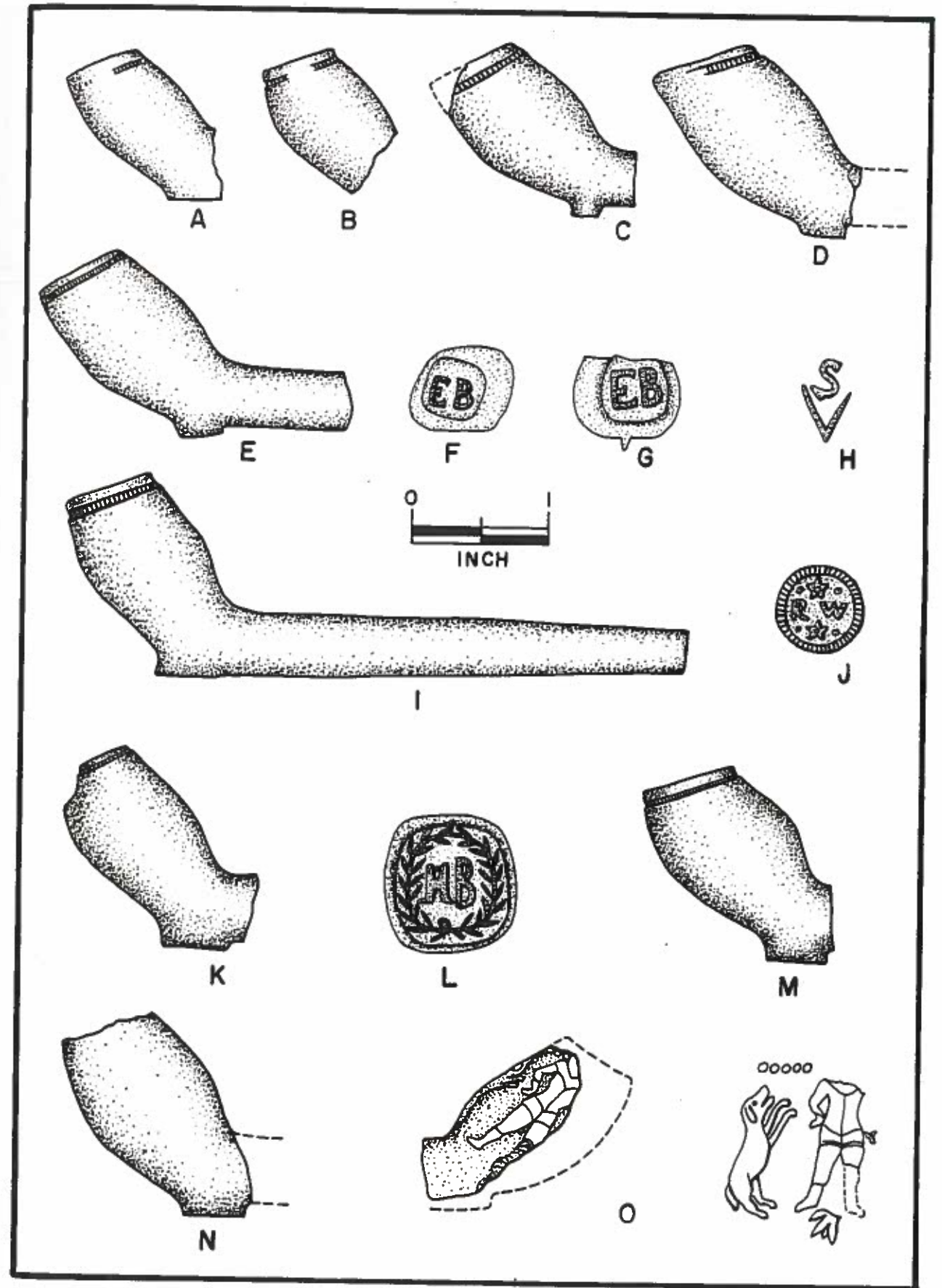


Figure 20. European-made White Clay Tobacco Pipes from Feature 1221.

FIGURE 21: COLONIAL AND INDIAN MADE TOBACCO PIPES FROM FEATURE 1221

MOLDED PIPES

- A. A tall, bulbous bowled pipe with a prominent, elongated heel. This pipe and the two other possibly colonial produced pipes are made from a gray to brown colored clay which contains mica specks. Specimens identical to this form have been excavated from the St. John's site (Henry 1979: 21, Figure 2f). Bore diameter: 7/64ths inch.
- B. Another bulbous pipe with a large flat heel and very light roulettin at the rim. Poorly fired. A rosette mark appears on the heel (Illustration is 2X). This bowl form and mark also was recovered from the St. John's site (Henry 1979: 21, 2J) and at Jamestown, Virginia. Bore diameter: 9/64ths inch.
- C. This fragmentary specimen had a large flat heel and is shorter than the others. It is made from a dark brown clay.

HANDMADE PIPES

- D. This is a well made example of the terra cotta pipes. It is of a light brown colored clay which contains small mica specks and has slightly burnished surfaces. Decoration was produced by impressing the edge of a serrated fossil sharks tooth. The motif is the "Running Deer" and is executed on the back and front of the bowl. Traces of white clay, probably added to highlight the decoration, are still visible in the incised lines. Identical specimens have been recovered from the St. John's site in c. 1640-1660 contexts (Henry 1979).
- E. Another example of the "Running Deer" motif executed in a different style. This pipe is of an orange clay and is not as well made as D.
- F. A plain funnel shaped pipe bowl with a thickened rim. It is made from a light orange colored clay with mica specks. Decoration consists of four incised lines around the thickened rim.
- G. An elbow type of pipe made of orange clay and decorated with parallel shallow grooves encircling the stem. At least three pipes of this form are in the collection. Similar examples have been recovered from the St. John's site (Henry 1979: 20) and the Camden site in Virginia (MacCord 1969: Figure 7a).
- H. A well made "Running Deer" pipe fragment with the decoration executed in a style different from the others.
- I. Bowl section of a brown clay pipe with a burnished surface. The figures appear to represent fish. There is no known parallel for this decoration.
- J. Unique pipe bowl fragment. Its decoration consists of a human figure standing over a large bird which appears to be a Great Blue Heron or other type of shore species. This is the first representation of a human found on the terra cotta pipes in the Chesapeake.

K,L,M,N. Examples of various geometric forms of decoration which occur on the terra cotta pipe bowls.

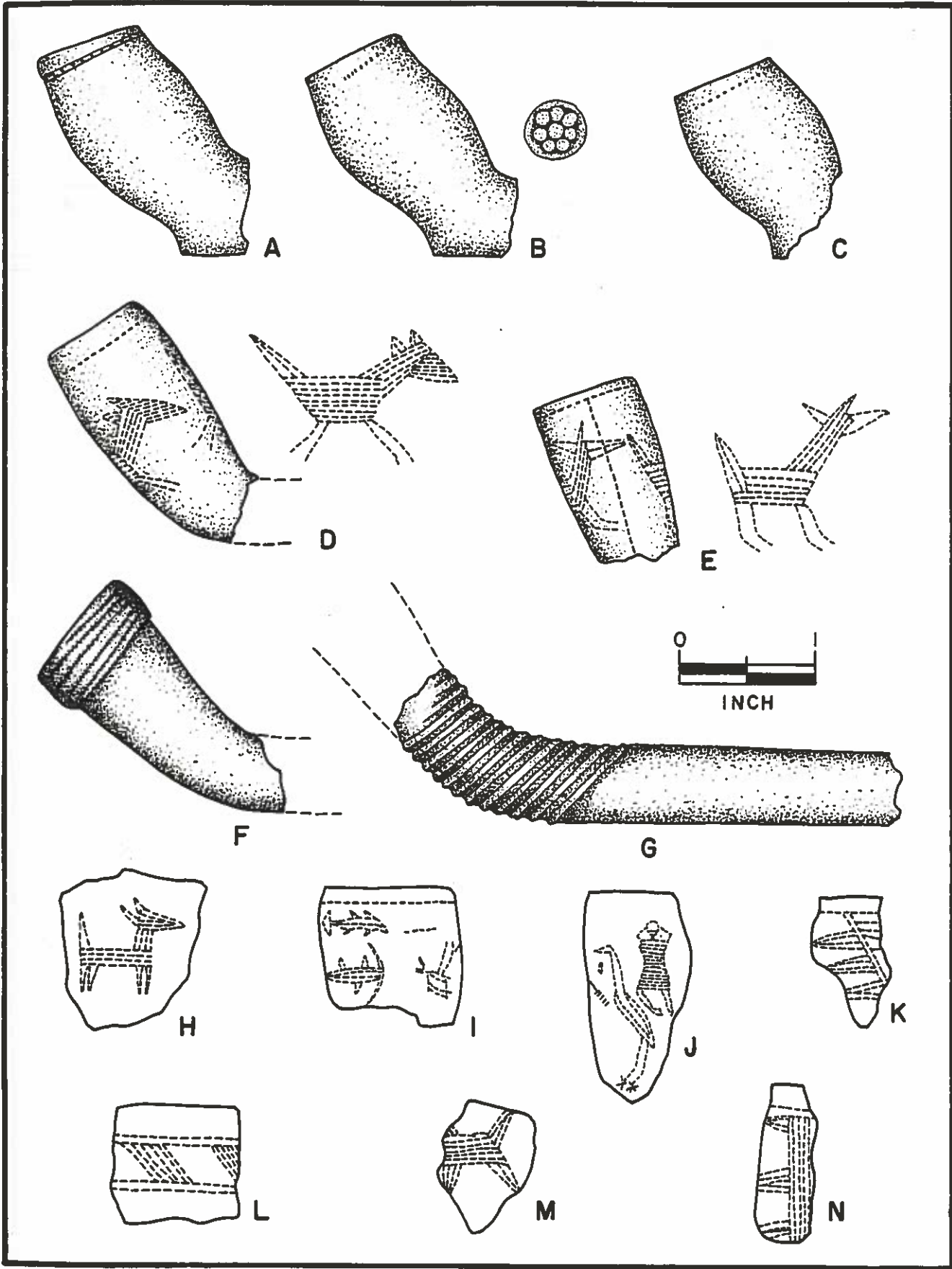


Figure 21. Colonial and Indian Made Tobacco Pipes from Feature 1221.

Even though this impressive and diverse assemblage is from mixed contexts, the vast majority of the artifacts are temporally related and seem to have derived from the same strata in the disturbed pit. When taken together, all the dateable evidence indicates that this feature was filled c. 1650. Until the surviving, undisturbed portions of this large pit can be excavated, it is not possible to fully study and interpret the artifacts, but they are exemplary of the richness and historical potential of the archaeological remains within the Village Center.



17th-Century Artifact Assemblage

A large quantity of materials dating to the 17th or early 18th centuries was recovered during the 1981 excavations. The general categories of artifacts and the quantities of each from non-feature contexts are listed in Table 6. In addition to these materials, substantial quantities of architectural debris including red and yellow brick, and small amounts of daub and mortar were recovered.

TABLE 6: TOTAL 17th-CENTURY ARTIFACTS BY GENERAL CATEGORY

Category	Number
White Clay Tobacco Pipes	3245
Terra Cotta Tobacco Pipes	626
17th-Century and Colonial Ceramics	2390
Bottle and Table Glass	1374
Beads	15
European Flint	268
Wrought Nails	4365
Window Glass	356
Other Materials	<u>850</u>
Total	13,489

These artifact groups will be discussed in the following sections, but a complete analysis of the materials is not attempted at this time due to the expected recovery of additional artifacts during the following seasons of excavation. This would render obsolete functional analyses of ceramics such as minimum vessel estimates or other analytic approaches. Attention will focus primarily upon the temporally diagnostic groups such as pipes and ceramics so that the sites within the study area can be dated precisely.

White Clay Tobacco Pipes

The remains of imported white clay pipes are common at the site, and the 1981 excavations produced 3,245 fragments. All of these derive from plowzone or unplowed midden contexts, and they represent a significant portion of the 17th-century artifact assemblage. These materials are divisible into two groups -- English and Dutch pipes -- on the basis of origin.

Pipes attributed to English makers are numerous, and bowl forms and makers marks are illustrated in Figure 22. All of the datable bowls can be assigned to the second half of the 17th century, and most of the identified marks are of Bristol pipemakers who operated during the second half of the century. Several bowls in the collection can be classified as "Yorkshire bulbous" pipes and suggest that materials from other pipe making centers were reaching the Maryland colony. Only one possible London mark has been identified at the site thus far.

A quantity of bowls and stems of Netherlands' origin were recovered (Figure 23). Of the pipes with marked heels, seven different Dutch marks (and only two English marks) have been identified. Fleur-de-lis marks are quite abundant in the collection as are mold decorated stems. Such a variety and quantity of marks and decorated stems suggests that significant numbers of Dutch pipes were smoked in St. Mary's City. Even though not all of the marks have been identified, the available dating evidence indicates that the Dutch materials are mostly pre-1665 in date.

Besides bowl shape and marks, the stem bore diameter is a temporally diagnostic trait of utility in dating pipe assemblages. Harrington (1954) determined that the earliest pipes tended to have the largest bore holes, and the diameter of these holes gradually decreased through the colonial period. While not as precise as bowl form, this technique was employed to gain some understanding of the relative intensity of occupation at the Village Center. The diameters of 2,122 stems or bowl fragments were measurable and their size distribution is shown in Table 7 and Figure 24. The Binford formula for determining mean pipe stem date was not employed since it contributes nothing of utility to this analysis.

TABLE 7: TOBACCO PIPE STEM BORE DIAMETERS FROM THE VILLAGE CENTER

Size	#	%
11/64ths inch	21	.98
10/64ths inch	33	1.55
9/64ths inch	87	4.09
8/64ths inch	377	17.76
7/64ths inch	958	45.14
6/64ths inch	572	26.95
5/64ths inch	44	2.07
4/64ths inch	30	1.41
	2122	99.95

This reveals that the 9/64ths inch and larger stems are minimally represented in the collection, possibly as a result of the small population in St. Mary's during the first decades of settlement. Stems of 8/64ths inch occur in significantly larger quantities, but the most frequent size is 7/64ths inch pipes, which account for nearly half of the measurable specimens. Less frequent, but still abundant, are stems of 6/64ths inch bore diameter. Only small quantities of 4/64ths and 5/64ths inch stems were recovered from the site. When this distribution

FIGURE 22: ENGLISH TOBACCO PIPES RECOVERED FROM ST 1-13

- A. A small, bulbous bowled specimen with a stem bore diameter of 8/64ths inch. It is similar to a pipe from Martin's Hundred, Virginia and dated c. 1640-1670 (Noel Hume 1979:23-24, #5).
- B. An elongated, slightly bulbous bowl with a small heel. No rim rouletting. Stem Bore: 8/64ths inch. It bears a strong resemblance to a pipe illustrated by Walker (1977:1549, #11) and dated c. 1650-1680.
- C. This pipe has an inconspicuous heel and relatively straight sides. Stem Bore: 7/64ths inch. Walker dates a very similar specimen to the period 1650-1680 (Walker 1977:1549, #12).
- D. Yorkshire bulbous style of pipe made from a cream-colored clay. Stem Bore: 7/64ths inch. Dated c. 1650-1690 (Walker 1977: Figure 5c, #20).
- E. A large heeled, bulbous pipe similar to the York Type 10, dated 1660-1680 (Lawrence 1979:68-69). Stem Bore: 7/64ths inch.
- F. Elongated bowl with a small heel. The pipe lacks rouletting at the lip. Stem Bore: 7/64ths inch. It resembles Oswald's General Types 8 and 9 dated 1680-1710 (1975:39). Walker also provides a 1680-1710 date (Walker 1977:1549, #13).
- G. Nearly straight-sided bowl without a heel. It is impressed on the bowl and stem with the mark of Llewelin Evans of Bristol. The bowl shape probably indicates a 1670s or early 1680s manufacture date (Walker 1977: 1432). Stem Bore: 8/64ths inch.
- H,I. These are the marks of Llewelin Evans, a Bristol manufacturer who worked from 1661 to 1680 (Oswald 1975). His marks occur as impressed letters on the backs of bowls and as rouletting on stems. These LE marks are the most common of any maker at the site with 11 examples recovered. The bowl marks occur in two forms -- the plain letters LE, and those letters within a circle and accented with scroll decoration. The stem marks are very consistent, with a row of diamonds with dots in the center and demarcated above and below with double rows of dashed lines. The row of diamonds is broken by the appearance of the letters LE. Stem Bores: 7/64ths and 8/64ths inch.
- J,K. These marks signify one of the William Evans who worked in Bristol from 1660 until possibly as late as 1696 (Oswald 1975). It is not possible at this time to differentiate between them. Five marks are in the collection and all appear on stems. Three are very similar to the LE style of mark with the substitution of the letters WE. The second mark, represented by two stems, also is rouletted around the stem and reads WIL EVANS. Four of the stems are 7/64ths and one is 8/64ths inch.
- L. Two stems are rouletted with this mark. They are decorated in the Bristol style and made by one of the Robert Tippetts. It is likely that the first Robert Tippet (1660-1687) employed this style of mark (Walker 1977:607). Stem Bores: 7/64ths and 8/64ths inch.
- M. A single stem is rouletted with this mark. It is again in the Bristol style and may be the mark of John Sinderling (1668-1699) (Walker 1977: 608). Stem Bore: 7/64ths inch.
- N. One stem bears the initials IP. While it is uncertain who this represents, the Bristol style of decoration suggests Jacob Prosser (1662-1680), John Prosser (1673-1722), or John Poyt (1680-1715). The only definitive statement is that this is in all probability a Bristol mark and dates after 1662 (Walker 1977:607). The stem apparently comes from a heeless pipe and has a diameter of 7/64ths inch.
- O. This impressed mark appears on one pipe heel. Stem Bore: 7/64ths inch. It could be the mark of William Williams of Bristol (1651-1685).
- P. Three pipe heels display this mark which is impressed with the letters standing in relief. The mark occurs on a Yorkshire bulbous bowl dated c. 1650-1690. A possible maker is John Chapman of Hull who worked from 1670 to 1683. Stem Bore: 7/64ths inch.

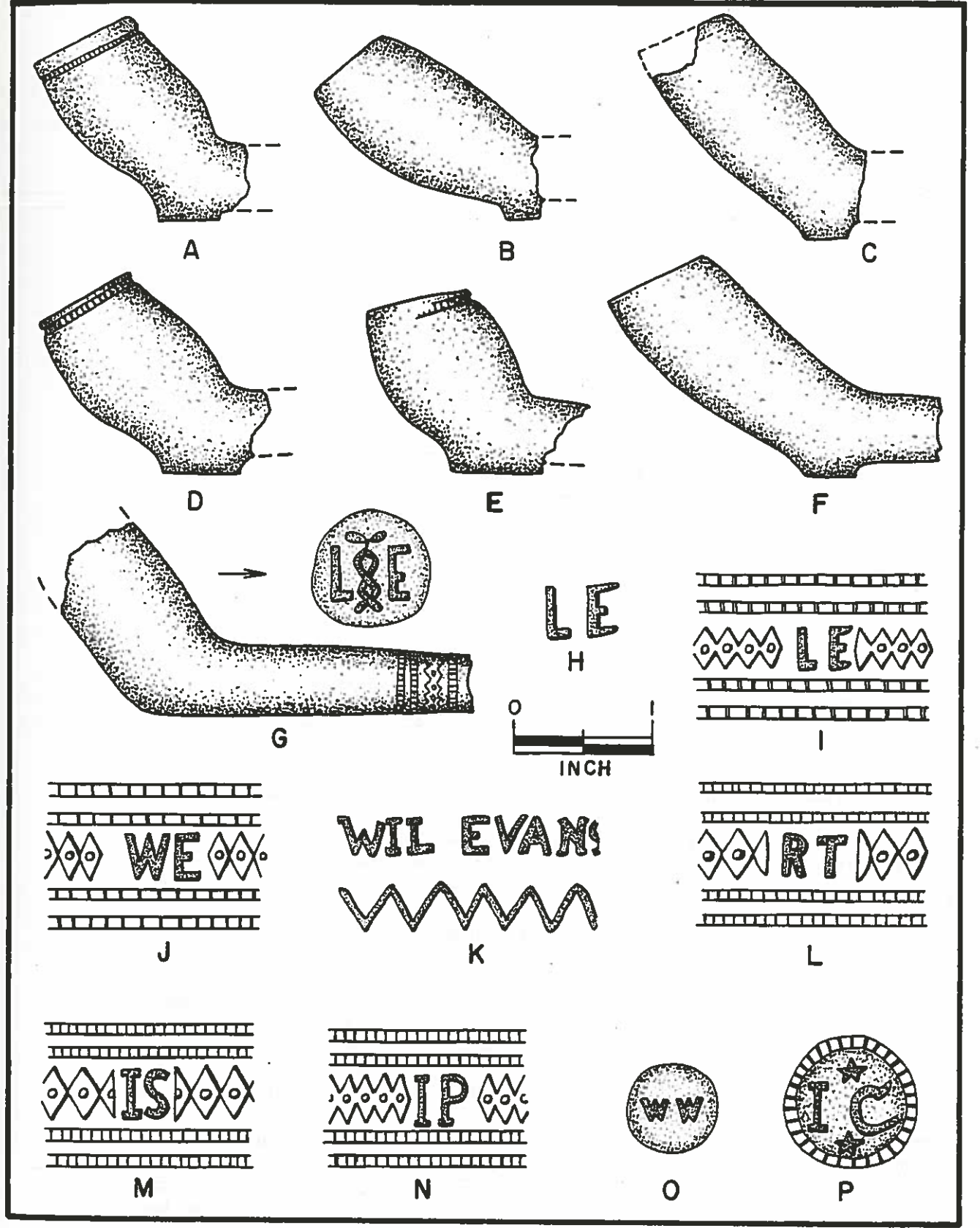


Figure 22. English Tobacco Pipes Recovered from ST 1-13.

FIGURE 23: DUTCH TOBACCO PIPE SPECIMENS FROM ST 1-13

- A,B. A large bulbous bowl of an off-white clay. The heel is impressed with a Tudor Rose mark. The specimen bears some resemblance to a specimen illustrated by Walker (1977:1539, #20) which he dates c. 1650-1690, but the Village Center pipe is somewhat larger and slightly more slender. Possibly of Dutch origin. Stem Bore: 7/64ths inch.
- C. Three fragments were recovered with molded, raised dots on the sides of the bowls. This decorative form has been described as the Tudor Rose pattern and is found on Dutch and some English pipes. None of the Village Center specimens has sufficiently complete bowls to date them, but this style is known to occur from the 1620s to the end of the 17th century (Atkinson and Oswald 1972; Muldoon 1979; McCashion 1979). Two of the bowl fragments are measurable and have 7/64ths inch bore holes.
- D. Four of these marks have been identified on the heels of Dutch style pipes (page 70 for the bowl form). The mark consists of raised letters with a squarish depression. Identical marks have been found in New York state where they are attributed to Edward Bird, an Englishman who produced pipes in Amsterdam from 1630-1665 (McCashion 1979:67). Duco (1981:257, #181) illustrates a nearly identical mark which also is identified as an Edward Bird product. These pipe bowl fragments display a range of bore diameters with two of 9/64ths inch, one of 7/64ths, and one of 6/64ths inch.
- E. Two pipe heels impressed with this mark were recovered and on both the letters stand in relief within a depressed area. Although the maker is unidentified, a Dutch origin is likely. Identical specimens have been recovered in New York state where the mark occurs on bowls dated c. 1650-1660 (McCashion 1979:106-7). Both St. Mary's City examples have 7/64ths inch bores.
- F. There are two bowl fragments which display this impressed mark on their heels. Although the mark has not been identified, Atkinson and Oswald (1972:182) illustrate a crowned G, similar in some respects to the St. Mary's specimens, and state that the use of a crown is most frequently associated with Dutch manufacturers.
- G. This crowned mulberry mark appears on the heel of one pipe. It is possibly of Dutch origin and has a bore diameter of 7/64ths inch.
- H. A small tudor rose mark occurs on a single pipe heel. Atkinson and Oswald (1972) illustrate several marks which bear a resemblance to this one and give all of them a Dutch attribution. Although the bowl is not complete, it appears to be a mid-17th-century Dutch form and has a bore diameter of 7/64ths inch.
- I. This mark appears on the tiny heel of a pipe with a 4/64ths inch bore diameter and is quite probably post-17th century in date. Atkinson and Oswald (1972:Figure 80, 81) illustrate several crowned numbers and note that most occur on Dutch pipes.

- J,K,L. The impressed fleur-de-lis is the most common stem decoration in the collection and they occur in two basic forms. The first, represented by 37 specimens, is a single fleur-de-lis in a diamond and there are two styles of this mark. Individual stems display from one to six of these randomly positioned marks. Within this group, five stems have 8/64ths inch diameters, 17 are of 7/64ths inch and 18 have 6/64ths inch bores. The second form is four fleur-de-lis within a diamond. Three of these specimens are in the collection, and all have 7/64ths inch bores. The use of this decorative device is typically associated with pipes of Dutch origin (Atkinson and Oswald 1972; Walker 1977; McCashion 1979). Similar marks have been in c. 1630-1650 contexts in New York (McCashion 1979: 86), at Site A, Martin's Hundred, Virginia, where they are dated c. 1620-1645 (A. Noël Hume 1979), and at the St. John's Site in St. Mary's City where they were recovered in c. 1640-1660 contexts. Specimens have also been reported from Dutch ship wrecks -- the Flute Lastdrager which sank in 1653 (Steniut 1974) and the Vergulde Draeck that went down off the coast of Australia in 1656 (Green 1977). Thus, the evidence suggests that these are of Dutch origin and probably date to the first decades of settlement in St. Mary's City.
- M,N. Two bowl fragments display molded decoration. On the first, the images of two animals appear in relief; one is certainly a rabbit, but the other is unidentifiable. Above them just below the rim are two rows of dots, and they are separated from each other by a prominent mold seam. The second specimen has some type of floral decoration. These fragments appear to come from bulbous bowl pipes, but are too fragmentary for dating. Given the proclivity of the Dutch for elaborate molding, it is probable that these are of Dutch origin.
- O,P. Fifteen pipe stem fragments display a molded, raised decoration which can be described as a vine and flower motif. Such molding has been attributed to Dutch makers of the 17th century (Oswald 1969:138; Atkinson and Oswald 1972:179). A stem identical to the St. Mary's fragments was recovered in Plymouth, England and is dated to c. 1640 by Oswald (1979:115, #11). Other examples have been found in pre-1664 contexts at the Dutch settlement of Fort Orange in New York (Paul Huey 1982: Personal Communication), and at the St. John's site in St. Mary's where they are associated with 1640-1660 materials. All but one of the Village Center stems have bores of 7/64ths inch; the exception is 8/64ths inch.

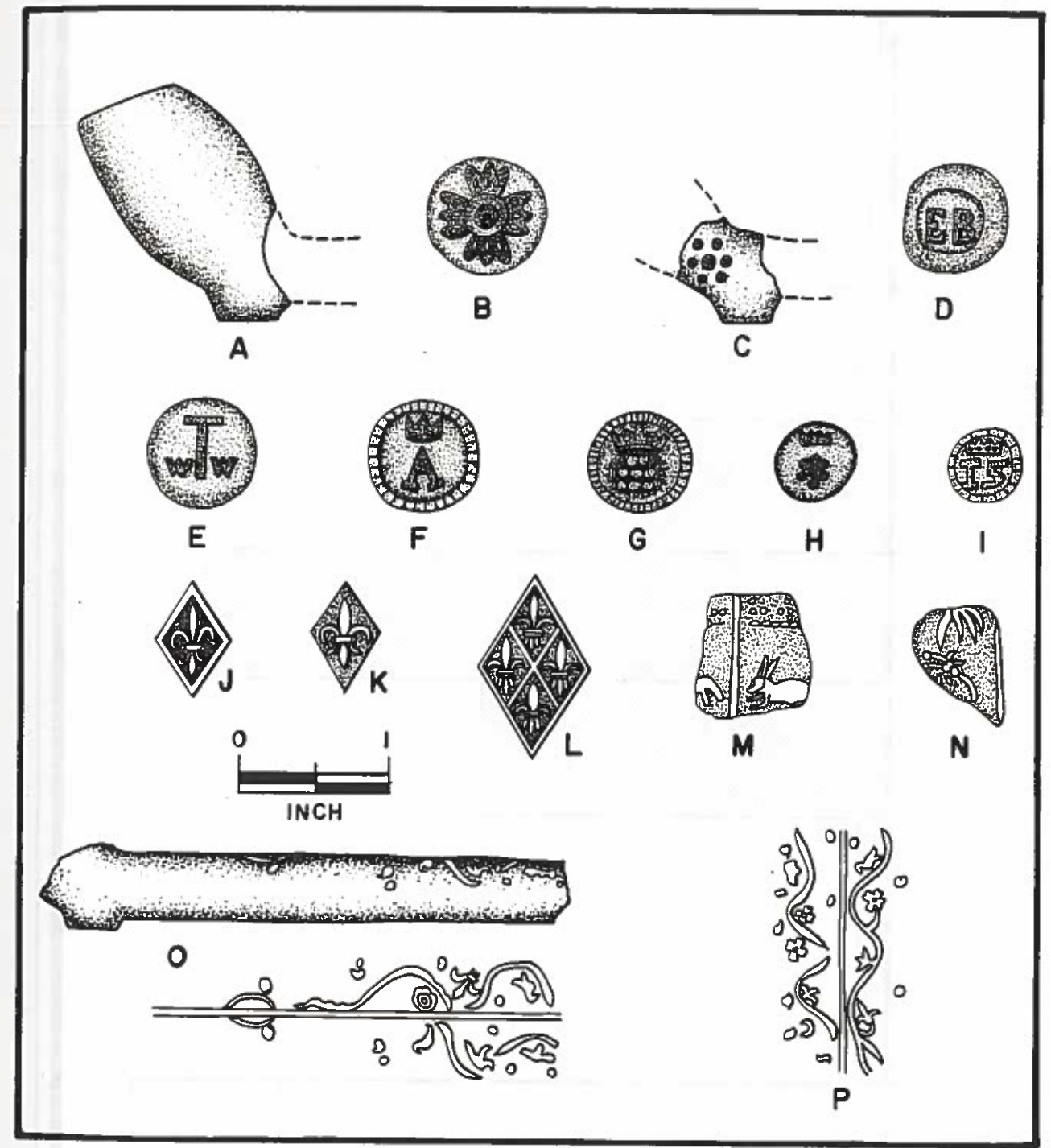


Figure 23. Dutch Tobacco Pipe Fragments from ST 1-13.

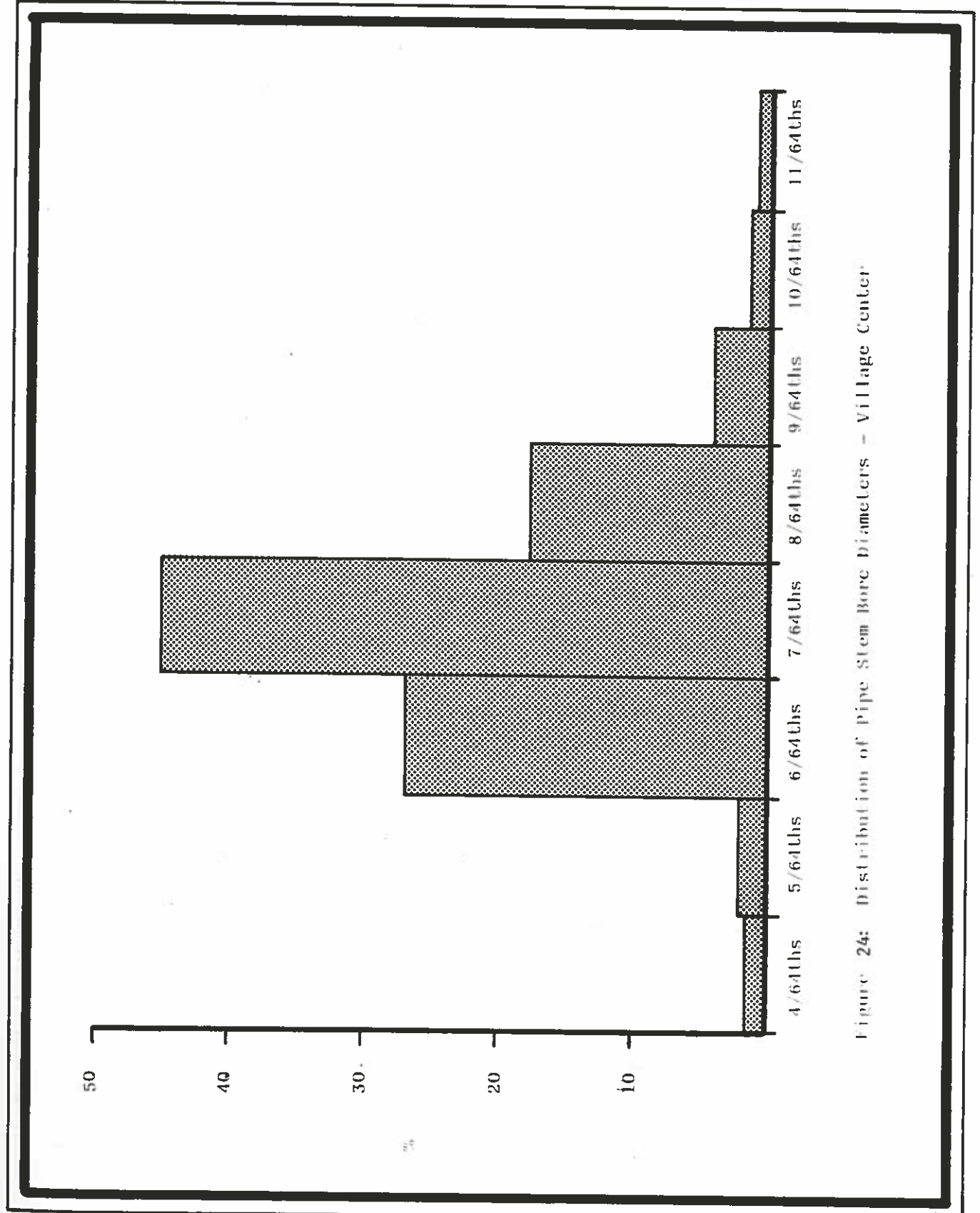


Figure 24: Distribution of Pipe Stem Bore Diameters - Village Center

is compared to the Harrington chart, it is apparent that the major deposition of pipes, and hence the most intense occupation, occurred from c. 1650 to 1700, precisely the period during which St. Mary's saw its greatest growth and largest population. Occupation after 1700 was apparently much less intense, as evidenced by the small quantities of 5/64ths and 4/64ths inch stems. This again correlates with the known fact that the population of St. Mary's City plummeted following the move of the capital to Annapolis in 1695.

The temporal information derived from the pipe stems fits well with the documentary record of human occupation within the Village Center, but there is one serious flaw in the correlation. Harrington developed this dating method with English pipes and, as the previous discussion has revealed, the Village Center assemblage is a mixture of Dutch and English pipes. It is known that Dutch pipes during the 17th century tended to display smaller stem bores than contemporary English pipes (Walker 1977:9), and this is supported by the finding of c. 1630-1665 Dutch pipes at St. Mary's with bore diameters of 6/64ths and 7/64ths of an inch. This implies that the stem diameter distribution is seriously skewed and yields a date later than the actual occupation. However, the distribution seen in Figure 24 fits very well with the known history of St. Mary's City. Such a puzzling outcome is probably due to changes in population size, and hence, the intensity of pipe deposition which worked to ameliorate the situation. The largest population in St. Mary's was during the c.1670-1695 period, and this certainly resulted in a greater deposition of pipes with 6/64ths and 7/64ths inch stem holes. Almost all of the post-1660 pipes with Bristol marks have bores of these sizes. This prolific deposition during the last decades of the century was perhaps sufficient to have created a pattern that the earlier Dutch materials skewed, but did not obliterate. The occupational history of St. Mary's is fortuitous in this regard, but these findings point out some of the dangers in pipe dating. If St. Mary's City had been abandoned in 1660, the pipe assemblage from the site would yield an erroneous date of occupation. Thus, even if only used as supporting data, the application of the Harrington (1954), Binford (1962), Heighton and Deagan (1972), Hanson (1971), or other approaches to pipe stem dating, even with large samples, cannot be properly conducted or safely interpreted without first thoroughly assessing the nature of the assemblage.

The excavations produced an impressive collection of imported white clay pipes from England and the Netherlands. All of the temporal data derived from this assemblage corresponds well with the documented history of St. Mary's City, and a variety of makers' marks were recovered and identify Dutch or English makers who supplied the Maryland colony. Although it has been suggested that London dominated the tobacco trade in America during the first half of the 17th century (Oswald 1975: 113), the evidence from the Village Center seems to indicate that this was not the case in Maryland. Only one possible London maker's mark has been identified, and very few of the pipe bowls match the London pipe typology of Atkinson and Oswald (1972). The evidence strongly implies that the Dutch, rather than the London merchants, dominated the tobacco trade during the first decades of settlement in Maryland.

During the second half of the century, after 1660, the port of Bristol apparently supplied the majority of the pipes used in St. Mary's City. This is demonstrated by an abundance of Bristol marks in the collection. Some outport trade, as evidenced by the "Yorkshire" style pipes, may have occurred, but only to a limited extent. This prominence of Bristol in the American trade during the second half of the 17th-century is precisely what Oswald (1975: 113) predicts from historical documentation. Thus, the archaeological data apparently confirm the historical model of trade networks for the latter part of the century.

Terra Cotta Pipes

There were 626 fragments of these locally produced pipes found during sampling within the Village Center, and two varieties have been recognized. Most abundant are pipes produced by the Indians and apparently traded to the colonists. These well-fired handmade specimens are decorated with impressed designs on the bowls. One very common form of decoration is an animal which has been labeled the "Running Deer" (For comparable specimens, see pages 71-72). The second variety is represented by a few pipes that were produced in European pipe molds, but using a local clay. It is likely that these pipes are the result of small-scale manufacturing activities by the colonists. Based upon the contexts in which terra cotta Indian pipes have been recovered at other sites, they were produced between c. 1640-1670 along the Potomac River. The molded pipes seem to begin slightly later and may continue into the late 17th century. Many examples of the molded pipes have been identified in the Jamestown collections, and they appear to be widespread throughout the Chesapeake region. In contrast, the aboriginally produced pipes, especially those decorated with the "Running Deer" motif, are rare in the Jamestown collections but common at sites along the Potomac River. This raises the possibility that the deer pipe is a Potomac phenomenon and an example of regional variation in artifact assemblages as well as a reflection of differing levels of interaction with the Indians. These Indian made pipes represent the only direct archaeological evidence for Indian-European interaction commonly found on 17th-century English sites in Maryland. Their appearance during the first decade of settlement suggests that the Indians quickly began producing pipes as exchange items. The disappearance of these pipes in the 1670s probably can be attributed to the decline of the Indian population or their migration from the lower Potomac.

The Ceramic Assemblage

Ceramics were numerous at the site, and the excavations produced 1262 positively identified 17th-century sherds. An additional 894 fragments, which could not be dated precisely are designated colonial ceramics and discussed separately. It has been possible to identify 26 separate 17th-century ware types in this assemblage. These are discussed below and listed in Tables 8 and 9 (page 95). Since no listing of 17th-century ceramics from Maryland has yet been produced, each ware type will be discussed to provide a preliminary overview of the ceramics used in that colony. Dates specified for many of these wares must be considered provisional since 17th-century ceramic chronology, especially for coarse wares, is incomplete.

TABLE 8: 17th-CENTURY CERAMICS FROM THE 1981 EXCAVATIONS AT ST 1-13

Ceramic Type	Sherd Count
PORCELAIN	
Chinese Blue and White	1
STONEWARE	
Rhenish Brown	110
Rhenish Blue and Gray	87
English Brown	16
TIN GLAZED EARTHENWARE	
Lead Backed	94
Other Tin Glaze	38
SLIP-DECORATED WARES	
North Devon Sgraffito Ware	85
Staffordshire Style Slipware	50
North Italian Slipware	21
Sgraffito Style Slipware	7
Brush and Trail Decorated Slipware	9
Buff Pasted Slipware	14
"Metropolitan" Slipware	1
LEAD-GLAZED EARTHENWARE	
Morgan Jones Ware	243
North Devonshire Gravel Tempered Ware	193
Black Glazed Red Earthenware	75
Orange Chalky Pasted Ware	55
Gray Bodied Ware	17
Fine Greenish Glazed Buff Earthenware	14
Manganese Mottled	13
Surry Type	12
Flemish Coarse Ware	12
Sandy Pasted Earthenware	4
UNGLAZED EARTHENWARE	
Merida Micaceous Redware	66
Orange Earthenware with Mica	21
Midlands Purple Ware	3
	1261

PORCELAIN

Chinese Blue and White (1 sherd)

This is extremely rare at the site. Only one blue and white sherd which dates with certainty to the 17th century was found. Thirteen additional blue and white sherds were found, but they can only be given a general colonial date. It is clear that porcelain comprises only a very small portion of the ceramics at the site.

STONEWARE

Rhenish Brown (110)

A variety of specimens of this ware type were found, and most seem to be from "Bellarmine" bottles (Plate 13a). Stoneware of this type is generally attributed to the Cologne Frechen region of the Rhineland (Noël Hume 1958). All the sherds have a brown iron oxide wash under a salt glaze, and a number of specimens display traces of applied faces or medallions. Rhenish Brown stoneware was available in America throughout the 17th century and into the early 18th century, but it is likely that most of the Village Center assemblage is of 17th-century date.

Rhenish Blue and Gray (87)

Sherds of this ware, which probably derives from the Westerwald region of the Rhineland, all display a very consistent gray paste, have light gray surfaces except where decorated, and are completely salt glazed. Decoration includes cordoning, sprig molding, and the application of cobalt blue and Manganese purple coloring (Plate 13b). Principal vessel forms seem to be mugs and jugs, with the most complete specimen yet recovered in Maryland consisting of an elaborately decorated jug with a lion's face (page 59). In spite of the recovery of one sherd dated to 1617 (page 67), the use of manganese decoration and the prevalence of decorated mugs from the c.1675-1700 period (Von Bock 1971) suggests that most of the Rhenish Blue and Gray at the site is post-1660 in date.

English Brown (16)

A small sample of this ware was recovered, and all the sherds appear to be from mugs (Plate 13c). Production of this pottery began late in the 17th century and continued throughout most of the 18th century (Mountford 1971).

TIN GLAZED EARTHENWARE

Lead Backed Tin Glaze (94)

Earthenware sherds displaying tin glazed interior surfaces and lead glazed exteriors were found with some frequency in 1981. Most of these appear to have been dishes or plate forms and are either plain white or

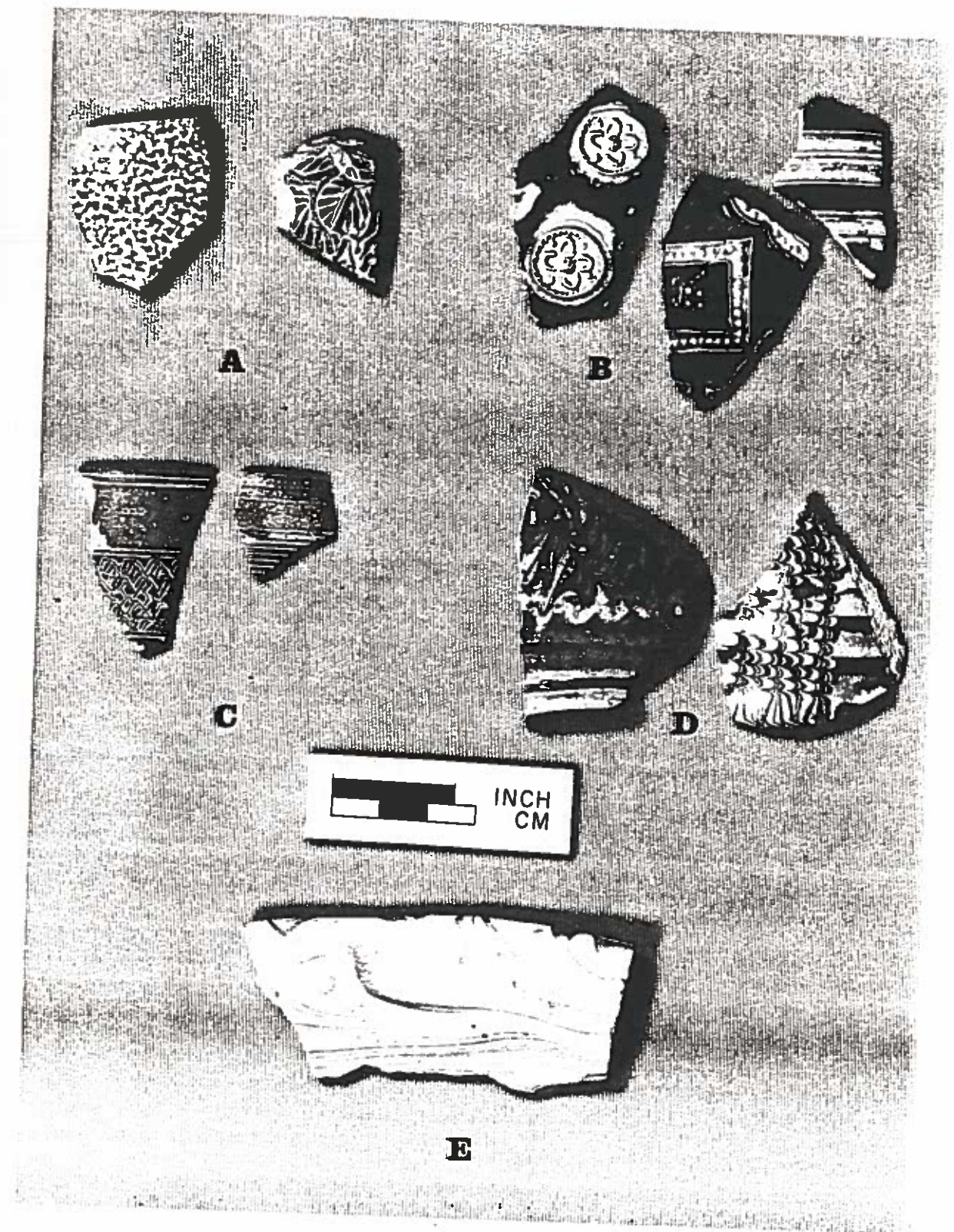


Plate 13. Examples of imported 17th-century ceramics recovered during Village Center excavations.

decorated in blue; only a few sherds are polychrome. These lead backed vessels are probably of English or Netherlands origin and seem to date to the second and third quarters of the 17th century in the Potomac area. A number of vessels of this type were recovered at the St. John's site, and the majority of these occurred in pre-1660 contexts. At the Clifts Plantation site, which was first occupied c. 1670, on the Virginia side of the Potomac River, no sherds of this ware were recovered, in spite of very extensive excavations which produced a rich ceramic assemblage (Fraser D. Neiman 1980: Personal Communication). While tin glazed earthenware with lead glazed exteriors are known to have been produced until the end of the 17th century (Archer and Morgan 1977), the limited evidence suggests that it was most abundant in the Potomac area prior to the last quarter of the century.

Other Tin Glaze (38)

There are a few sherds of tin glazed earthenware which are of a form or display decoration in a style that indicates they are of 17th-century origin. All are tin glazed on both surfaces, and most are decorated in blue, although a few display orange-brown coloration. The style of decoration is similar to that found on early 17th-century vessels illustrated by Noël Hume (1977). These probably represent a mix of sherds of English and Dutch-Flemish origin.

SLIP DECORATED WARES

North Devon Sgraffito Ware (85)

The most common slip decorated ceramic at the site originated in Northern Devonshire on the west coast of England, and the sherds are identical to the sgraffito sherds discussed by Watkins (1960). Vessel forms seem to be restricted to jug, pitchers and dishes or shallow bowls. This ware apparently became widely available during the second half of the 17th century in America.

Staffordshire Type Slipware (50)

Sherds of this late 17th- and 18th-century slipware also were recovered from the Village Center. This material seems to date after c. 1680 in North America and continued to be produced well into the 18th century at Staffordshire and other centers including Bristol (Brown 1979: 19). Most of the sherds are decorated with elaborate combing, (Plate 13d), although a few display trailed or applied dot decoration. Since much of the combing is intricate, it is likely that the majority of the sherds are of 17th-century or very early 18th-century date. All Staffordshire style slipware fragments appear to be from drinking vessels.

North Italian Slipware (21)

A small quantity of this 17th-century ware was unearthed at ST 1-13. It has a very fine orange-red paste with a white slip applied to one

surface which was then swirled to produce a marbled effect (Plate 13e). The exterior and interior display a clear lead glaze. The surface color is a ginger brown, with the white slip ranging from off-white to cream colored. Vessel forms seem to include flatware such as a dish or shallow bowl and a costrel. Similar ceramics are reported from Southhampton, England (Platt and Coleman-Smith 1975: 181), Plymouth, Massachusetts (Brown 1979: 43), and Jamestown, Virginia (Cotter 1958: 185). Brown (1979:43) dates the Plymouth material to the first half of the 17th century and notes that a likely source is the Pisa area of Italy. South (1972) provides a c. 1610-1660 date range for this ware.

Sgraffito Style Slipware (7)

Although of uncertain origin, this ware type is extremely distinctive and is represented by a minimum of two bowls (Plate 14a, b). The paste is a hard orange clay with a few minute red and black inclusions and tiny mica specks. A thin white slip is present on the interior surface through which deep lines were cut. This "sgraffito" style of decoration occurs as a horizontal band of eight zig-zag lines extending around the vessel at the rim and panels of vertical zig-zag and straight lines on the interior walls. The lead glazed interior is a pale yellow color, while the incised lines appear a bright ginger to dark brown color; the exterior is unglazed. Although this ware shares some attributes with North Devon Sgraffito ware, the paste is less fine, surface coloration is lighter, and the style and execution of the incising differ. Several sherds were recovered from the pre-1680 fill of a cellar in the Village Center, but no other temporal data is available. A continental origin is possible.

Brush and Trail Decorated Slipware

A few examples of this distinctive, apparently 17th-century ceramic were found (Plate 14c,d). All of the sherds are of a medium textured paste which ranges in color from gray to light orange, depending upon the kiln conditions, and contains occasional nodules of red ochre and mica specks. Surface decoration involves slip applied in broad panels or trailed in geometric patterns. Green dots applied over the slip occur on several specimens, either as intentional decoration or accidental inclusions in the glaze. Most of the sherds appear to be from hollow forms with decoration on the exterior and a clear lead glaze covering the surfaces. Identical specimens have been identified at the St. John's site in a post-1680 context. Although the origin of this ware is uncertain, New England is a possible source. Lura Watkins (1950) provides one of the few descriptions available of ceramics from that area and reports that the use of slip for decoration was common. She also notes that on early specimens, tiny dots of green were spattered over the trail designs (1950: 8). Geoffrey Moran (Personal Communication 1981) indicates that the paste is similar to coarse earthenware vessels recovered in New England. However, until comparative data from that area becomes available, this identification must remain tentative.

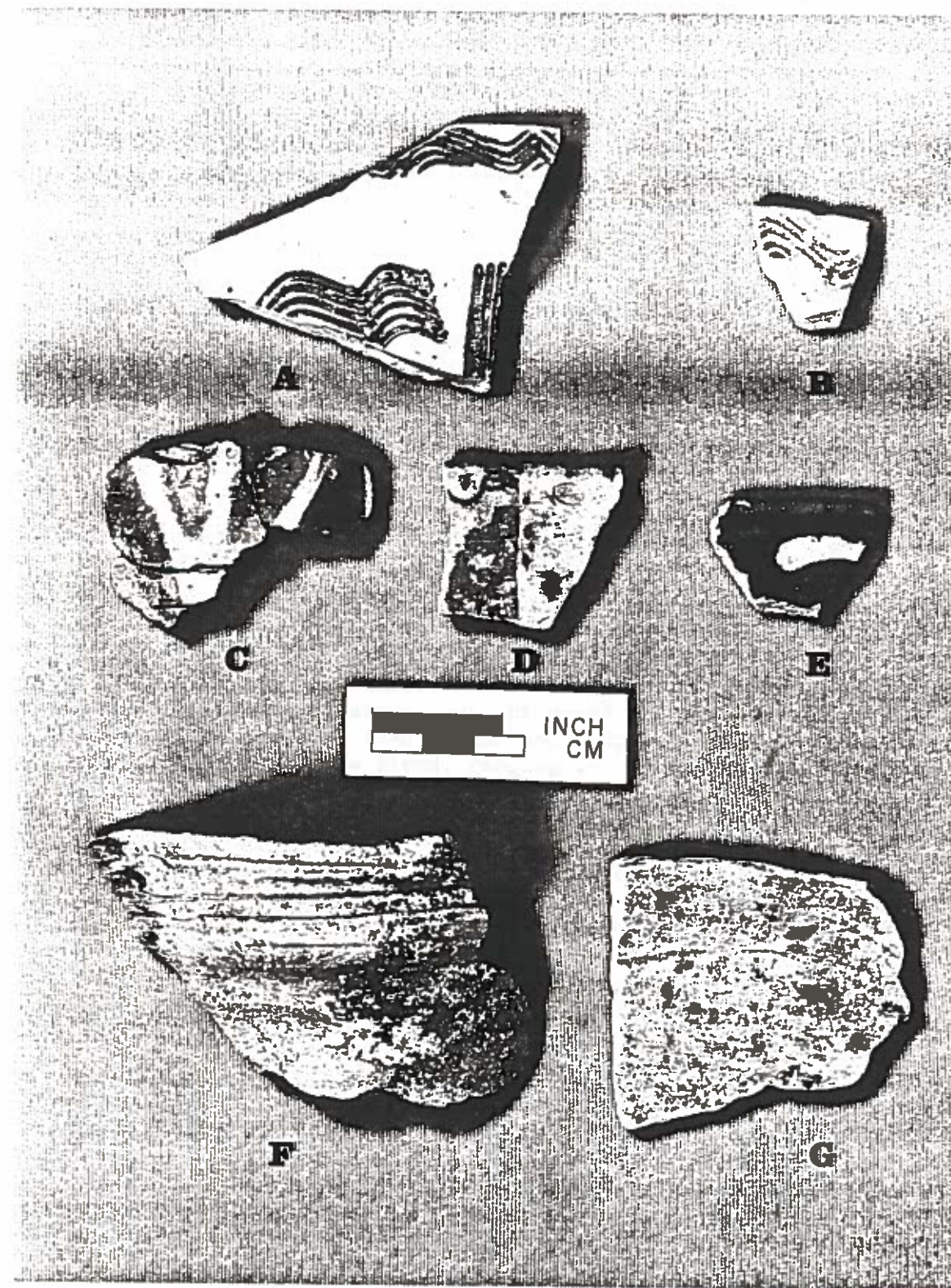


Plate 14. Examples of imported and local 17th-century ceramics recovered during Village Center excavations.

Buff Pasted Slipware (14)

Possibly of the same derivation as the above are sherds which have a buff to very light orange colored paste with tiny ochre and mica inclusions. On the interior, a white slip, which is applied in bands running vertically from the rim to the base occurs. Green appears in spots over the slipped and unslipped areas. The interior is covered with a thin, clear lead glaze, and the exterior is unglazed.

"Metropolitan" Slipware (1)

The only example of this ware at the site is the rim from a dish (Plate 14e). It has a hard, orange paste of moderately fine texture with a few tiny white quartz inclusions. A groove appears on the interior, just below the lip, and a dark slip covers the interior surface. Decoration consists of a curving line of white slip trailed over the dark slip just below the rim. This appears yellow under the lead glaze while the surface is dark brown. The exterior is unglazed.

LEAD GLAZED EARTHENWARE

Morgan Jones Ware (243)

Sherds from vessels produced by this Chesapeake potter are the most common of any 17th-century ware recovered from the site (Plate 14f, g). Jones, along with several associates, produced ceramics in the Potomac area from c. 1661 until c. 1680 (Kelso and Chappel 1974; Miller 1981). Most of the sherds are low fired, ranging in color from buff to orange and are made from a medium to coarse paste which contains varying quantities of small red ochre nodules, mica specks, and occasional quartz pebbles or other impurities. Lead glazes tend to be poor and unevenly applied, and colors range from brown or orange to green, depending upon the kiln environment during firing. Vessel forms are the same as those illustrated by Kelso and Chappell (1974) with the addition of a small bulbous cup.

North Devonshire Gravel Tempered Ware (193)

This common ceramic derives from the area of Barnstaple and Bideford in North Devonshire, England and the paste, temper, color, and glaze of the St. Mary's specimens conform closely to the ware description given by Watkins (1960). There are, however, 21 sherds which have little or none of the sand or gravel tempering in the paste, but are identical to the rest in all other respects. It is unclear whether this "gravel-free" ware is temporally diagnostic, but it has been found in pre-1651 contexts (Miles and Saunders 1970) and is rarely reported from the Chesapeake area. Vessel forms are primarily milk pans and butter pots, with a few smaller pans and a pipkin also identified. Gravel tempered wares probably became available in the Chesapeake by c. 1650, but seem not to have been especially common before the last quarter of the century (Noël Hume 1972: 133).

Black Glazed Red Earthenware (75)

A quantity of this distinctive ceramic type was recovered. In surface appearance it bears a strong resemblance to the 18th-century Buckley pottery but the paste is quite different. It is a consistent red-orange color and lacks the characteristic bands of yellow clay which are a distinguishing trait of Buckley ware. Occasionally, a few small nodules or a rare band of yellow clay is found in the paste, but never in large quantities. The surfaces are covered with a rich black glaze. Vessel forms appear to be restricted to butter pots and milk pans and display rim profiles similar to the later "Buckley" ware. Specimens of the black glazed earthenware have been recovered at the St. John's site in post-1680 contexts, and at the Clifts Plantation in features of the c. 1705-1720 period (Fraser Neiman 1980: Personal Communication). These may represent early Buckley products, but could have been manufactured in Staffordshire or elsewhere.

Orange Chalky Pasted Ware (55)

A significant quantity of sherds were found with a soft, fine, orange colored paste which has the texture of chalk when rubbed along the edge. Paste inclusions are minimal and consist of a few mica specks and occasional quartz sand grains. Most of the sherds have a medium to dark brown color lead glaze on the interior. Specimens of this ware have been uncovered at St. John's in c. 1638-1680 deposits and in similar temporal contexts at the Mattapany-Sewall site along the Patuxent River in Maryland (Dennis Pogue 1981: Personal Communication). The origin of this ceramic is undetermined.

Gray Bodied Ware (17)

The site yielded a few sherds which have a very consistent gray colored paste of a medium textured clay in which there are occasional air pockets. The glaze is typically light green in color, probably a result of the kiln atmosphere during firing, and is characterized by numerous dimples or tiny circular depressions in the glaze. The exterior surfaces are generally unglazed and mottled dark gray to black in color with a few patches of orange. Similar sherds have been excavated from St. John's and the Van Sweringen site (ST 1-19) where they seem to occur in very late 17th- and early 18th-century deposits. These specimens also resemble vessels from the William Drummond site along the James River in Virginia, where they have been tentatively identified as the products of the Challis pottery which operated c.1690-1720 (Merry A. Outlaw 1982: Personal Communication). Vessel forms of the St. Mary's specimens are varied and represent pans, bowls, pots and cups.

Fine Greenish Glazed Buff Earthenware (14)

Another ceramic of unknown origin found in the Village Center is characterized by a fine textured, soft paste with a buff to light orange color. The clay is generally free of inclusions except for a few mica specks and a rare nodule of red ochre. The interior surfaces are covered

with a greenish-yellow lead glaze that shows pronounced crazing. Similar specimens are in the St. John's collection and the ware probably dates to the second half of the 17th century.

Manganese Mottle Earthenware (13)

Relatively little of this late 17th- to 18th-century pottery occurs at the site. It has a buff to yellow paste of fine texture with a lead glaze to which manganese oxide has been added to produce a mottled appearance. All sherds appear to be from mugs. Production of this ceramic probably began c. 1680-1690 in Staffordshire and continued until the mid-18th century (Kelly and Greaves 1974: 3).

Surry Type Ware (12)

Only a few specimens of this early 17th-century ceramic were found during the 1981 excavations. The sherds have a white to buff paste of medium to fine texture and a lead glaze of yellow or green color. One likely source of this ware is the southeast of England, especially Surry and Hampshire, where this type of pottery was manufactured during the first half of the 17th century (Noel Hume 1972: 102; Holling 1969; Haslam 1975). It also is possible that some of these sherds have a Netherlands origin since Brown (1979: 46) describes a "Dutch Type Green and Yellow" ware which is also dated to the first half of the 17th century.

Flemish Coarse Ware (12)

This coarse redware, which is attributed to Flemish or Dutch potters, is represented by a small quantity of sherds. All are of a very consistent, medium textured, sandy paste of an orange color and have a well applied orange to brown lead glaze on the interior. This ware has been found at the St. John's site in pre-1660 contexts and is probably an indicator of the earliest decades of settlement in St. Mary's City. Identical sherds have been recovered in pre-1664 Dutch contexts at Fort Orange and other Dutch sites in New York State (Paul Huey: Personal Communication) and at an early 17th-century glasshouse in Flanders (Terlinden and Crossley 1981: 199).

Sandy Pasted Earthenware (4)

Several examples of this pottery are in the collection and all display a sandy textured paste. A brown to reddish lead glaze appears on the interior and, occasionally, the exterior. Identical sherds were recovered at St. John's and have been dated tentatively to the c. 1660-1680 period, but the actual time range may have extended later.

UNGLAZED EARTHENWARE

Merida Micaceous Redware (66)

A significant quantity of Merida sherds were found at the Village Center. These have a fine orange to red paste which contains occasional quartz grains. Numerous mica specks appear on the surfaces, and the interiors of the sherds have been carefully smoothed. Most of the specimens are fragments of carinated bowls which have small, hollow bases and rims which often have a shallow groove on the exterior just below the lip. Similar vessels have been reported from English sites (Brown 1979: #267,268; Fairclough 1979: #543, 546, 548, 550; Platt and Coleman-Smith 1975: #1335, 1336) where they are dated to the late 16th and early 17th centuries. Merida bowls also are found at St. John's and the Chancellor's Point sites in St. Mary's. Precise temporal control over this ware has yet to be established, but it generally can be dated to the c. 1640-1670 period in the Chesapeake. A major manufacturing center for this ware is thought to have been Merida in Extremadura in southwest Spain (Hurst 1977: 96), although some Portuguese production cannot be ruled out.

Orange Earthenware with Mica (21)

Another unglazed ceramic identified at ST 1-13 is represented by a small sample of sherds which were all recovered from a single unit (2191D) and probably are from a single vessel. Distinguishing characteristics are a fine light orange colored paste. The paste contains some mica specks, red ochre, and a small quantity of dark red or white quartz sand, all of which are uniformly distributed throughout the clay. All sherds are thin and finely thrown, and the vessel appears to have been a small, deep pan.

Midlands Purple Ware (3)

This pottery is poorly represented in the collection. The three sherds are relatively thin and appear purple-brown to gray in color. All are highly fired and none display any glazing. Midlands purple ware was manufactured throughout the 17th century with peak production in the Staffordshire potteries between c. 1640 and 1700 (Greaves 1976: 42).

COLONIAL CERAMICS

Many of the sherds recovered during the 1981 season could not be dated precisely. Tiny size and lack of decoration made the dating of some impossible, while for other sherds, temporal parameters have not yet been determined or they have extremely broad date ranges. Because of these problems, the sherds have been assigned a less specific designation as colonial ceramics for the purposes of analysis. Given the occupational history of St. Mary's City and the paucity of 18th-century artifacts in the area, it is likely that the majority of these sherds date from the 17th-century occupation.

Porcelain (13)

All of these were manufactured in China and display blue decoration. They represent a very small portion of the ceramic collection from the site, probably reflecting the expense and difficulty of procurement during the 17th and early 18th centuries.

Rhenish Stoneware (49)

These are all small sherds of gray stoneware which display no decoration or other temporally significant characteristics. Most are from mugs.

Tin Glazed Earthenware (382)

Many buff pacted, tin glazed sherds were recovered, but a large number of these are undecorated or of too small a size to evaluate the decorative pattern. Since the dating of plain white tin glaze and small decorated fragment is perilous, the majority have been assigned to this category. Most of these are probably of English origin, although Dutch and possibly Portuguese sherds have been tentatively identified in the collection.

Slipware (3)

Only three sherds of a type of unidentified slipware were recovered.

Coarse Lead Glazed Earthenware (423)

Hundreds of sherds were found which have been placed into this general category, and they represent many different ware types. Detailed analysis should permit these sherds to be divided into the specific types of earthenware. Most are certainly of 17th-century date, but further excavation is required to obtain precise temporal control.

Iberian Earthenware (24)

A small number of Iberian earthenware sherds were retrieved from the Village Center. They all seem to be fragments of unglazed storage jars, of a type described by Goggin (1960). Although a 17th-century date is most likely, the long period during which these vessels were produced makes it necessary to classify them as colonial.

TABLE 9: COLONIAL CERAMICS FROM THE VILLAGE CENTER EXCAVATIONS

Ceramic Type	Sherd Count
PORCELAIN	
Chinese Blue and White	13
STONEWARE	
Rhenish	49
EARTHENWARE	
Tin-Glazed	382
Slipware	3
Lead-Glazed	423
Iberian	24
	<hr/> 894 <hr/>

Ceramic Discussion

The 17th-century ceramic assemblage from the Village Center is diverse and large. As is frequently found on sites of this period, the ceramics display an international composition. During the 1981 excavations, wares from China, the Netherlands and possibly Flanders, northern Italy, Spain or Portugal, the Rhineland, many areas of England, possibly New England, Maryland, and Virginia were recovered. Such diversity is indicative of the extensive trade networks in which England and her colonies participated, and it demonstrates the development of a world economic system in which even the isolated settlements on the American frontier were deeply immersed.

Because the English origin and economic ties of the Maryland colonists are known, it was expected that English ceramics would be the most abundant in the Village Center collection. To test this, the origin was determined for as many of the sherds as possible in both the 17th-century and colonial groups, and the results are presented in Figure 25. A major difficulty in this, however, is the fact that 551 of the lead glazed earthenware sherds could not be attributed to a country of origin. In addition, the tin glazed earthenwares (514 sherds) represent a mixture of English, Dutch, and possibly Portuguese ceramics. Although a more detailed and systematic analysis is necessary before they can be assigned definitely, the majority appear to be English.

It is immediately apparent that the English ceramics are the most common at the site, and if the tin glazed earthenwares were added, the proportion of English ceramics would be even higher. Next in order of abundance are the wares of Chesapeake origin produced by English colonists. Third are the non-English imported ceramics. These comprise almost one-quarter of the attributed sherds and account for a significant portion of the assemblage. Rhenish stonewares are the most well represented in this group, and they are followed in order by Spanish, Italian, Chinese, and Dutch wares. Rhenish stoneware was widely marketed throughout Europe, England, and the English colonies during this period and was a popular and durable ceramic. In contrast to the

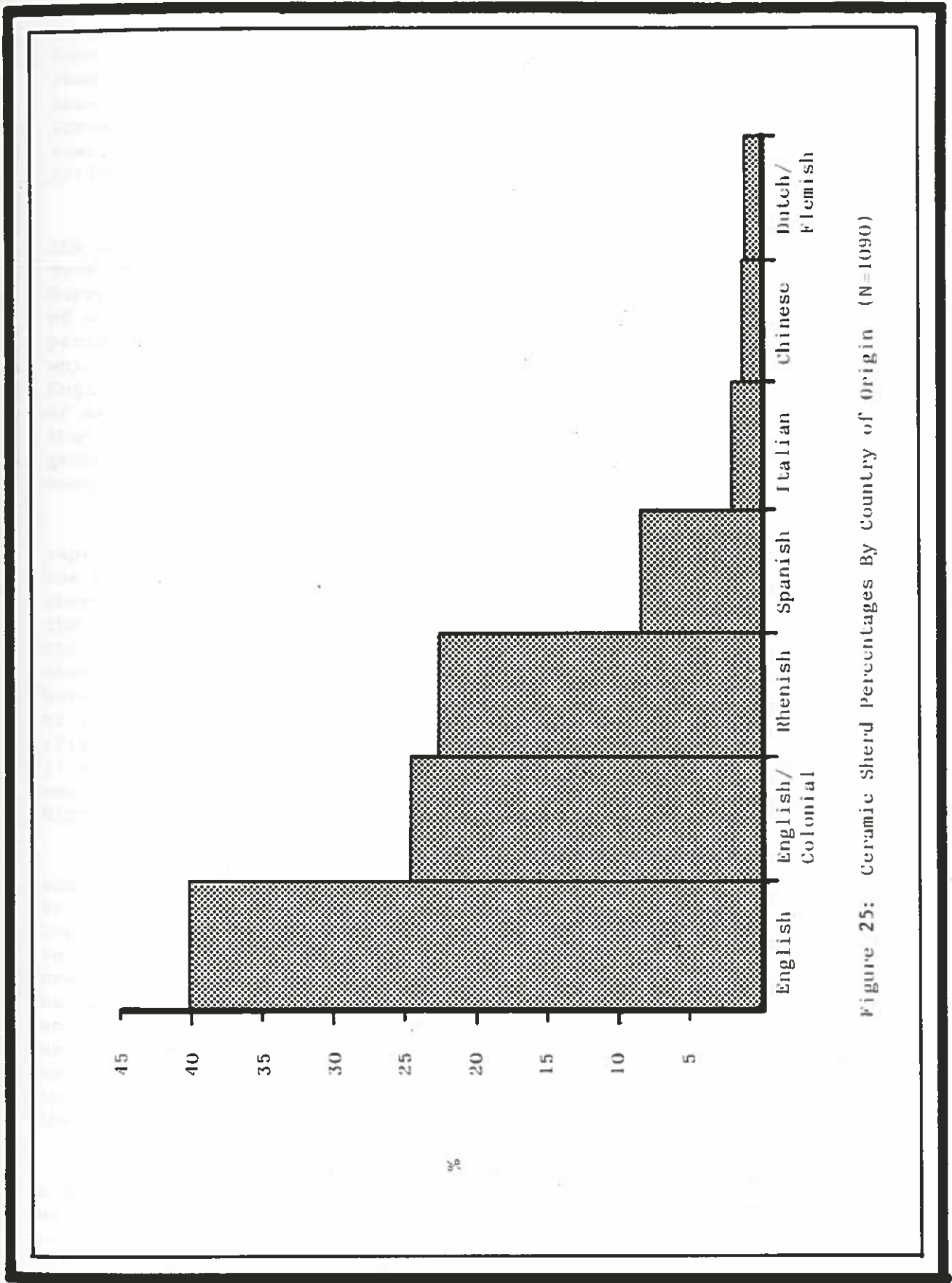


Figure 25: Ceramic Sherd Percentages by Country of Origin (N=1090)

Rhenish, the combined wares from Spain, Italy and China account for less than 8% of the sherds, probably signifying that they were not readily available in the Chesapeake. While the number of Dutch sherds also is small, it must be remembered that this count probably is inaccurate due to the grouping of the tin glazed earthenwares. In any case, the data clearly demonstrates the Englishness of the ceramics collection.

The ceramic collection should provide data which is consistent with the documented occupation of St. Mary's City. Evidence for the early date of settlement does exist in the form of several ware types including Surry Type ware, Flemish Coarse ware, and North Italian Slipware, all of which are thought to date to the pre-1660 period. The terminal period of occupation, on the other hand, is indicated by ceramics for which production began near the end of the 17th century. These include English Brown Stoneware and Manganese Mottled ware. Due to the paucity of materials from the second quarter of the 18th century, it is apparent that occupation ended by ca. 1720. Thus the ceramic data does correlate generally with the documentary information regarding the length of occupation of the Village Center.

Besides the presence or absence of wares, the quantities of sherds representing each ware type also should convey information pertaining to the habitation of St. Mary's City. It is likely that the quantity of sherds present at the site is related to a variety of factors including the temporal span of the wares' availability, the population during the period, and the cost of the ceramic. To facilitate evaluation of these variables, the 16 most well-dated ceramic wares in the collection were selected, and the sherd counts, median dates, and temporal ranges of availability in St. Mary's City are presented in graphic form (Figure 26). This reveals that the wares stratify into three groups: 1) a variety of wares with total counts of less than 25; 2) an intermediate group with sherd counts mostly between 50 and 100; and 3) a high group of two wares with over 190 sherds in each.

Ceramics in the low frequency group consist only of the earliest and latest ware types in the sample. The relatively few early sherds is to be expected for several reasons. The population of the Village Center was small during most of the ca. 1635-1660 period, probably totaling less than 125 individuals (Stone 1982:345). Because of the newly settled nature of the colony, it is also likely that the colonists had a preference for more durable containers of wood, pewter, brass, and iron, as suggested to them by Lord Baltimore's instructions on needed items for colonization (Hall 1910:95). Finally, availability may have been a serious problem since shipping was unpredictable during the early decades of settlement, especially during and immediately after the English civil wars.

The few sherds of late 17th- or early 18th-century ceramics are almost certainly not related to any problem of ceramic availability, and by this time, the colonists clearly employed larger quantities of ceramics in daily life. Instead, the rarity of these sherds can be most directly explained by the movement of the capital to Annapolis in 1695 and the gradual abandonment of the Village Center after that date. A declining population would use fewer ceramics.

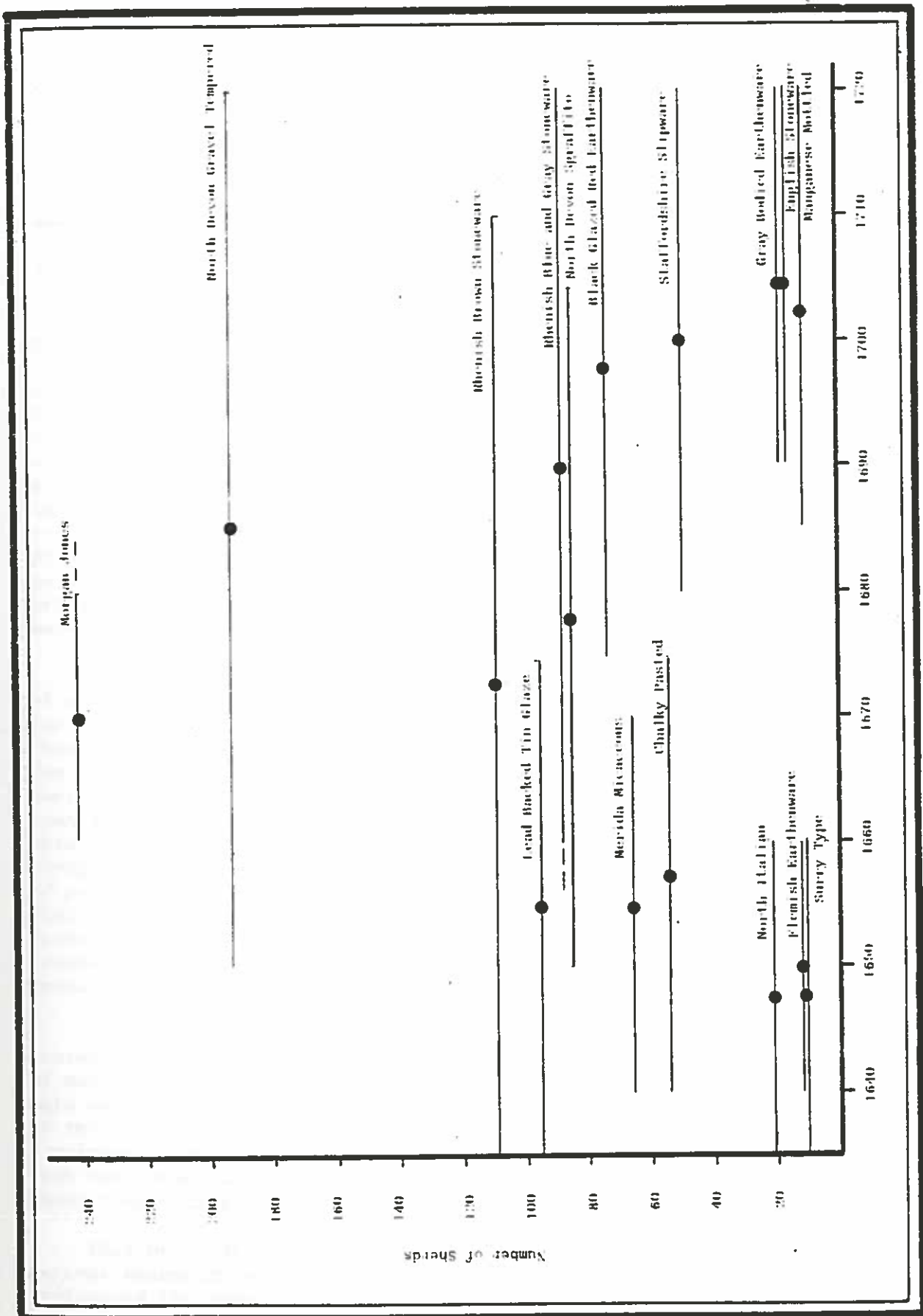


Figure 26. Frequency Distribution of Ware Types from the Village Center by Production Period

The intermediate group of wares consists of such types as Rhenish Brown and Rhenish Blue and Gray stoneware, North Devon Sgraffito ware, and Lead Backed Tin Glazed earthenware. All of these had long periods of availability, and most were popular during the peak of Village Center occupation -- ca. 1670-1695.

Most abundant, however, are North Devon Gravel Tempered pottery and the wares of Morgan Jones. The large quantity of North Devon sherds may be related to its availability over most of the period St. Mary's City was inhabited, and the fact that this tough, utilitarian ware was a popular, widely used ceramic. The Morgan Jones material, on the other hand, was manufactured for a comparatively brief period, c. 1661-1680, and yet it is more abundant than any other single ware. Several factors probably are involved in this phenomenon, but the primary one is its local origin. Morgan Jones worked within a few miles of St. Mary's City and sherds from his vessels are frequent on other sites (St. John's, ST 1-23; Van Sweringen, ST 1-19; Chancellor's Point, ST 1-62). The high frequency at these sites, as well as the Village Center, suggests that proximity to the source of production is a significant variable in determining the frequency of materials at a nearby site. Ceramic analyses in England and Europe have previously indicated the relevance of this factor for archaeological explanation (Hodder and Orton 1976). Although the imported ceramics found in St. Mary's were produced in many different centers hundreds of miles apart, they generally arrived in the Chesapeake via English or Dutch ships and probably can be regarded as equally distant from the Colonial Chesapeake market. Chinese porcelain is an obvious exception.

Another closely associated variable is the constant availability of wares throughout the year. European goods were readily procurable for only a few months each year when the Tobacco Fleet arrived in the Chesapeake to collect the year's crop. Records suggest that there were few stores from which ceramics and other materials could be obtained during the rest of the year (Lois Carr: Personal Communication). In contrast to this pattern, the locally produced wares probably were obtainable more or less constantly throughout the year. Hence, even though local wares may have been produced over a relatively brief span of years, their frequency of purchase may have been much greater than that of European products. It also should be noted that the Morgan Jones wares are commonly underfired. This tends to make them more breakable than the well-fired European vessels, and thus would have necessitated more frequent replacement.

Also relevant is the fact that ceramics imported from England and elsewhere probably were more expensive than the local product because of manufacturing and transportation costs. Unfortunately, the sparse data on ceramic prices in the Chesapeake does not permit verification of this assumption at this time. However, since cost generally plays a primary role in the procurement of material goods, it seems likely that the inhabitants of St. Mary's purchased the Jones ware in larger quantities because it was less expensive.

This brief discussion of the ceramic assemblage has revealed its general character and considered a few of the factors which probably influenced its composition. The assemblage does, in general, conform

to the expectations derived from the documentary record regarding the settlement of St. Mary's City. Significant factors determining the make-up of the collection seem to include not only the political and economic relationships with England, but the length of time over which a ware was produced, distance from the manufacturing source, degree of ready procurement, and perhaps costs. It is apparent that explaining even one variable such as sherd frequency, is a complex and multi-faceted problem on historic sites. While some preliminary insights from the ceramics have been discussed, much more detailed study, including vessel estimation and functional analysis, is required before significant factors can be defined adequately and cause and effect propositions addressed.

Bottle Glass

A total of 1033 specimens of bottle glass were recovered during the random sample excavations, and these are almost equally divided between flat sided case bottles (511 fragments) and round bottles (517 fragments). All are made from a heavily decayed, dark green glass of likely English manufacture. Due to their long period of production, none of the case bottles can be dated precisely, but it seems certain that the majority are of 17th-century date. The few base sections found during the excavations indicate that several sizes of case bottles were used by the residents of the Village Center.

Round bottles, which are post-1650 in date (Noël Hume 1972: 62) display more temporally meaningful attributes, but since an exhaustive analysis of the plowzone and midden sherds has not been undertaken at this time, only general observations can be made. There are a few bases which display tiny kickups and small glass pontil marks which are traits attributed to bottles made during the third quarter of the 17th century. Much more frequent are bases with large kickups and sand pontil marks and date to the last quarter of the 17th and early 18th centuries. It seems likely that round bottles were used in greater quantities over time in the Village Center. A similar trend has been identified at the St. John's site (Fadley and Miller, n.d.) which suggests that this is not a site specific phenomenon, but a general trend in glass usage.

Only five fragments of small pharmaceutical vials were recovered. These are made of blue tinted, thin glass of high quality which generally characterizes vials manufactured during the second half of the 17th century (Noël Hume 1954: 716).

Table Glass

There are 97 examples of 17th-century table glass in the Village Center artifact collection. The fragments represent elegant wine glasses, tumblers, and goblet forms. The majority of the sherds are of a clear to slightly frosted glass, and many of the specimens are "facon de Venice", or in the Venetian style. Of particular note are eight fragments of a clear to slightly green tinted, high quality glass which are decorated by the "Laticimo" technique (Plate 15a-d). After

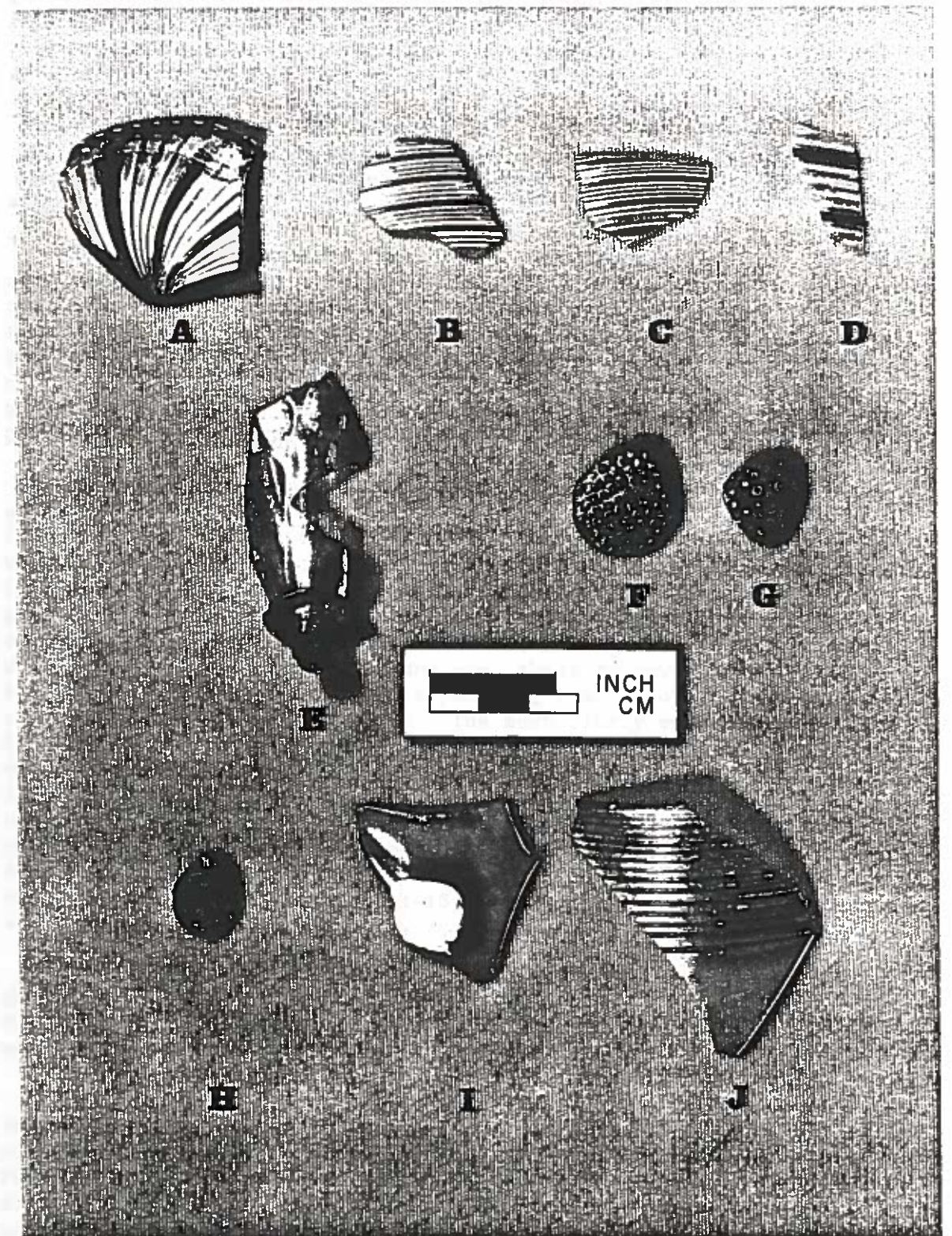


Plate 15. Examples of 17th-century table glass recovered during Village Center excavations.

forming the vessel from clear glass, thin tubes of blue and white glass were applied to the exterior and marvered into the clear glass body to produce bands of color. At least two of these vessels are represented in the collection, and they display the same pattern of a blue band separated by four white bands. One of the largest specimens is the base from a large tumbler on which the decorative bands radiate from the center of the base and appear to spiral up the vessel to the rim. A slightly pinched basal ring of clear metal was later applied over the flattened glass tubes. These may have been produced in Venice, elsewhere in Italy, or perhaps the Netherlands.

Several fragments from the bowls of wine glasses were found. These have moldblown ribbing or other forms of raised decoration, and the most complete (Plate 15e) is a stem and bowl section of slightly yellow tinted, clear glass. It has a funnel shaped bowl with a merse at the base and a short, straight stem section below. On the lower portions of the bowl are molded ribs, and above these are diamond shaped, molded depressions. This is certainly a facon de Venice form, although probably of Netherlands origin.

Ten dark green glass objects known as prunts were found, and all apparently came from goblet shaped, drinking vessels called roemers (Plate 15f-g). Prunts were applied to the hollow stems of these vessels and display rows of raised dots on their surfaces. This roemer form is generally associated with Northern European manufacture, primarily the Rhineland and Netherlands, during the 16th and 17th centuries (Charleston 1975: 210). At the Village Center, prunts are widely scattered over the site and are likely to have derived from several different vessels. It is puzzling that no other fragments of roemers were identified, however. The most likely explanation for this is that the thinly blown roemer glass, which suffers badly from decay (Charleston 1975: 205), may have not had the necessary strength to resist the mechanical forces of plowing. Prunts, on the other hand, are much thicker and could better withstand the mechanical and chemical assaults of the past 300 years, but even these display battered edges and have clearly undergone physical decay. It therefore seems that the few remains of roemers found at ST 1-13 do not adequately reflect the extent of their use in St. Mary's City.

Two raspberry prunts of a fine blue glass also were recovered, and these were affixed to vessels made of clear glass (Plate 15h-j). Judging from the curvature of the glass to which they were applied, the vessels seem to have been tumblers.

The range of 17th-century table glass found is noteworthy and seems to evidence a degree of refinement in material culture seldom associated with frontier existence. Given the richness of the glass assemblage from plowzone, it is probable that feature excavation will produce a diverse collection of table glass which can significantly increase our knowledge of this poorly known component of early American material culture.

Beads

Six European glass beads were recovered from the Village Center site. These are of two varieties. There are five monochrome, drawn beads of blue glass which can be classified in the Kidd and Kidd (1970) bead typology as IIa40,43. The second variety is represented by a single specimen; a layered blue drawn bead with white stripes (Kidd Type IVb33). These are identical to specimens recovered from the St. John's and Chancellor's Point sites in St. Mary's City. At St. John's, they were found in pre-1660 contexts (Miller, Pogue and Smolek 1982). They are probably of Dutch origin.

Five of the specimens were found adjacent to the Country's House foundation and on all sides of this building. This obviously demonstrates some association with this structure. The other bead, a large plain blue specimen (Kidd IIa40), came from Square 1567H in association with Late Woodland pottery and a quantity of quartz debitage. It may be related to the Contact period Indian village known to have existed at the site.

Small Finds

Grouped into this category are a variety of materials which are represented by only a few or single items in the artifact assemblage. Among these are brass objects such as curtain rings, upholstery tacks, a possible book clasp, one ornate lock plate from a trunk or cabinet, and a number of small pieces of scrap that were originally parts of brass pots or kettles. Iron objects include horse gear such as a bit fragment and two spurs, and several dozen buckles which, because of difficulty in dating; may be 17th or 19th century in date. Twenty fragments of knives were recovered, and most of these appear to be from the 17th century. Furniture remains consist of three drawer pulls, several iron door lock fragments, and a very small pintle which may be from a cabinet. Among more personal items are a jew's harp, a pair of dividers, and several sizes of hook and eye clothing fasteners. In this same category are bone objects including a pair of bone dice, several knife handle fragments, and one portion of a bone comb.

One of the more surprising discoveries is a piece of lead printing type. Although corrosion has made the letter unreadable, this specimen is almost certainly from the press of William Nuthead, first printer in the southern United States. Nuthead established his press in St. Mary's City in 1685 and worked there until his death a decade later. While locations of the several shops at which he printed are unknown, the recovery of seven pieces of type from the Van Sweringen site makes that one likely location where Nuthead worked. The discovery of another piece of type in what was the backyard of the Country's House could be indicative of another place in which Maryland's first press was operated.

Other lead objects include two bale seals and several folded or rolled sheets of lead which might have been fishing weights. Pewter is rare at the site with only two items found. One is circular, threaded and may be the cap from a case bottle. The other item is also in the shape of a cap, but with one small exterior loop and molded floral decoration on the exterior at opposite sides. It may represent a

bandolier cap, but of a different style than previously found in the Chesapeake region (Wittkofski 1979).

Armament Related Artifacts

Only one gun part was recovered in 1981 -- an iron cock. This specimen is complete, with the flint vise and screws still in place, although it is missing the flint. Since only the head of the cock screw remains, the shearing off of the screw shaft may be the reason the entire cock was discarded. There is some suggestion that the specimen had a doglock catch, and although dating is difficult, it is most probably from a late 17th-century doglock musket.

An intriguing find is an iron cannon ball which came from the trash-filled pit in the rear yard of the Country's House. It measures $3\frac{1}{2}$ inches in diameter and weighs approximately $4\frac{1}{4}$ pounds (2 kilograms). This is the specified size and close to the specified weight of ammunition for a 17th-century weapon known as a saker (Firth 1921: 401-2). Sakers were used frequently as field pieces, and comprised the bulk of the artillery during the English civil wars. Only one reference to sakers in St. Mary's City has been found. In 1634, Lord Baltimore was sued for payment by a founder for eight cannons -- four sakers and four demi-culverns. Apparently, the order had been placed in 1633, and the weapons were intended for defense of the Maryland colony. These guns are known to have been placed aboard the Ark or the Dove (Carr 1969: 98), and this is confirmed in a "Relation of the Successful Beginnings", which was written in 1634 and states that:

For our safety, we have built a good strong Fort or Palazado, & have mounted upon it one good piece of ordinance, and 4 murderers, and have seven pieces more, ready to mount forthwith (Shea 1865: 20-1).

Since the ball was recovered within 70 feet of the Fort bastion, there is a strong possibility that it was ammunition for the Fort's guns. If so, it dates from 1634 and arrived with the first settlers.

Ammunition for small arms also was found and includes two balls, one of .60 caliber and the other of .67 caliber. Three smaller pieces of shot were found, and they were most probably intended for use with fowling pieces. Eleven fragments of melted lead were retrieved and may represent waste from shot casting activities at the site.

Flint

A total of 204 pieces of European flint were found in the Village Center. These range in color from gray to dark brown to black and seem to have originally been in the form of small cobbles. Almost all of the assemblage is debitage, but a few professionally made, imported gunflints were found. Three of these are spalls of dark brown to black flint, and the fourth is a blade type made from French flint. Several of the flakes were utilized as strike-a-lights, as evidenced by their battered edges. It is obvious that some manner of flintworking occurred at the site and

seems likely the colonists were attempting to produce gunflints, as was found at the St. John's site (Miller and Keeler 1978). Additional excavation and analysis will be necessary to evaluate the success of flintknapping by the Village Center residents.

Faunal Materials

Remains of animals were extremely common at the site with the random sampling squares yielding 12,251 fragments. It is difficult to distinguish 17th- from 19th-century animal remains, but preliminary indications are that much of the bone is of 17th-century origin. This is based upon the associated artifacts and the fact that most of the cut marks appear to have been made with an axe rather than a saw. In this region the use of saws in butchery became common during the 19th century. Although no faunal analysis has been conducted of this mostly plowzone sample, several species were identified during the process of cataloging. These are cattle (Bos taurus), swine (Sus scrofa), sheep or goat (Ovis aries or Capra hircus), deer (Odocoileus virginianus), chicken (Gallus gallus), Canada goose (Branta canadensis), sheephead fish (Archosargus probatocephalus), and box turtle (Terrapene carolina).

Oyster Shell

Oyster remains are common on most colonial sites in the Tidewater Chesapeake, and the Village Center was no exception. Over 28 cubic feet of shell were recovered from the site in 1981. At a minimum, this amount equals 50,000 shell fragments. Although some of these are certainly from the 19th-20th-century occupations, the contexts of recovery and associated materials indicate that the majority of the shells are from the prehistoric or 17th-century occupations. The 17th-century middens are riddled with shell, and it is clear that oysters were heavily exploited during the period.

Architectural Metal

Practically all of the architecturally related metal are wrought nails. There are 3963 in the collection. Because wood was the predominant building material in the 17th century, the recovery of this large quantity of nails is expected. Other items include large spikes, several pintels, a variety of hinges, door lock parts, and one key.

Window Glass

There are 305 fragments of 17th-century window glass in the collection. All of these are from casement type windows assembled with turned lead. Originally this glass was tinted green, but chemical deterioration has made all the specimens dark brown to gold and very fragile. Preliminary analysis of the edge angles to which the glass had been cut reveals that both diamond and square or rectangular panes were used. While these fragments were widely scattered over the site, the majority clustered around the Country's House, and it is clear the structure

possessed glazed windows. The largest concentration (84 sherds) occurred in square 1707, immediately adjacent to the Country's House foundation, and this may indicate the location of one of the windows in that structure.

Brick

Three varieties of brick were recovered: 1) a red to orange type of coarse clay; 2) a fine reddish variety which contains a very fine sand; and 3) yellow brick of Netherlands origin. Of these, the first variety is by far the most common, and 22.6 cubic feet were excavated from the site. While some of this is from 19th/20th-century activities, the major portion is probably from the 17th century. It is made from a coarse textured clay which has numerous inclusions of quartz gravel, sand, and other impurities. Depending upon firing, size and color vary considerably, but most are orange to red and measure approximately 9x4x2½ inches. This type of brick is most abundant around the Country's House foundation, and it probably represents rubble from dismantling its brick walls.

The second type of brick is rare with less than 0.25 cubic feet recovered from the Village Center; it is quite common at the nearby Van Sweringen site, however. This brick has a very fine sand, which is immediately recognizable, uniformly distributed in the clay. Due to firing differences, the color ranges from orange and red to purple. No complete specimens were recovered in 1981. This brick is certainly of 17th-century date and was probably imported, but the source remains unknown at this time.

Yellow brick is somewhat more common at the site, but still rare when compared with red brick. Approximately 1200 fragments (0.5 cubic feet) of this type were found. The specimens are all well fired and, based upon data from the St. John's site, were probably used as firebox lining or hearth paving. Although it is not certain whether this brick was available throughout the entire 17th century, its origin in the Netherlands is well documented (Becker 1977; Sopko 1982). Major concentrations of Dutch brick occur with the structures south of the Country's House.

Tile

Two varieties of tile were found in the Village Center -- the decorated tin glazed earthenware variety, and a coarse, unglazed type made of brick clay. The four tin glazed specimens are all flat and only glazed on the upper surface. Blue decoration appears on three, but they are too small to identify the scenes depicted. Three have an orange tinted soft paste while the paste of the remaining tile is buff colored. These are thought to have been used around fireplaces in the Chesapeake colonies.

The 115 examples of unglazed flat tile are made from a coarse, predominantly orange colored paste which has occasional bands of yellow clay mixed through it. There are numerous inclusions such as quartz

pebbles, sand, and ochre specks. During the manufacturing process, one surface and the sides of the tile were coated with sand, probably to facilitate removal from the mold; the opposite surface displays scrape marks from finishing. The shape of the complete tiles seems to have been rectangular. Two square, beveled holes were made at one end of the tile to allow attachment with pegs or nails. Identical examples have been found at St. John's in mid-17th-century contexts, and it is likely they were locally produced. Within the Village Center, these tiles are tightly clustered around the Country's House, and 83 of the 115 fragments are directly associated with it. This quantity of tile seems too small for the structure to have had a tile roof. Alternative uses might have been as hearth paving or, more likely, as an exterior cladding on wattle and daub chimney stacks.

Artifact Summary

This section has revealed something of the richness and diversity of 17th-century artifacts in the Village Center. The results of the preliminary analysis of these materials has identified general characteristics of the occupation. When intensively analyzed, they will yield precise and penetrating insights into the lifeways of Maryland's first colonists. Temporally, the materials correspond well with the known occupational history of the settlement. There are some artifacts from the first half of the 17th century, but the bulk of the assemblage dates to the latter half. Culturally, there is a strong English character to the collection, which is to be expected given the English origin and affiliation of the colony. However, there was considerable interaction with places other than England. The Netherlands is one example as indicated by the profusion of Dutch pipes and other materials found at the site. These seem to furnish evidence that Dutch ships were trading in Maryland during the first decades of settlement. After ca. 1660, however, an important shift is apparent, for English pipes and other goods predominate, especially items shipped from the port of Bristol. Artifacts from the Rhineland, Italy, and Spain also were recovered, but they are probably not the result of direct interaction with these countries. Instead, they signify indirect trade relationships through another country such as England or the Netherlands. The Village Center artifacts also demonstrate economic interaction within the New World -- including New England, local Indian populations, and intra-Chesapeake trade between the colonists in goods such as ceramics. The artifacts also evidence the broad range of activities which occurred in the Village Center. These include practically every aspect of domestic affairs -- food procurement, cooking, dining, sewing, entertainment -- along with activities such as military defense, flint knapping, wood working, and printing. All of these findings contribute to the overall understanding of the site. However, there is another property of these artifacts -- their spatial distributions -- which must be examined if they are to be fully interpreted within the contexts of early Maryland society.

17th-Century Artifact Spatial Analysis

To fully evaluate the artifact assemblage recovered by the random sample excavations, it is necessary to consider artifact distributions through both space and time. This was accomplished by the creation of distribution maps for the various artifacts using the SYMAP computer graphics program. SYMAP produces maps in which the varying frequencies of artifacts are depicted by contours. To achieve this, the program takes the data points and extrapolates between them to produce a representation of the distribution of materials over the entire area of study. It bears a resemblance to topographic maps, since both utilize contours and extrapolate between the data points.

Several problems are associated with the use of this program. One difficulty is the adequacy of the sample. Because of this, the strategy of stratified random sampling was employed during the 1981 season. The stratum size and sampling frequency insured broad coverage of the study area with relatively small distances between the data points.

Another problem with SYMAP is determining the levels or "Data Class Intervals" into which the data is divided for mapping. The program will automatically divide the values into equal intervals, but this normally does not accurately reflect the actual data distribution. Another approach involves the mean and standard deviations about it. While more statistically elegant and systematic, this solution is often inappropriate because archaeological data rarely display normal distributions. Indeed, almost every artifact distribution encountered in our work at St. Mary's City is heavily skewed. The typical pattern is that the majority of the data points contain only a few or no artifacts, while several of the points yield major concentrations of materials.

The approach used in this study was to divide the data range into intervals which reflect, to varying degrees, the data value distribution. Thus, if most of the values are less than two artifacts per square, the first division or mapping level would contain most of these points. Slightly higher values would be divided to reflect their frequency in the sample, and the few very high values would be grouped to represent areas of major concentrations. An attempt also was made to find natural breaks in the data distribution, but in general, it was the actual forms of the value distributions that guided the selection of data intervals for each map. Since the primary goal of mapping at this stage of the project was to identify major concentrations of cultural materials and define areas in which little deposition had occurred, this approach is appropriate.

Depending upon the range of values for a particular artifact type, the data were divided into four or five levels for mapping. Employing fewer than four levels would have needlessly concealed differences in artifact distribution through a lumping effect, while utilizing more than five levels tends to make the maps difficult to interpret. Five levels are standard for the program and were employed for most maps. For some artifacts present in small quantities, however, the use of this number of division would have been inappropriate and probably misleading, and so, four levels were used.

Out of the total number of squares excavated in the Village Center, 212 were used as SYMAP data points. It was necessary to exclude the remainder because of extensive 19th-20th-century disturbances which made the artifact counts unreliable. This was especially true on the river side of the Brome House at the bluff's edge where landscaping resulted in the removal of most of the artifact-bearing strata. Although the sample size in the western fourth of the study area was reduced to 4%, for reasons previously discussed, this should not bias the distribution maps greatly. It is recognized, however, that the maps in that area have slightly less resolution.

Figure 27 shows the outline of the area over which the artifact distributions are projected and indicates extant buildings and other features of the site to serve as orientation markers. The symbol 1 indicates the location of a 5x5-foot test unit. On each computer map, the standing Brome-Howard house is indicated by a trapezoidal-shaped area free of symbols. The square area at the top of each map represents the excavated squares within the road median in front of the Brome-Howard house. These squares were treated as a separate island because of their distance from other data points. To assist in artifact map interpretation, the present edge of bank and appropriate cultural features appear on each map.

The first SYMAP depicts the distribution of wrought nails over the Village Center. Wrought nails are perhaps the best indicators of structure locations, since Chesapeake architecture during the 17th century consisted almost exclusively of timber buildings supported by hole-set, wooden posts and covered with clapboard (Carson, et. al. 1981). Given the prevalence of this mode of construction, one of the best preserved and most abundant indicators of buildings should be the nails with which they were assembled. Figure 28 shows that wrought nails are not randomly scattered over the site, but occur in clusters of varying intensities. It can be seen that these nail concentrations, represented by black areas, appear in immediate association with the brick foundation of the Country's House (A). A large, intense cluster of nails is found in the southwest corner of the Country's House yard (C), and this may represent an outbuilding or the dump of that structure. To the north, several areas of nail concentration are revealed (D), and these may also signify the location of outbuildings. South of the brick foundation, a large group of nails occurs within a space seemingly founded by fence ditch segments and within which is located a probable cellar hole (B). It is very likely that one or more buildings stood in this area. Further south, another significant aggregation of nails is found along the southwest edge of the study area (E); it corresponds precisely with the location of the fallen plaster wall previously discussed. Nail concentrations appear in the eastern third of the sample zone (F,G,H,I), and several of these are confirmed as structure locations by sub-surface architectural features. Finally, there is the suggestion of structures in the northwest corner of the study area (K). Overall, the nail distribution map suggests the locations of at least 10 structures, and it demonstrates the strong association between building features and clusters of nails in the plow zone.

The only exception to this is a group of nails at the southeast corner of the Country's House yard (J). A rich midden was detected in this area, and the nails in this instance apparently signify the

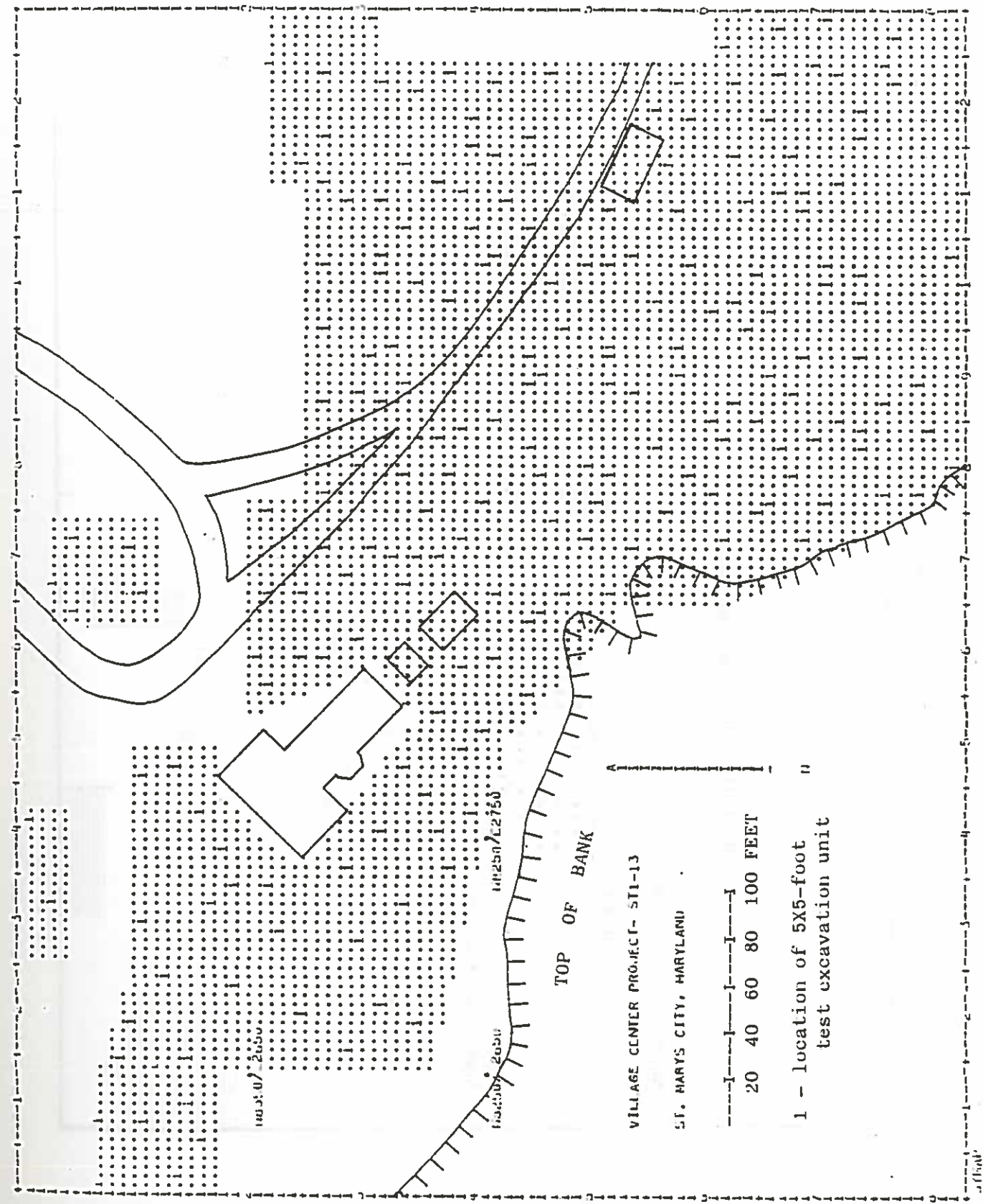


Figure 27. Excavation Units and Map Area Used in SYMAP Artifact Distributions

Figure 28. Spatial Distribution of Wrought Nails

Mapping Level Symbolism

Level	1	2	3	4	5
	+++++	00000000	0000000000	0000000000
	+++++	0000000000	0000000000	0000000000
	+++++	0000300000	0000000000	0000000000
	+++++	0000000000	0000000000	0000000000
	+++++	0000000000	0000000000	0000000000

Number of test units in each level:

Level	1	2	3	4	5
Number of test units	66	80	44	14	8
Value Range applying to each level:					
Minimum	.00	4.00	19.00	49.00	94.00
Maximum	4.00	19.00	49.00	94.00	283.00



Figure 28. Spatial Distribution of Wrought Nails

location of a dump rather than a building. However, these materials are near the Country's House and represent debris from that structure.

To acquire a general perspective on 17th-century artifact distribution at the site, maps were produced of total white clay pipes, total 17th-century/colonial ceramics, and total glass. The tobacco pipe distribution (Figure 29) reveals that the major concentrations occur around the Country's House (A,C) and just to the south of it (B). Only minor accumulations appear in the eastern and western sections of the site. This extensive grouping of pipes around the Country's House may be related to its long period of continuous occupation and use as an ordinary for nearly 40 years.

Ceramics display a broader distribution (Figure 30) with major clusters occurring on the west and south sides of the Country's House and further south in the area of the possible cellar (B). Another sherd concentration appears even further south (E) near the cellar partially excavated by Forman in 1940.

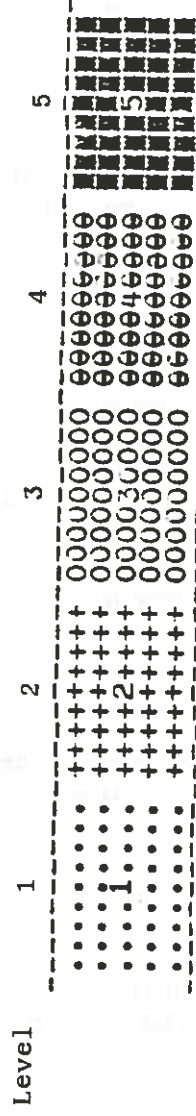
The distribution of total 17th-century/colonial bottle and table glass (Figure 31) discloses that this material also was broadly scattered over the site. Intense concentrations only occur around the Country's House, on the property directly south of it (B), and in the sampling square at the north edge of the map (D). Minor clusters appear to the east of the Country's House and in the southernmost portion of the site. The total glass and total ceramics distributions around the Country's House are very similar, suggesting that these materials were subject to the same depositional processes.

A notable feature of these maps is the juxtaposition of the possible fence ditch and artifact distributions on the west side of the Country's House. Sherds seem to occur only on the right side of the fence, suggesting that it served as a barrier to garbage disposal. Tobacco pipes display a similar distribution on the west and south sides of the lot. The absence of similar depositions on the other sides of the structure may indicate that this west side was designated as a work space or disposal area and enclosed by fencing.

These artifact maps point out a number of possible structure locations within the Village Center, reveal major disposal areas, and show that cultural materials occur in varying intensities over most of the study area. There are also significant similarities and differences between the distributions of various materials. All are scattered around the Country's House, especially on the south and north sides, but the intensity varies considerably. Nails and glass, for example, are concentrated at the northwest corner of the structure, but there are relatively few pipes in that location. Major clusters of glass and ceramics appear on the southside near the center of the house, but only small quantities of nails and pipes are found there. Directly east of the Country's House lot is another concentration. It is clearly depicted by the wrought nails and is readily apparent on the pipe map, but is much less well-defined on the glass and ceramic maps. Significant variation also occurs in the area of the fallen plaster wall (E) where a major concentration of nails is found, but very few other artifacts.

Figure 29. Spatial Distribution of Total White Clay Tobacco Pipe Fragments

Mapping Level Symbolism



Number of test units in each level:

Level	1	2	3	4	5
Number of test units	89	79	27	11	6
Value Range applying to each level:					
Minimum	.00	4.00	20.00	45.00	70.00
Maximum	4.00	20.00	45.00	70.00	188.00



Figure 29. Spatial Distribution of Total White Clay Tobacco Pipe Fragments

Figure 30. Spatial Distribution of Total 17th-Century Ceramics

Mapping Level Symbolism

Level	1	2	3	4	5
	+++++	00000000	0000000000	0000000000
	+++++	00000000	0000000000	0000000000
	+++++	000030000	0000000000	0000000000
	+++++	000000000	0000000000	0000000000
	+++++	000000000	0000000000	0000000000
	+++++	000000000	0000000000	0000000000
	+++++	000000000	0000000000	0000000000
	+++++	000000000	0000000000	0000000000
	+++++	000000000	0000000000	0000000000
	+++++	000000000	0000000000	0000000000

Number of test units in each level:

99	67	29	12	5
----	----	----	----	---

Value Range applying to each level:

Minimum	.00	4.00	15.00	30.00	50.00
Maximum	4.00	15.00	30.00	50.00	121.00

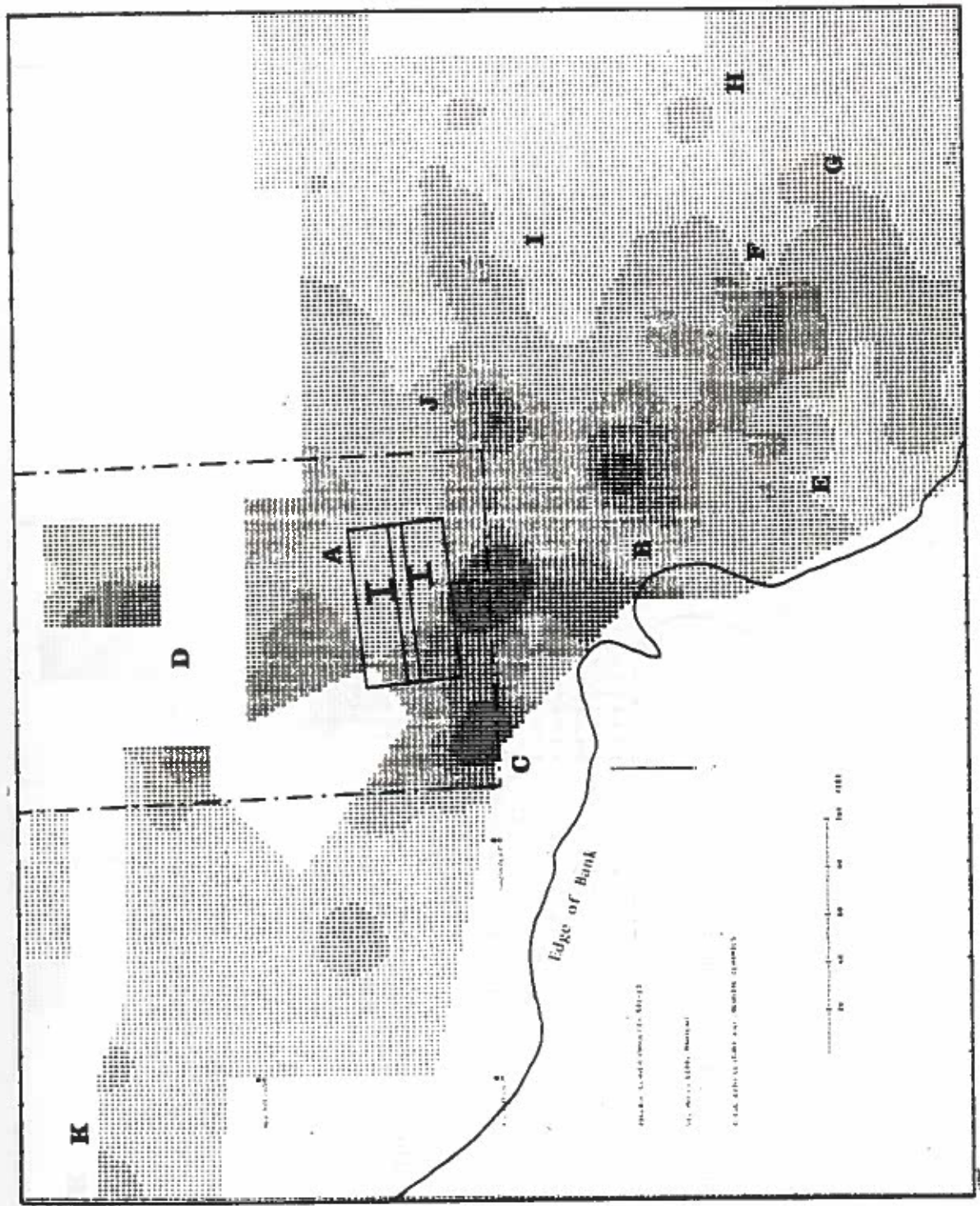


Figure 30. Spatial Distribution of Total 17th-century and Colonial Ceramics

Some glass and ceramics do appear a short distance to the east, however. This phenomenon may occur because the nails come from the interior of a collapsed building instead of the midden surrounding it.

A comparison of these four artifact groups reveals significant variability in their distributions over the site. Unfortunately, the facts involved in producing such variability are poorly understood; with our present knowledge, it is not possible to explain them adequately. Additional excavation, detailed artifact analysis, and a more thorough understanding of the nature of specific concentrations should make it possible to advance hypotheses pertaining to these variations in artifact distributions.

One factor which unquestionably worked to produce this variability is time. While the maps discussed thus far have provided an overall perspective concerning the spatial distributions of artifacts within the Village Center, they represent a composite picture of over 75 years of occupation and do not permit the early structures to be distinguished from those later in date. Fortunately, there are a variety of temporally diagnostic artifacts in the collection, and these can provide a diachronic perspective on the settlement.

Several indicators of occupation during the c. 1634-1660 period are available, including large bore (9-11/64ths inch) tobacco pipe fragments. These pipes generally are dated to the first half of the 17th-century (Harrington 1954) and hence, can serve as markers of occupation during the first decades of settlement. Figure 32 illustrates their distribution and reveals that they occur primarily around the Calvert, or Country's House (A) and in a small area directly south of it (B). They are almost completely absent over the rest of the site.

Ceramics also provide excellent temporal control, and a variety of types which date from different periods of the occupation are present. Three early wares are the "Surry" type, Flemish Coarse, and Chalky Pasted earthenwares. Each occurs at the St. John's site in c. 1638-1660 contexts, and they seem to be excellent markers for the earliest occupation in St. Mary's City. Within the Village Center (Figure 33), they occur in direct association with the Calvert House and in the area directly south of it (B).

These maps reveal that the early settlement apparently was very small. Artifacts are tightly clustered around the Calvert House and just south of it, but the rest of the study area is virtually sterile. Both maps also display a strong correspondence in artifact distribution. On the north side, or backyard, of the Governor's Home (A), concentrations of pipes and ceramics co-occur, suggesting dump locations. In the second concentration of materials (B), the clusters do not overlap since the pipes occur slightly to the east of the ceramics. This spot is probably the location of an early building. Disturbed remains of what may have been a brick chimney base were detected here, and Dutch brick fragments and wrought nails were abundant. Such a location directly opposite the Governor's house and within 100 feet of the town spring would have been a desirable building site. A few sherds also occur to the south and east of this cluster and may represent a scatter of associated materials.

Growth of the community can be investigated next by mapping other 17th-century artifacts. Indicative of a somewhat later time period are the 8/64ths inch pipes (Figure 34). These are most abundant and more widely dispersed over the study area than the larger stems, probably reflecting the growth of the settlement. Major concentrations remain in association with the Calvert House, but there is a striking change in the spatial configuration. Although pipes still occur in the backyard (A), the major cluster appears on the west side of the building (C). Few of the larger bore stems were found there, and it seems that a shift in disposal behavior and space usage must have occurred; this could be associated with several major architectural changes known to have been made to the Calvert structure. Further to the north, a cluster is present in the median (D). Quantities of 8/64ths inch stems also were recovered south of the Governor's House (B). These are widely scattered with the major concentration at the western edge of the study area. This represents a notable westward shift in pipes when compared to the 9-11/64ths stems, and seems to reveal another change in disposal behavior.

It can be questioned whether these apparent changes in pipe stem distributions represent a real shift in behavior or are a quirk of the 8/64ths pipes. Two artifact groups dating to the mid-17th century were mapped to help resolve this. These are Merida Micaceous earthenware (Figure 35) and locally produced terra cotta pipes (Figure 36). The Merida sherds cluster tightly in the center of the study area, and their spatial distribution corresponds closely with that of the 8/64ths inch pipes. Sherds of this unglazed ware are found on the western side of the Country's House (C), to the south of it (B), and to the north near (D). Although the terra cotta pipes have a somewhat wider distribution, they also are found all around the Country's House, with notable clusters on the north and west sides of the structure. Both of these maps support the contention that a shift in disposal patterns did occur.

The middle decades of St. Mary's City's existence, the 1660s and 1670s, are best marked archaeologically by the wares of Maryland's first potter, Morgan Jones. Jones began producing his coarse, lead-glazed earthenwares in 1661 and continued until about 1680. When the distribution of his wares over the site is plotted (Figure 37), the resulting map displays a pattern quite distinct from that of the earlier artifacts. Most pronounced is a shift of the major concentrations to the southern portion of the study area (B,E,F,G). Sherds also appear around the Country's House, but not in large quantities. While there is considerable variability in sherd frequency over the site, this map seems to evidence the growth of the village of St. Mary's and its spread to the south. Some suggestion of occupation also appears in the northwest corner (K).

Another coarse earthenware partially contemporaneous with the Jones pottery is North Devon Gravel Tempered ware. This pottery was available possibly as early as 1650 and continued to be exported to the colonies into the 18th-century (Watkins 1960). SYMAP distribution of the North Devon material (Figure 38) discloses a pattern considerably different from the Morgan Jones pottery. Sherds do occur in the southern site area, but they are in low frequencies. Major groupings of North Devon sherds are in association with the Country's House and in the square to the north of it (A,C,D). In many respects, this ceramic distribution

Figure 38. Spatial Distribution of North Devon Gravel Tempered Pottery

Mapping Level Symbolism

Level	1	2	3	4
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM
	+++++	UUUUUUUU	MMMMMMMM

Number of test units in each level:

136	41	29	6
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Value Range applying to each level:

Minimum	.00	.90	2.00	5.00
Maximum	.90	2.00	5.00	15.00

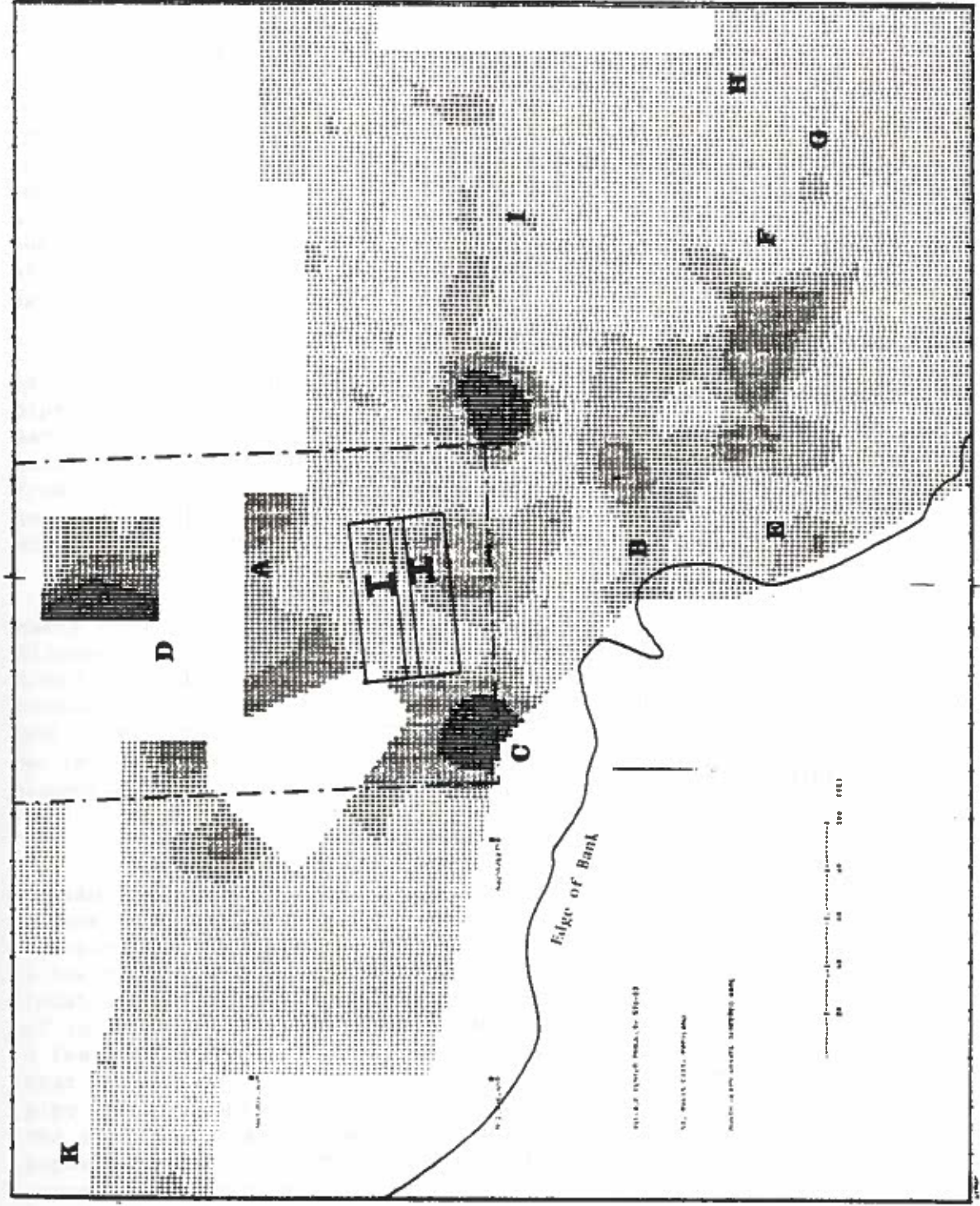


Figure 38. Spatial Distribution of North Devon Gravel Tempered Pottery

is the opposite of the Jones ware. Temporal factors may be responsible for some of this reversal, but other variables such as differences in wealth, site function, or individual household purchasing behavior could be involved. More extensive excavation and the collection of materials from sealed contexts may help resolve this.

Some of the artifacts hint that the sites south of the Country's House were not occupied for similar lengths of time. Habitation appears to have begun in the 1660s. The 7/64th and 6/64ths inch pipes (Figures 39 and 40), which tend to date to the later decades of the 17th century, show that occupation of the site nearest the Country's House (B) may have continued into the 1690s. The sites further to the south (E,F,G,H), on the other hand, seem to have been largely abandoned by the 1680s. Comparison of the 7/64ths and 6/64ths inch pipe maps clearly implies a gradual decline in the numbers of pipes being deposited in that area over time. At the same time, evidence exists for continued occupation of the Country's House and the existence of domestic structures to the east and northwest of it (I,K).

Even though these pipe maps seem to indicate temporal trends, there is a very significant problem. Some of the 7/64ths and 6/64ths inch pipes in the Village Center are from the Netherlands, and these are earlier than English pipes with the same bore diameters. Because of this, both maps probably represent a composite image of pipe deposition from throughout the 17th century. Only with more intensive analysis and the identification of deposits in which Dutch pipes predominate, will it be possible to compensate partially for this problem.

Better temporal control for the last decades of the 17th and the early 18th centuries is provided by ceramics. Staffordshire Style Slipware, English Brown Stoneware and Managanese Mottled ware are combined to create a late ceramic distribution map (Figure 41). This map reveals that sherds are mostly restricted to the Country's House (A,C) and in an area at the eastern edge of the sampling zone (I). Virtually no late wares were recovered from the southern sections, and this supports a pre-1680 abandonment date for most of the buildings in this area.

Also of late date are the 4-5/64ths inch pipes, some of which probably represent occupation during the 18th century. As Figure 42 demonstrates, these pipes are rare at the Village Center with only one concentration detected in the eastern portion of the study zone (I). A few also appear behind the Country's House (A) and in other isolated locations. The only notable pipe cluster occurs near the concentration of late ceramics, although it is about 20 feet to the west of the sherds. A few 18th-century ceramics also were recovered in this area, implying that occupation of some sort occurred during that period. When this pipe map is compared with those of the 7/64ths and 6/64ths inch fragments the differences are dramatic. Both the late ceramics and the smallest pipes have distributions which reflect the diminished intensity of occupation within the Village Center. This clearly confirms the document-based supposition that the population of St. Mary's City declined rapidly following the move of the capital in 1695.

Spatial Analysis Summary

These distribution maps provide a graphic record of settlement in St. Mary's City, and by considering the temporally diagnostic artifacts, it is possible to suggest something of the developmental patterns of the community. Evidence of settlement during the first decades of the colony is sparse and restricted to the center of the study area. There are indications of two buildings occupied during this early period — Governor Leonard Calvert's house and a structure directly south of it. It is known that small cottages and other buildings were erected during the first months of settlement, but none of these have been identified. They may be hard to find since they were only occupied for a few years and during a period in which material possessions were probably at a minimum. It is possible that a few of the isolated groups of early artifacts represent these cottages, but only extensive excavation will verify this.

Later artifacts, such as Morgan Jones pottery and the 8/64ths and 7/64ths inch pipes, display much broader distributions and clearly depict the growth of the settlement. Expansion occurred to the south and east of the Country's House where both features and artifacts indicate that a number of buildings were constructed. Another building apparently was erected in the northwest corner of the study area in the third quarter of the 17th century. During the final decades of the 17th and the early 18th centuries, occupation ebbed and was restricted to the Country's House and a structure directly to the east of it.

Comparison of these maps thus reveals some dramatic and many subtle variations in artifact patterning over the site. They probably represent shifts in spatial organization, architectural function, activity distribution, and disposal behavior. More importantly, however, is the fact that these distributions substantiate the written history of St. Mary's City and yield the first tangible picture of the growth and death of this early community.

Identification of the 17th-Century Sites

Analysis of the 17th-century artifacts and features has produced a great deal of information regarding the occupation, but has thus far failed to achieve one of the major goals of the excavations. This is the link-up of the archaeological and documentary records through the identification of specific key properties in St. Mary's City. To pursue this goal, it is first necessary to review the relevant facts regarding the layout of the settlement.

The documentary information concerning the placement of properties and buildings in St. Mary's City is sparse. The fragmentary historical record which remains has been researched exhaustively by the Commission's historian, Dr. Lois Carr. Through a careful weighing of the available evidence and logical inferences from that data, she was able to produce a map (Figure 43) showing the configuration of St. Mary's City near the period of its maximum development (Carr 1974:134). Because of the imprecision of many of the documentary references, however, this could only be considered the most likely town plan, and it could not be located accurately on the existing landscape of St. Mary's.

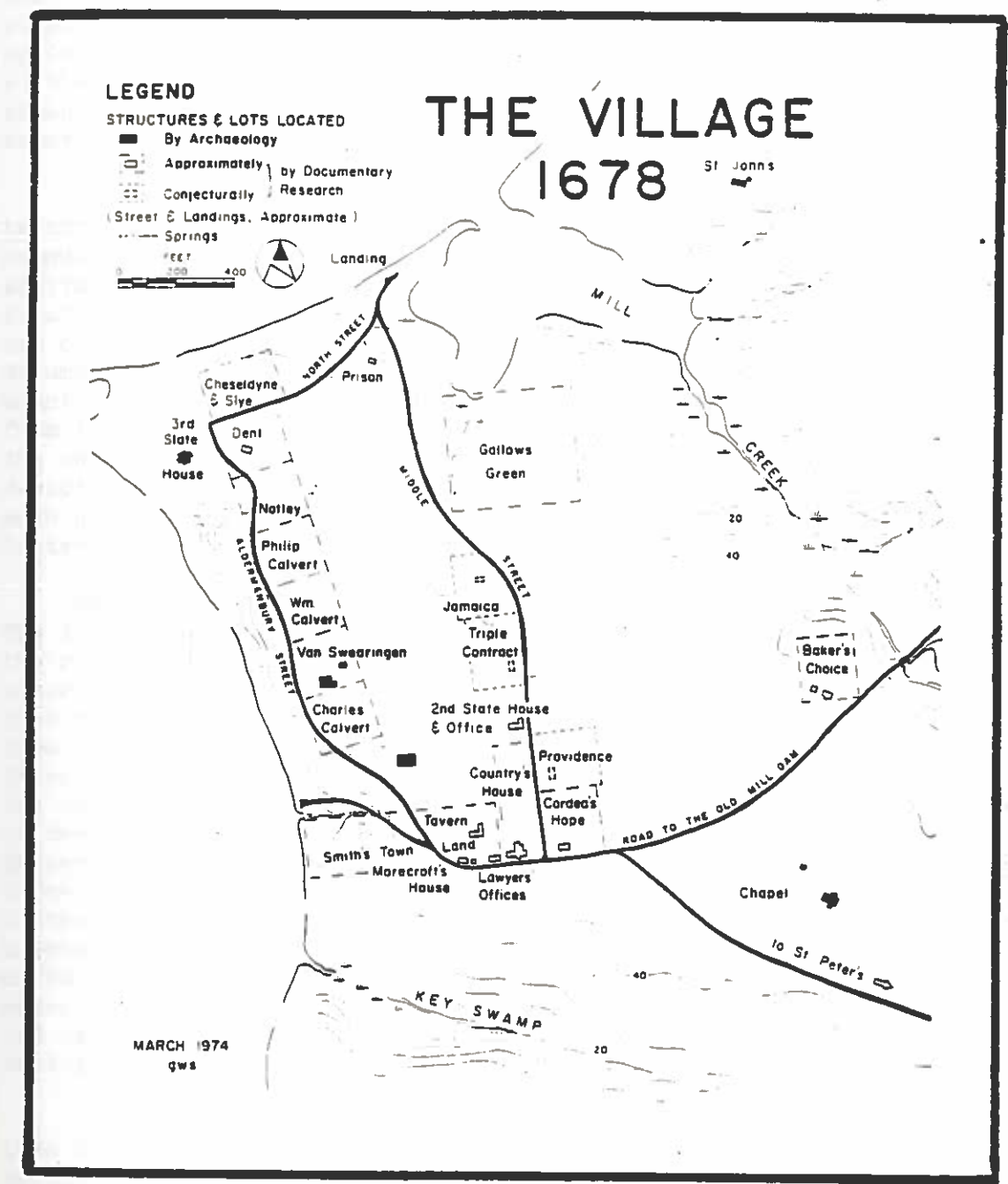


Figure 43. Map of St. Mary's City based on documentary research.

This map and its conjectured property arrangements served as the model which the 1981 archaeological excavations were designed to test. Most critical to this testing process were three key properties which comprised the heart of St. Mary's City. These are the Leonard Calvert or Country's House lot, Cordea's Hope, and Smith's Town Land. Results of the 1979-1980 surveys indicated that these were not in the location shown on the 1974 map, but were probably much closer to the river. Their exact location, however, eluded the archaeologists until 1981.

One of the most significant discoveries of the 1981 season is Leonard Calvert's house and the fences which demarcated its property boundaries. To the east of it, late 17th- and early 18th-century artifacts and traces of architectural remains which probably signify the location of Cordea's Hope were found. Its location and occupation dates are completely in keeping with the predictions of the 1974 map and other documentary data. However, the new location of the Country's House meant that the entire Village Center was actually westward and northward from the location predicted in 1974. This has ominous implications for the third key property, Smith's Town Land. If the lot arrangement depicted in the 1974 map is correct, the inescapable conclusion is that much of Smith's Town Land, and a substantial portion of the Village Center, have vanished beneath the waters of the St. Mary's River.

Fortunately, there are two major problems with this conclusion. The first is a lack of evidence for such extensive shore erosion. Today, the river bank in the area of the Village Center is stable with only very minor erosion. A check of the configuration of the river bottom reveals that there is only a narrow band of shallow water extending outward from shore at the site. In areas of active erosion on the St. Mary's River today, a broad shelf of shallow water always is associated with the eroding shoreline. Such a condition is due to the estuarine nature of the river, and the lack of strong current which would downcut and deepen the bottom. One of the earliest detailed maps of the St. Mary's River is an 1824 Naval survey. Comparison of the shorelines and water depths recorded on this map with modern charts indicates that neither has substantially altered since the early 19th century. Study of later 19th-century and early 20th-century maps yields the same result. Hence, it seems unlikely that a geological process, such as erosion, would have run rampant during the 18th century and slowed to a veritable crawl during the 19th and 20th centuries.

The second factor relates to the placement of the Smith's Town Land buildings. As drawn in the 1974 map, and thus suggested by the documentary data, the three principle structures on this property -- Smith's Ordinary, Morecroft's House, and the Lawyers' Quarters -- were located at the eastern end of the Town Land and near the Country's House. Yet the archaeological excavations uncovered no evidence of these buildings. Even with excessive erosion, some trace of this substantial occupation should remain in the 150 feet of land surviving between the river bluff and the western edge of the Country's House property.

Where, then, are the remains of Smith's Town Land and its buildings? To help resolve this question, it is of value to turn to the historical data and determine what the archaeological characteristics of Smith's land should be. From the extensive research of Carr (n.d.), it is

known that in September 1666 William Smith received a lease to a three-acre tract of land which was part of a 100-acre parcel formerly owned by Leonard Calvert. Before Smith's death in late 1667, he had erected "Divers houses" including "two new dwelling houses, hogg howses, Stable, Orchared, pasture and other appertenances" (Test. Proc. 3, f. 136). He apparently first constructed a house for Mr. John Morecroft and had nearly finished the Ordinary, for his will relates that "during his [Morecroft's] life that howse he now lives in adjoining to the new house I built last and not yet finished" (Test.Proc. II, f. 291). The lawyers quarters or "Messuages" as they were termed, are first noted in 1672, but could have been constructed several years earlier. The sum of this information is that intensive occupation on Smith's Town Land should have begun during the 1660s and the artifacts found on the property should reflect this.

Information pertaining to the location of the buildings on the property derives from a 1686 deed which repeats a description of the internal lot arrangement given in a 1672 sub-lease. This reads:

Vansweringen let Quigley the 2 messuages...together with all the ground within the payles from the back-side of the said house until within twenty feet of the house wherein Garret then lived [Smith's Ordinary], the division line to run from the payles fronting toward the Country's House...until it come parrellel with the kitchen chimney then in the possession of Mr. John Moorcraft and so with a straight line to the kitchen chimney (Pro. Court Deeds WRG. #1, ff. 605-10).

Although this description was no doubt perfectly clear to the individual who wrote it, it is extremely difficult to interpret in the absence of the standing structures. This is one of the key reasons for the uncertainty surrounding the 1974 map. All that can be safely deduced from the passage is that the Messuage was surrounded by pales, it apparently stood near the Country's House, the Ordinary was behind the Lawyer's Messuage, and Morecroft's house was in the vicinity.

From an archaeological perspective, two of the most significant facts concerning Smith's Ordinary are that it was occupied for only a brief time and was destroyed in 1678 when "a sudden Fire happened in the night in the Chief dwelling house upon the said land...and Burnt and Consumed the same to Ashes..." (Pat. Lib. 20, f. 182). This most probably was the structure Smith left unfinished when he died in 1667. It certainly was occupied in 1672 when Garrett Van Sweringen lived there. Hence, the archaeological indicators of this structure should be a short occupation (c. 10 years) and destruction by fire.

Following the burning of the Ordinary, occupation on Smith's Town Land continued, but was apparently restricted. The Lawyer's Quarters were in use until at least 1692 when the lease for them was purchased by Governor Lionel Copley. There is no documentary reference to Morecroft's House after his death in 1673; it may have served later as a support building for the Ordinary. The rent role of 1704 notes Smith's Town

Land, but indicates it was not possessed at that time (Carr n.d.). Based on this information, a terminal date for the occupation in the 1690s is expected.

Therefore, the Smith's Town Land should display the following archaeological characteristics:

1. The remains of several structures within close proximity of each other.
2. Artifacts indicating occupation beginning in the 1660s.
3. Architectural evidence of a large structure inhabited for a relatively brief time period -- approximately 10 years.
4. Indications that this large structure had been destroyed by fire.
5. Artifacts from the post-1680 period restricted to a portion of the property, with few or no materials dating later than c. 1695.

It is obvious that the land to the west of the Country's House possesses none of these attributes and cannot be Smith's property. Instead, a careful examination of the features and artifact distribution maps reveals a more promising alternative.

In the southern half of the study area, a variety of features were detected including the remains of a number of structures, fence ditches, and pits. Maps of the earliest artifacts indicate some habitation just to the south of the Country's House, but most of the space was apparently unoccupied. The pattern of tobacco pipe distributions over this space is especially informative. There are virtually no large bore pipe fragments except in the area adjacent to the Calvert dwelling. Pipes of 8/64ths inch display a much broader distribution and occur in several small clusters in the southern portions of the study area, while 7/64ths inch pipes are even more abundant and widespread. In contrast, the 6/64ths inch pipes display a notably more constricted pattern and are much less frequent, especially in the southern site area. Only one spot south of the Country's House consistently yields pipes of all sizes. This is the site within a presumably square space defined by four fence ditch segments and in the vicinity of a probable cellar.

To further assess this pipe data, the stem measurements of pipes recovered in 33 squares in the area of the fallen plaster wall and the cellar partially excavated by Forman were grouped and a frequency graph prepared (Figure 44). It is likely that most of these are English pipe fragments, since there are very few Dutch pipe remains found in this area. The graph reveals a distribution almost identical to that predicted by the Harrington dating method for the c. 1650-1680 period. This date range is precisely the period during which Smith's Ordinary was occupied.

Ceramics provide an even more revealing picture of the occupation. Very little early pottery is present, but Morgan Jones Pottery is more

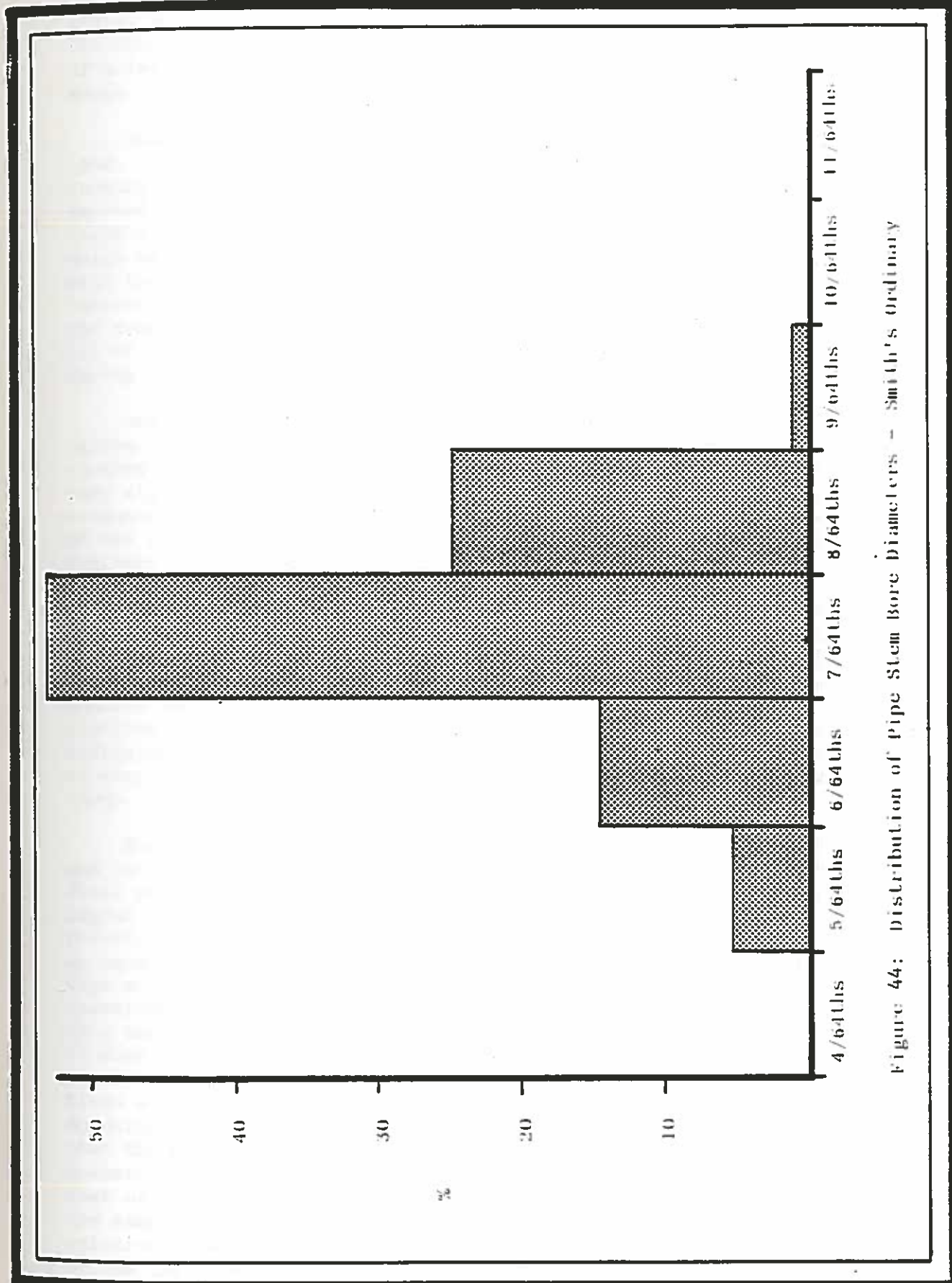


Figure 44: Distribution of Pipe Stem Bore Diameters - Smith's Ordinary

abundant here than in any other portion of the study area. North Devon gravel tempered ware also is found, but in much smaller quantities than the Jones sherds. Post-1680 pottery is totally absent with the exception of a few sherds around the probable cellar directly opposite the Country House.

This evidence is remarkably like that predicted for Smith's Town Land. It is true that some early material occurs just south of the Country's House, but an early undocumented structure could have easily existed on the property during the 30 years of settlement prior to Smith's lease. The most prevalent ceramic type is the Morgan Jones ware which dates c. 1661-1680, and there are very few later ceramics associated with these building remains. Maps of the frequency distributions of tobacco pipes also suggest a similar period of intense occupation for the complex of structures in the southern-most portion of the site. All of these temporal markers indicate that these buildings were occupied during the c. 1660-1680 period.

One final piece of evidence discovered during the excavations is of relevance here -- indications of burning. Burnt wrought nails were recovered in the vicinity of the southern-most building complex. Even more significant is the fact that the fallen plaster wall displayed evidence of having been subjected to intense heat and fire. Hence, all of the archaeological data leads to the conclusion that this is Smith's Ordinary and the location of William Smith's Town Land.

What this means for the layout of St. Mary's City is that Smith's land actually lies to the south, and not west, of the Country's House. The implication of this is extremely significant; by relocating this three-acre lot to the south, the necessity of accounting for several hundred feet of shore erosion vanishes. Certainly some erosion has occurred, but it is probably more on the order of 25-50 feet. This indicates that practically all of the 17th-century sites in the center of Maryland's first capital are preserved and available for archaeological study.

When this finding is combined with all the archaeological evidence and integrated with the documentary data, it is possible to create the first precise map of the Village Center (Figure 45). This depicts the layout of the Village Center as it might have appeared c. 1678. Structures are shown in their approximate locations, and most are drawn as squares since their actual shapes are presently undetermined. Roadways are inferred from several types of evidence including fence line locations, artifact distributions, and historical references. While this map must be regarded as provisional and some specifics may change, it does illustrate how the center of the community was structured and provides a framework into which future discoveries can be integrated. Given all the facts, it seems possible that the structure directly opposite the Country's House is the Lawyer's Quarters, and it is likely that the building complex to the south is Smith's Ordinary. With this scenario, Morecroft's House and kitchen could be the structures to the east of the Ordinary, or they may lie even further to the east beyond the sample area. One of the most striking features of this map is the relative density of structures. Within the three-acre space which comprises the core of St. Mary's City, there are at least 10 buildings

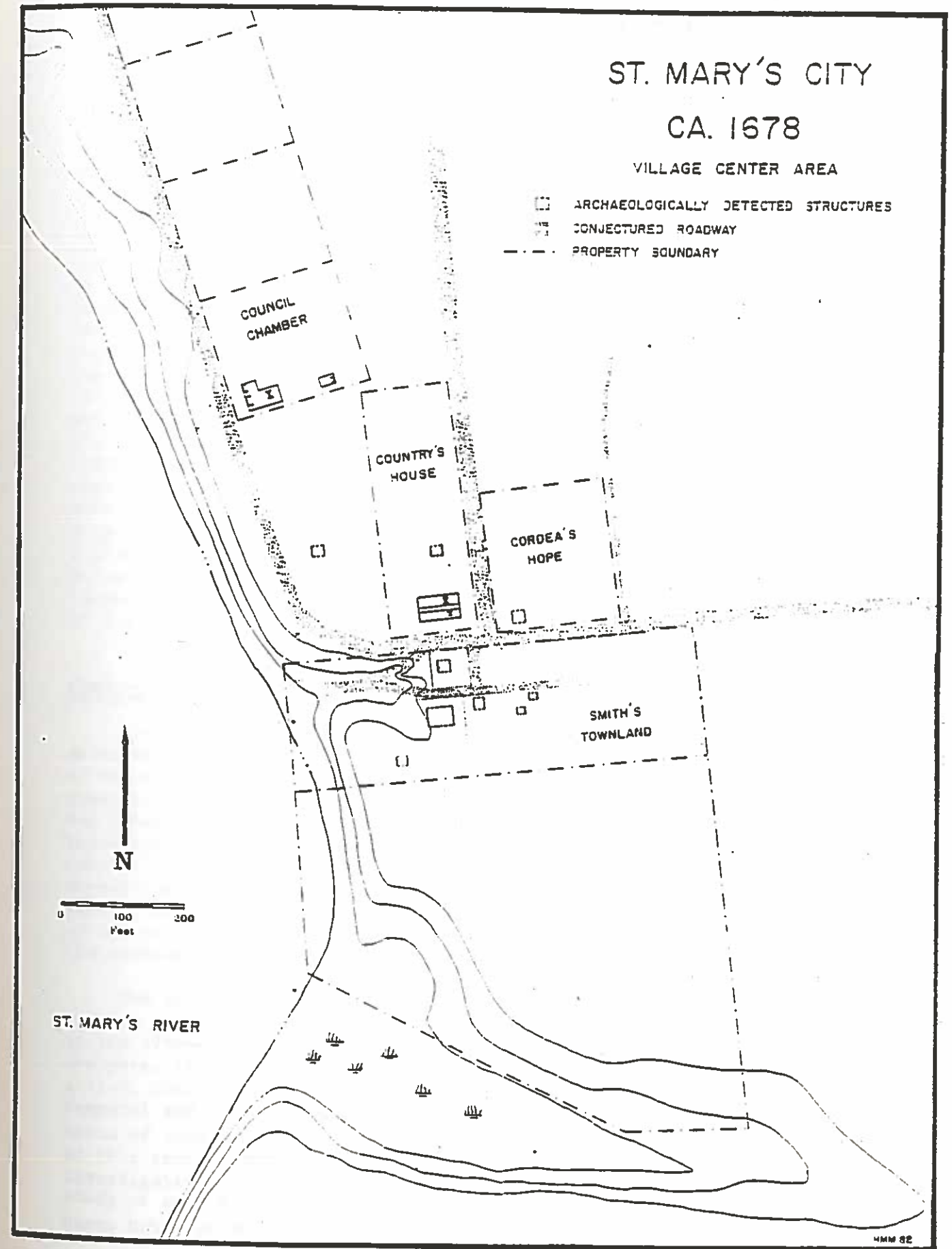


Figure 45. Map of 17th-century St. Mary's City based on archaeological and documentary research.

detected thus far, and it is certain, from the historical references, that a number of other buildings stood in the vicinity. Therefore, what this map suggests is that St. Mary's City, at its heart, was densely built and may have displayed more of a settled, town-like appearance than previously thought.

One unexpected benefit of the efforts to create this map is the reidentification of another major archaeological component of St. Mary's City -- the Van Sweringen site (ST 1-19). This large structure is located northwest of the Village Center and has been extensively excavated by the St. Mary's City Commission. It was the home of an innkeeper, Garrett Van Sweringen, and thought to have been built in the 1670s. Another structure which appears in the documents is the Council Chamber and Secretary's Office, both of which were constructed in 1664-1665 for governmental use. Documentary information regarding the location of the Council Chamber is somewhat ambiguous, but seemed to indicate that it lay near the northeast corner of the Country's House lot and along Middle Street as depicted in the 1974 map. However, the actual location of the Country's House to the west permits a reinterpretation of the documents and makes it apparent that the Council Chamber/Secretary's Office and the Van Sweringen site are one and the same. Support for this was obtained in the Spring of 1981 when controlled surface collection of the area to the northeast of the Country's House property failed to detect any indications of a structure. The archaeological data has, therefore, permitted an important shift in the historical interpretation. This significantly alters the cultural landscape of St. Mary's City and will greatly enhance the interpretation of the archaeological materials from the Van Sweringen site.

Summary of the 17th-Century Occupation

The excavations yielded an extensive collection of artifacts and detected numerous features dating from throughout the 17th century. One of the most important findings is that practically all of the sites which comprised the center of St. Mary's City have survived and are available for future investigation. Of the many discoveries during the 1981 season, three stand out as especially significant: the location of Leonard Calvert's home, the uncovering of a portion of the 1634 fort, and the repositioning of Smith's Town Land. When combined with artifact and feature data, these findings have permitted a major reinterpretation of the village plan and enabled creation of the first detailed map of the settlement.

The artifact assemblage which derived from the Village Center is diverse and possesses great potential for the study of cultural processes in the 17th-century Chesapeake. Even at this preliminary stage of analysis, it has yielded meaningful insights into Indian-European interaction, local crafts, economic relationships, and many domestic activities. Temporal and spatial analysis of these artifacts has enabled some perceptions of land use, the changing patterns of occupation, and the evolution of this early community. It is clear that the next step is the intensive investigation of specific sites combined with a detailed functional study of spatial organization, activity distributions, and changing human behavior on the Chesapeake frontier.

However, these excavations also have demonstrated one very significant problem of 17th-century archaeology. Many artifacts were recovered, including elegant table glass, marked tobacco pipes, and numerous examples of ceramics, for which there is almost no comparative information. Indeed, major components of 17th-century assemblages are so poorly known that dates or origins cannot even be suggested. This is a major problem, for if analysis of these sites is to be comprehensive and yield maximum results, it is essential that the physical, temporal, economic, and social attributes of these materials be firmly established. To do this, data from sealed contexts is necessary, and feature excavation must accompany the spatial study of a site. Emphasis was given to plow-zone excavation during the 1981 season to achieve the research goals, but much of the collected data is of limited value due to the lack of temporal control. Only one feature was partially excavated, but the extremely rich collection of artifacts recovered from it indicates the potential of the many unexcavated features in the Village Center. With more feature work in the later phases of the project, it will be possible to gather this necessary contextual data and resolve the problems associated with these important but poorly understood artifacts.

V. EIGHTEENTH-CENTURY OCCUPATION

Little evidence for occupation during the 18th century was found by the 1981 excavations. Some materials from the first two decades of that century were recovered, but these should be considered a brief continuation of the 17th-century Village Center occupation. Colonial artifacts which can be dated with some certainty to the post c. 1720 period are quite rare. Only 26 were identified and they are listed below.

TABLE 10: 18TH-CENTURY ARTIFACTS

Artifact Type	Number
Dipped White Saltglazed Stoneware	2
Plain White Saltglazed Stoneware	5
Molded White Saltglazed Stoneware	1
Buckley Ware	2
Mottled Brown "Buckley" Ware	2
English Brown Stoneware	2
Rhenish Blue and Gray Stoneware	2
Staffordshire Slipware	1
Creamware	1
"Baker" Coarse Earthenware	7
18th-Century Bottle Base	1

All but two of these artifact types are well known 18th-century materials. One of the exceptions is a Mottled Brown "Buckley" ware which displays a mixed clay paste identical to that of the classic Buckley ware. It differs in that the lead glaze is mottled brown in color instead of the traditional thick black. This ware has been recovered in ca. 1720-1740 contexts at the Van Sweringen site (ST 1-19). The other ceramic is a coarse earthenware which has been found throughout the Southern Maryland region and recovered from c. 1740-1780 contexts at the St. Andrews site (ST 1-65) in St. Mary's City. It has been tentatively attributed to potter Thomas Baker, who is known to have produced ceramics near St. Mary's City in 1756. The sherds have a medium textured, orange paste which contains small ochre nodules and mica specks, and they display a distinctive thick black lead glaze. (For a complete discussion of the documentation concerning Baker and his ceramics, see Fox 1981).

The distribution of the 18th-century materials indicates that most are confined to the northern half of the sample area. Two low density

concentrations are apparent. One occurs all around the standing Brome-Howard House, especially on the southwest side, but it certainly is not associated with that building. The other cluster appears in the northeast portion of the sample area. These few artifacts may represent the final phase of a late 17th-early 18th-century occupation, as shown by the distribution maps of 4-5/64ths inch pipe stems discussed previously.

The sparse quantities of 18th-century artifacts recovered from the site indicate only limited use of the area during that period. This finding strongly supports the documentary evidence from which Carr (1974: 144) has inferred that the Village Center was largely abandoned by c. 1725. Artifacts deposited after that date may represent some very short term occupation or could have derived from agricultural activities, as field dumping, during the late 18th century. The only feature of probable 18th-century date is the ditch discovered along the northern edge of the sample area. It may have served to delineate field boundaries and provide drainage. With the exception of this feature, all evidence recovered thus far indicates that the Village Center area was minimally used, except for cultivation, in the 18th century.

Ceramics

A total of 2,243 ceramic sherds from this period were recovered during the 1981 season. These are grouped by ware in the table below.

TABLE 12: 19th- AND 20th-CENTURY CERAMICS FROM ST 1-13

Ware	Number	Percent
Whiteware	1090	48.59
Porcelain	517	23.05
Gray Stoneware	221	9.85
Yellow Ware	84	3.74
Earthenware: Miscellaneous Lead Glazed	69	3.07
Earthenware: Unglazed Flowerpot	68	3.03
Semi-porcelain	60	2.67
Cream-colored Ware	59	2.63
Rockingham Style Earthenware	38	1.69
Bristol Stoneware	17	.75
Brown Saltglazed Stoneware	10	.44
Bisque Porcelain	6	.26
Pearlware	3	.13
Chinese Export Porcelain	1	.04
	<u>2243</u>	<u>99.94</u>

Whitewares are the most abundant type in the collection, with 1,090 sherds identified. Of these, 87% (950) were plain, and 12.8% (140) display some type of decoration. Four varieties of decoration were observed: edge decoration in blue, transfer printing, applied decal, and molding. Transfer printing is the most common decoration, and it occurred in both blue and brown. A wide variety of vessel forms are present, but with the exception of a few chamber pot sherds, all can be classified as good serving or food consumption forms.

The second most common type is Porcelain with 517 sherds. Nearly all of these appear to be of British or American origin. Decoration occurs on a few of the sherds and primarily consists of applied decals or an overglaze gold coloring at the rim. Several blue transfer printed sherds in the Willow pattern are also in the collection, and one of these is marked on the base "JAPAN." The Porcelain vessels are exclusively drinking, food serving, or food consumption forms.

Other refined wares include the highly fired Semi-porcelains and the 19th-century descendant of Creamware -- the Cream-colored wares. Mottled brown Rockingham style earthenwares also are present, and most probably came from Baltimore, a major production center for this ware during the second half of the 19th century (Barber 1901).

Utilitarian ceramics occur in both earthen and stoneware. Yellow Ware, a thick bodied, yellowish colored earthenware, which normally displays an annular decoration, is well represented in the collection.

Also present are a variety of lead glazed earthenware bowl and pan sherds, as well as unglazed, orange colored fragments of earthen flower-pots which probably date to the late 19th or 20th centuries. More common are the stoneware utility vessels of which three varieties have been recognized. Gray Saltglazed stoneware sherds are the most abundant, and many of these display patches of cobalt blue decoration. Brown Saltglazed stoneware sherds also are present, but in much smaller quantities, and a few examples of "Bristol" stoneware have been identified. The last ceramic dates after 1896 (Bartovics n.d.: 186-188), while the other earthen and stonewares could be from the 19th or early 20th century. All the stonewares are pan, butterpot, or crock forms.

Few early 19th-century ceramics were recovered. Pearlware is the earliest and it is represented by only three sherds. Since the primary production of this ware was c. 1780-1820 (Noël Hume 1972: 30), and the Brome House was not built until c. 1840, this is expected. The only other early ceramic is a single sherd of Chinese "Canton" Porcelain, which ceased to be imported by c. 1840 (Mudge 1962: 124-127). It is likely that this sherd and the Pearlware represent older vessels in the Brome household.

This ceramic assemblage indicates a date range which corresponds closely to the known occupation period. Only a few early 19th-century ceramics are in the collection, and the bulk of the materials seem to date to the second half of the 19th and the first half of the 20th centuries.

Bottle Glass

With the exception of architectural materials, bottle glass is the most abundant 19th-20th-century artifact group at the site. There are nearly 3,700 sherds from this period, and these can be subdivided on the basis of color into the nine varieties listed in Table 13.

TABLE 13: 19th AND 20th CENTURY BOTTLE GLASS BY COLOR

Color of Glass	Number	Percent
Clear, Uncolored	2,060	55.70
Aqua Tinted	593	16.03
Green Tinted	440	11.89
Amber/Brown Tinted	374	10.11
Blue	71	1.91
Milky Tinted	56	1.51
Purple Tinted	55	1.48
Pink Tinted	45	1.21
Smokey Black	4	.10
	<u>3,698</u>	<u>99.94</u>

It is quite apparent that clear, uncolored glass comprises the major portion (55%) of the assemblage. Aqua, green, and amber tinted sherds make up a smaller, but still significant percentage, while the remaining five types account for only 6% of the total assemblage.

The earliest glass is the Smokey black variety which seems to have been manufactured primarily during the first half of the 19th century. Only a few sherds were recovered, and this is in keeping with the 1840s beginning date of the plantation. Some of the aqua, green, and amber glass sherds display considerable patinization, and it is likely that these date to the earlier periods of the occupation.

The majority of the glass appears to be post-Civil War in date, since extremely clear glass was not used to any degree in bottles before the late 19th century, and the purple tinted glass can be dated to the period between c. 1880 and 1918 (Jones 1971: 11). Indeed, the undecayed nature of most of the glass, the fact that much of it appears to have been produced in semi-automatic or fully automatic machines, and the presence of a number of crown caps (after 1892), all indicate that the bulk of the glass assemblage was deposited during the last decades of the 19th century and the 20th century.

Although molded lettering appears on a number of the sherds, indicating a post 1867 date (Lorrain 1968: 40), most are too fragmentary to decipher the wording. On several specimens, however, the letters seem to represent portions of the word "BALTIMORE" suggesting an origin in that city. This has been found at other sites in St. Mary's City, especially the Godiah Spray Plantation (ST 1-41). At this late 19th-early 20th-century site, Fine (1981) identified numerous examples of Baltimore bottles and other products and was able to document the central economic role that this port played for Southern Maryland. With additional excavation, cross-mending of the glass fragments, and more detailed analysis, these marked bottles should provide a significant body of information on the types and origins of products coming to this large Southern Maryland plantation, and the economic interactions of the region in general.

Table Glass

There are 418 specimens of 19th- and 20th-century table glass in the collection. All of these are clear glass, and a variety of vessel forms are represented. The most common are tumbler or drinking glass fragments, and stemmed wine glass sherds also are present. Among the other finds are examples of pressed glass bowls, plain glass bowls, a possible condiment dish, and several pieces of oil or kerosene lamp chimneys.

Ceramic and Glass Spatial Distributions

The distributions of the 19th-20th-century ceramics and bottle/table glass are displayed in Figures 46 and 47. Perhaps the most pronounced features of these maps is how well defined the areas of deposition are. The yards surrounding most of the house, especially on the northwest (A) and southwest (B) sides, are virtually sterile. Large quantities of ceramics and glass were deposited southeast of the house, with a major concentration at the southeast corner of the outbuildings (C). This is the location of the well, a wood shed, smokehouse, and poultry yard and was clearly considered a work area and dump. (See Figure 2 for the 19th- and 20th-century features in this area.)

Figure 46. Spatial Distribution of 19th- and 20th-Century Ceramics

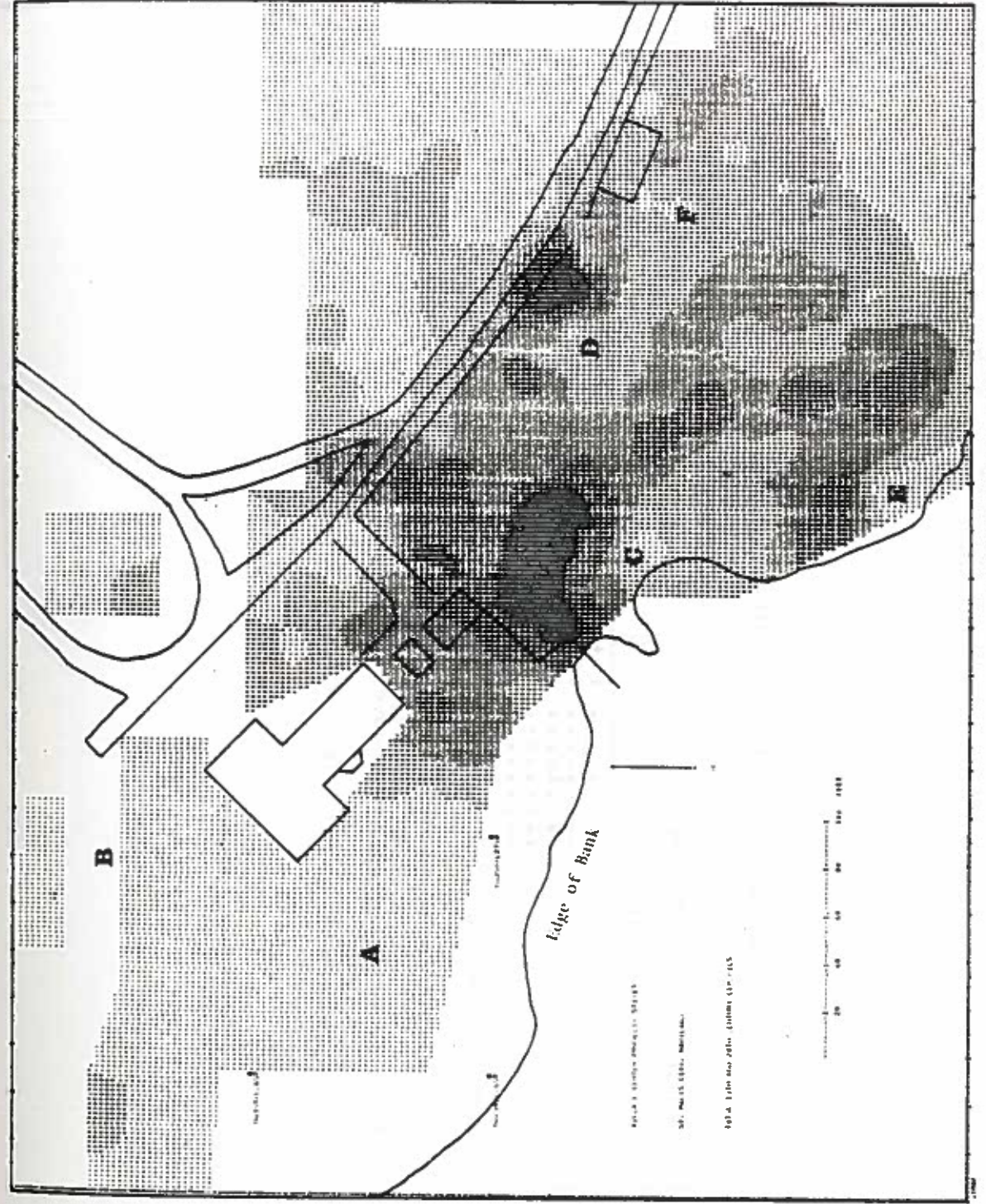
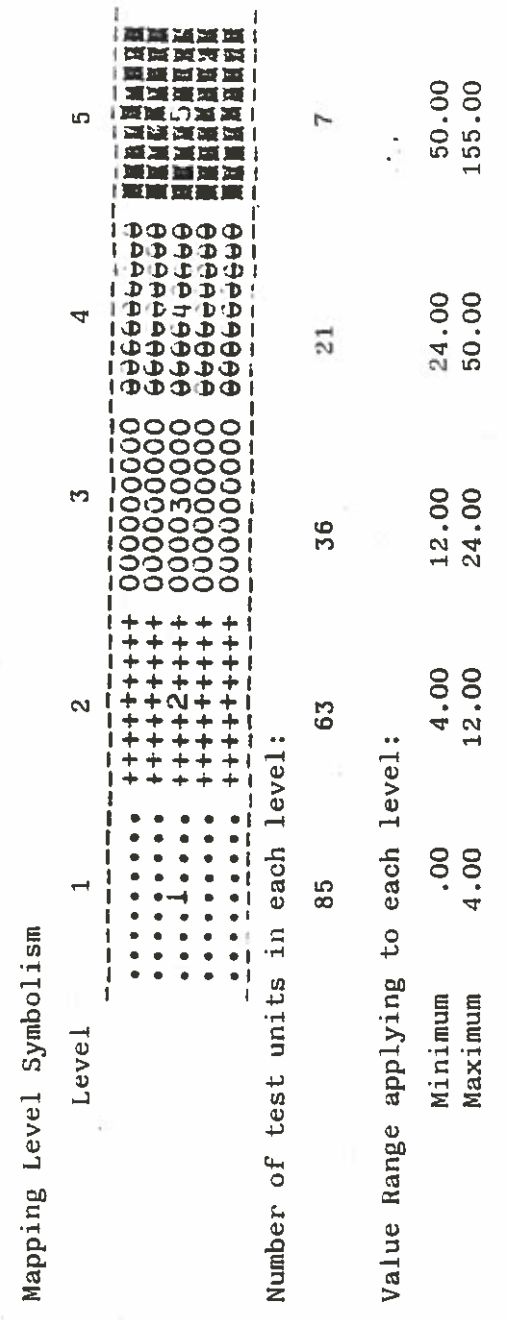


Figure 46. Spatial Distribution of 19th- and 20th-century Ceramics

These differences in deposition are so dramatic that it is obvious that the spaces were used and thought of differently. The areas on the west, north (B), and southwest (A) sides of the Brome Mansion received practically no garbage, and these spaces probably were considered the formal lawn and reception areas of the plantation. The almost total lack of sherds around the house suggests that this use of the space, and its social conceptualization, has endured throughout the entire 140-year occupation of the property. In direct contrast, the garbage-strewn land on the southeast side (C) was much less formal and apparently was designated the work yard and general dumping area.

Besides the major dump area near the house, another is found to the east along the road fence (D), approximately 60 feet directly west of the standing Carriage House. Trash deposition in this location is puzzling, but with analysis of the materials it should be possible to determine its date and nature. It seems to be mostly domestic garbage and could represent a short term shift in dumping away from the work yard area of the main house. Lesser quantities of ceramics and some glass also appear in the southwest portion of the sample area (E). These may be refuse from a late 19th- and early 20th-century building, which oral history suggests was in that location, and occupied by a Dutch immigrant, possibly a gardener (J. Spence Howard: Personal Communication).

In most of the refuse areas at the site, ceramics and glass tend to co-occur, probably indicating general domestic garbage. However, in one location a major glass concentration occurs with practically no associated ceramic sherds. This cluster is on the eastern edge of the sample area between the two carriage houses (F). Since only glass appears here, the deposition would seem unrelated to domestic activity. Perhaps these bottle fragments represent drinking activity around the stables, or possibly, the bottles contained horse medicines or linaments. An analysis of this glass has not been conducted, but a cursory inspection of the assemblage indicates that both types of bottles are present.

A final observation concerns the spaces at the northeast and southeast corners of the sample area where virtually no ceramics or glass were recovered. Since both of these spaces were fields and/or pastures, it seems that they were never considered appropriate locations for the deposition of domestic garbage.

The two maps discussed here represent the most elementary level of distributional analysis, but are sufficient to reveal some of the insights which can be obtained from the 19th-20th-century artifact assemblage. Even at this level, where the general categories are plotted with no temporal or functional refinements, it is possible to identify specific activity areas and to gain some understanding of how space was structured. More detailed analysis of the assemblage and the attainment of greater temporal and functional resolution will reveal much more concerning activity distribution over the site and how the organization and use of space evolved in this rural setting during the 19th and 20th centuries.

Architectural Materials

Over half of the 19th-20th-century artifacts found at ST 1-13 are related to architecture. These include nails, window glass, shingles, drainage pipe, and various metal objects. Although not readily separable from the 17th-century materials, it is certain that some of the red brick and plaster also dates to this period. By far the most abundant of these artifacts are nails, and large numbers of both cut and wire nails have been identified. In addition to these, over 3,000 nail fragments of unidentified type were recovered, and it is likely that many of these are from the 19th or 20th centuries. There are more cut than wire nails in the assemblage, and all of the cut specimens observed during the cataloging process are fully machine headed, indicating a post 1815 date (Nelson 1963). Both types were recovered from all portions of the site, but a major concentration occurs in the work-yard off the southeast corner of the Brome House. This is the same location as the ceramic and glass cluster and supports the identification of this area as general work and refuse disposal space. A remarkable quantity of used nails were recovered from a single 5x5 in this area (Square 1948), where the 1650 cut and 2523 wire nails constitute a density not equaled or even approached by any other excavation unit at the site. The reason for such an incredible concentration is not immediately apparent.

Nearly 2500 fragments of window glass were retrieved from the site and this collection includes tinted and completely uncolored glass. The tinted variety displays a very pale green color, and some of this is certainly of 19th-century date. However, it has not been possible to measure the thickness of these sherds to obtain an estimated date for their manufacture. Window glass is found over most of the site, but it tends to concentrate in three locations. The most readily interpretable clusters are on the west and south sides of the Brome House and probably represent shattered glass deposited below broken windows. The highest density of window glass occurs in the same work-yard/dump area as the ceramics, bottles, and nails. Sizeable quantities also were detected in the southwest portion of the study area in Squares 2669 and 2854 and may derive from the Dutch gardener's cottage thought to have stood in that vicinity.

Other architecturally related artifacts include 20th-century roofing shingles, stoneware drainage pipe fragments, hinge and lock fragments, iron door hooks, electrical wiring, and a porcelain insulator.

Personal Items

This category includes a variety of objects normally associated with individual usage. Among them are 41 buttons made of brass, shell, bone, or plastic. All but two of these come from domestic clothing; the exceptions are brass military buttons. The older of these is a small specimen which displays an eagle and anchor on the front. It is a Civil War period Union officer's vest or sleeve button, and on the back it bears the mark of "THOMAS C. HOOD PHILADELPHIA." The U.S. Potomac Fleet patrolled the St. Mary's River and had a coaling station a short distance downriver from the Brome Plantation, so it is likely that the

button came from an officer assigned to that unit. The other military button is a World War I or early World War II United States Army overcoat button. It has the American eagle on the front and the reverse is stamped "NEW YORK CITY BUTTON WORKS." Other clothing items include eight metal clasps which were used on overalls and 32 iron buckles, some of which may have been used on horsegear.

One of the most notable artifacts in this category is a small brass medallion found in Square 2669. It is stamped with the word "DEWEY" and bears a likeness of the Spanish-American War admiral. The object is probably a commemorative medal honoring Dewey's 1898 attack and capture of Manila and thus, probably dates c. 1900.

Among the other objects are three fragments of harmonicas, a pocket knife, one clay and seven glass marbles, a brass thimble, one bone toothbrush, a metal zipper, two plastic comb fragments, an oval lens from a pair of eyeglasses, two caps from "BURMA SHAVE" containers, and a small, metal toy racing car of recent vintage.

Perhaps the most elegant, yet mysterious, find is a small finger ring from Square 2433. It is made of ebony and has silver insets in the shape of half moons and stars. The object conjures up images of magic, but its date, origin, and significance are yet to be determined.

Remaining objects, which have been grouped as personal use items, are five 20th-century door keys, nine metal springs from wooden clothes pines, two plastic clothes pins, 13 carbon rods from dry-cell flashlight size batteries, three spoons, one fork, two knives, and 61 fragments of plastic phonograph records.

Coinage

Twenty-eight United States coins from the second half of the 19th and 20th centuries were found, and these are listed in Table 14. The earliest is a 1856 Half Dime which is in good condition, suggesting that it was not in circulation for many years before being lost. This collection is exclusively of low denomination items, the highest value is 10¢, and the majority are pennies.

Since the loss of money is unplanned and occurs by chance, it was predicted that the coins would be distributed broadly and randomly over the years of site occupation. However, the distribution of coin dates indicates that they are not broadly scattered, but tend to occur in clusters. Of the approximately 120 year span of occupation represented by the dates of the coins, over 50% of the specimens occur in two decades. There are seven in the decade 1910-1919 and eight in the 1940-1949 period. While the sample is small, this strong clustering suggests that factors other than random loss are involved. Indeed, it is tempting to attribute the abundance of 1910-1919 coins with the post World War I affluence and the 1940s coins with the period of post World War II prosperity. The few 1920s and 1930s coins might be a reflection of the greater care with which scarce money was treated during the Depression period. While this is based purely upon speculation, the distribution of coin dates at other sites should be considered. Similar patterns may be discovered and demonstrate that factors other than chance operate on the process of artifact loss.

TABLE 14: 19th AND 20th CENTURY COINS RECOVERED FROM ST 1-13

Coin Type	Date	Condition	Provenience
Half Dime	1856	Good	1213H
Penny	1858	Poor	2505D
Indian Head Penny	1863	Poor	2611A
5 Cent Piece	1866	Fair	2199F
Indian Head Penny	1900	Good	2141G
Indian Head Penny	1906	Good	1891J
Indian Head Penny	1907	Poor	1342A
Dime	1912	Fine	1282A
Buffalo Nickel	1914	Poor	1567D
Lincoln Penny	1914	Fair	1710C
Lincoln Penny	1918	Poor	1221D
Lincoln Penny	1918	Fair	1153C
Lincoln Penny	1919	Poor	2319C
Lincoln Penny	1919	Fine	2201E
Lincoln Penny	1923	Good	1153C
Lincoln Penny	1935	Fair	1707A
Lincoln Penny	1936	Fair	1640E
Lincoln Penny	1940	Fair	2197A
Lincoln Penny	1941	Poor	1769C
Mercury Dime	1942	Fine	1881C
Lincoln Penny	1944	Poor	2436D
Lincoln Penny	1944	Poor	1467D
Jefferson Nickel	1944	Good	1467D
Lincoln Penny	1946	Poor	1646A
Lincoln Penny	1946	Fair	2141C
Lincoln Penny	1953	Good	2074D
Jefferson Nickel	1964	Fair	1769C
Lincoln Penny	1967	Fair	1467D

Scale of Evaluation is standard used by coin collectors: Poor, Fair, Good, Fine, Very Fine, Mint.

Armament Related Artifacts

One gun and 37 cartridge casings were found at the site. The gun is a single shot, "Boxlock" percussion pocket pistol. It has a complete barrel and butt tang of brass and an iron trigger mechanism and cap nipple. The hammer and butt are missing. This weapon has a .38-caliber bore and probably was manufactured in the c. 1850-1870 period. The barrel bears a makers mark with the letters "LEG", within an oval, which indicates the weapon was produced in Liege, Belgium. Cartridge casings indicated that five types of weapons were used on the site sometime during the late 19th or 20th centuries. Shotgun use is indicated by 23 brass shell bases in both 12- and 16-gauge sizes. Possible pistol ammunition is also present with three .38-caliber, four .32-caliber, and seven .22-caliber cartridge casings identified.

Transportation Related Materials

Both horsegear and automobile parts are included in this category. A variety of objects used on or with horses were found including nine horseshoes, seven bridle bit sections, and harness trappings. Although parts of wagons are probably in the collection, it has not been possible to identify all of the corroded metal artifacts. Evidence of the automotive age also is present and ranges from spark plugs, engine rocker arms, and windshield glass to fragments of red glass tail light covers.

Miscellaneous Metal and Other Artifacts

A wide variety of objects have been grouped into this category. They range from several thousand unidentifiable metal fragments to rubber and plastic. Among the more identifiable metal items are several tools - an axe head, one hammer head, pliers, and a large wrench. Seven strands of barbed wire and 35 plain iron or copper wires also were found. Metal cans are well represented in the collection, with several hundred badly decayed fragments recovered along with 12 opening keys for flat cans. Finally, numerous examples of slag and coal were encountered during the 1981 excavations.

Summary

In addition to the 17th-century investigations, the excavations of the 221 squares resulted in the nearly complete sampling of a 19th-century plantation's yards and work areas. This statistically based excavation strategy has produced perhaps the largest, tightly controlled collection of artifacts yet excavated from a plantation of this period. The computer maps of ceramics and glass indicate significant variability in artifact distribution and suggest that more detailed mapping can identify activity loci, and provide many insights concerning patterns of space usage through time. While only a cursory description of the artifact assemblage has been provided here, it is clear that with additional excavation and detailed analysis it will be possible to investigate a variety of problems with the collection. Besides questions

of spatial evolution, inquiries can be made into the consumption patterns of the inhabitants and the economic networks with which the Brome Plantation interacted. Even more significant, however, is the study of the plantation in its entirety and how the inhabitants responded to the dramatic economic and social transformations of the past 150 years. Given the spatial control which exists over the cultural materials at the site, the thoroughness of the sampling, and the available documentation, it is anticipated that the study of this assemblage will provide an exceptional opportunity to explore rural society in the Chesapeake area during the 19th and 20th centuries.

VII. CONCLUSIONS

The 1981 archaeological excavations in St. Mary's City were extremely fruitful and produced a series of discoveries which are of major historical significance. The site of the first settlement in the colony of Maryland was identified and found to be better preserved than expected. The lack of extensive shore erosion indicates that practically all of the sites in the 17th-century settlement have survived and attests to the enormous potential of this site for the study of early American life and the process of colonization.

All of the goals of the 1981 project were achieved. It was finally possible to link the below ground remains of St. Mary's City with its historical record, thereby enabling a much more comprehensive interpretation of both. Certainly the most important finding was the home of Leonard Calvert. This structure is one of the most significant sites in the State since it served as the first governor's home and the first state house of Maryland. Locating this building was crucial since it was the central structure in the settlement, and its identification was necessary to prove that the Village Center had, in fact, been found. Since the Calvert House was inhabited throughout the entire period of 17th-century occupation, this site offers the greatest time depth of any in St. Mary's City and provides an excellent opportunity to investigate the process of frontier settlement.

Equally important is the discovery of one section of the 1634 Fort. This has resolved a century-long debate as to its location and demonstrates that archaeological remains from the very first months of settlement are preserved. Such a discovery is significant for it provides the opportunity of investigating the Maryland colony during the poorly documented early years of its existence, when the colonists made the first adaptive responses to the New World environment.

Other key sites identified through the archaeological research are Cordea's Hope, Smith's Ordinary, possibly the Lawyer's Messuages, and traces of at least five unidentified structures. These findings were integral to the task of identifying the Village Center and constructing an accurate, detailed map of it. This goal was realized, but required major alterations in the document-based model of the village. The resulting map not only displays an arrangement of properties and buildings, but it reveals that by 17th-century Chesapeake standards, the core of St. Mary's City was densely occupied. These excavations are a clear demonstration that archaeology does not merely constitute a supplement to historical research, but is capable of producing an independent and quite different view of the past. This project, thus, represents an important test of the archaeological and historical data bases and reveals the necessity of utilizing them as independent, yet complementary, sources of information.

In addition to the colonial occupation, it was learned that the Village Center has been a focus of human settlement for many thousands of years before the colonists arrived. Evidence for numerous prehistoric settlements has been recovered including a sizable Late Archaic component, a well-preserved Early Woodland village, and the very important Late

Woodland/Contact period village which the colonists purchased in 1634. Since these materials were excavated with the same controls and precision as the 17th-century artifacts; analysis of their spatial distributions should provide new insights regarding the size and structure of prehistoric villages in the Chesapeake area.

At the other end of the temporal spectrum, the archaeological efforts recovered large quantities of artifacts associated with the 19th/20th century Brome Plantation. The yards surrounding the Brome House were almost completely sampled, and this provides data for an unprecedented study of spatial organization, distribution patterns, and activity areas on a rural Chesapeake plantation during the post-colonial period. Both the 19th/20th-century and the prehistoric findings are an outgrowth of the 17th-century research, but their study will make a significant contribution by extending the time depth of archaeological knowledge regarding the site. Museum interpretation of these artifacts will provide an important sense of continuity to human existence in St. Mary's City.

These excavations also have been a test of sampling methods on 17th-century colonial sites. The results indicate that stratified random sampling is an effective and productive approach for studying sites of this period. Stratification of the site into 50-foot blocks and sampling at 7% provided broad coverage of the area, detected the necessary architectural and landscape features to accomplish the initial goals of the project, and assembled a data base with which to begin the study of spatial behavior. The 7% sample and rigorous excavation controls permitted the creation of high resolution distribution maps from which detailed observations have been made regarding artifact patterns and how they changed through time. However, this does not mean that 7% is a magical number. It served quite well for the St. Mary's City sites and yielded the data necessary to address the problems of the 1981 field season. Different sites and other problems, however, may require different sampling frequencies. (For example, a larger sample would be required in the vicinity of a domestic dwelling to recover information regarding doorways, communication routes, and special activity areas.) A strategy of sampling at a higher percentage will be used at specific sites within the Village Center in subsequent seasons.

Random sampling proved of great value for several reasons. In addition to giving statistically reliable data, it meant that areas of the site were tested which might not have been otherwise. One of the best examples of this is square 2607 at the edge of the ravine on the southeast side of the site. Experience suggested that this area would contain little of interest since it was expected to have been heavily eroded. However, this assessment of the area was proven completely wrong when excavation uncovered intact portions of a 17th-century plaster wall. The excavation of randomly selected squares is also of utility because of the nature of 17th-century architecture. Due to widespread use of post-in-the-ground construction, architectural remains frequently consist only of post holes and post molds. These are regularly spaced and generally in square or rectangular patterns. The English colonists also laid out lots, divided spaces, and set fence posts at regular intervals. To complicate this even more, they often positioned buildings, fences, and other features with reference to

compass bearings. In St. Mary's City (and elsewhere in the Chesapeake), these bearings are most frequently north-south, east-west; the same as many site grid systems used in excavation. All of these factors make it somewhat dangerous to employ a uniform or systematic sampling procedure. If the sampling pattern is in phase with the cultural orientation, but slightly offset from it, it is possible to detect no features. This problem is avoided with the random selection process since it offers a better opportunity of locating at least some of the architectural components, or other features, in a site. It should be noted that random sampling is more costly than systematic sampling due to increased surveying time, but it results in a highly reliable body of archaeological data and excellent coverage of the site being investigated.

Spatial analysis of the cultural remains is a central component in this study of the Village Center. The distributions of artifacts has proved extremely valuable for correctly interpreting the spatial structure of the former settlement. Artifact maps placed in temporal sequence have provided the first graphic evidence of St. Mary's City evolution and the changing patterns of occupation within it. These excavations also have established a data base with which to begin investigating the spatial aspects of colonial society and the relationship of this to the frontier process and cultural change. In the next phase of this project, individual sites will be excavated and this information will be combined with the 1981 data to delve into the subjects of spatial organization, activity distributions, artifact patterns, and how these varied from household to household over the course of the 17th century. Such an investigation is expected to yield insights regarding the evolution of the domestic landscape, and the causes of variability and change in archaeological sites.

It is extremely important to remember that many of the 1981 findings are based upon plowzone information. Although some archaeologists maintain that the plowzone is basically uninformative because of its disturbed nature, these results present a powerful argument against such thinking. When plowzone artifacts are collected in a properly controlled manner, study of their spatial characteristics can reveal a record of human activity that is remarkably detailed and sensitive to change. For practically every site, this indispensable record of occupation can only be obtained through archaeological excavation. There are many subtleties to human behavior which sometimes escape notice and yet have tremendous importance for understanding society. Archaeological evidence of spatial structure and use are sometimes subtle, sometimes striking, but always very real reflections of human activities and human thoughts. By focusing attention only upon buildings and the artifacts themselves, we ignore the reality that human behavior has a wider spatial dimension and that sites can yield a much deeper insight into the lifeways of past people. It is only by carefully meshing the data about architecture, fences, trash-filled pits, and artifact distributions that a comprehensive picture of sites as evolving, functioning entities can be obtained.

In conclusion, the Village Center excavations of 1981 have resulted in discoveries of major significance. After years of speculation and research, the precise location and characteristics of some of the most important historic sites in America have been identified. The excavations have provided the first glimpses of how one of the earliest

communities in English America was established, grew, and died. Upon the foundation of this research, it will now be possible to begin investigating how and why the spatial structure of human life changed and to explore how the cultural landscape, from the very beginnings of settlement in the New World, was created and evolved.

References Cited

- Archer, Michael and Brian Morgan
1977 Fair As China Dishes: English Delftware. International Exhibitions Foundation, Washington, D.C.
- Assembly Proceedings
1899 Proceedings and Acts of the General Assembly of Maryland, September 1693 to June 1697. Maryland Archives 19:120.
- Atkinson, D.R. and Adrian Oswald
1972 A Brief Guide for the Identification of Dutch Clay Tobacco Pipes Found in England. Post-Medieval Archaeology 6:175-82.
- Barber, Edwin Atlee
1901 The Pottery and Porcelain of the United States. J. and J. Publishing Co., New York.
- Bartovics, Albert
n.d. The Analytical Use of Data-Bearing Specimens. Unpublished ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Becker, Marshall J.
1977 Swedish Colonial Yellow Bricks: Notes on Their Uses and Possible Origins in 17th-Century America. Historical Archaeology 11:112-8.
- Binford, Lewis R.
1962 A New Method for Calculating Dates from Kaolin Pipe Stem Samples. Southeastern Archaeological Conference Newsletter 9(1):19-21.
- Brown, Cynthia Gaskell
1979 Castle Street: The Pottery, Plymouth Excavations. Plymouth Museum Archaeological Series No. 1, Plymouth, England.
- Calvert, Leonard
1634 Letter from Leonard Calvert to Sir Richard Lechford, dated 30th May, 1634. The Calvert Papers Number 3. Maryland Historical Society Fund Publications No. 35, 1899, pp. 19-24.
- Camp, Helen B.
1975 Archaeological Excavations at Pemaquid, Maine 1965-1974. Maine State Museum, Augusta, Maine.
- Carr, Lois Green
1969 The Founding of St. Mary's City. Smithsonian Journal of History 3(4):77-100.
1974 The Metropolis of Maryland: A Comment on Town Development Along the Tobacco Coast. Maryland Historical Magazine 69(2):124-45.

- Carr, Lois Green
n.d. Historical Records Pertaining to the 'Country's House' and Smith's Townlands, St. Mary's City. Ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Carson, Cary et. al.
1981 Impermanent Architecture in the Southern American Colonies. Winterthur Portfolio 16(2 and 3):135-96.
- Cotter, John L.
1958 Archaeological Excavations at Jamestown Colonial National Historic Park, Virginia. National Park Service Archaeological Research Series 4.
- Duco, D.H.
1981 The Clay Tobacco Pipe in 17th-Century Netherlands. In Peter Davey, ed., The Archaeology of the Clay Tobacco Pipe V: Europe 2. B.A.R. International Series 106.
- Fadeley, Stephen and Henry M. Miller
n.d. Analysis of Bottle Glass from the St. John's Site (ST 1-23). Unpublished ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Fairclough, Graham J.
1979 St. Andrews Street, Plymouth Excavations: 1976. Plymouth Museum Archaeological Series No. 2. Plymouth, England.
- Feest, Christian F.
1973 17th-century Virginia Algonquin Population Estimates. Quarterly Bulletin of the Archaeological Society of Virginia 28(2):66-79.
- Fine, Gordon
1981 Surface Finds from an Early 20th-century Tenement (ST 1-48) in St. Mary's City, Maryland. Unpublished ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Firth, C.H.
1921 Cromwell's Army. Methuen and Co., London. Third Edition.
- Forman, Henry Chandlee
1938 Jamestown and St. Mary's: Buried Cities of Romance. The Johns Hopkins Press, Baltimore.
1943 An Archaeological Find Near the Leonard Calvert House. Maryland Historical Magazine 38:56-9.
- Fox, Jeanette
1981 Thomas Baker: Eighteenth Century Potter of St. Mary's County. Chronicles of St. Mary's 29(11):2-9.
- Gardner, William M.
1978 Comparison of Ridge and Valley, Blue Ridge, Piedmont and Coastal Plain Archaic Period Site Distribution: An Idealized Transect (Preliminary Model). Paper delivered to the Middle Atlantic Archaeological Conference.

- Goggin, John M.
1960 The Spanish Olive Jar: An Introductory Study. Yale University Publications in Anthropology 62. New Haven.
- Greaves, S.J.
1976 A Post-Medieval Excavation in Woodbank Street, Burslem, Stoke-on-Trent, Staffordshire. SJ. 866497. City of Stoke-on-Trent Museum Archaeological Society Report No. 10.
- Green, Jeremy, ed.
1977 The Jacht Vergulde Draek: Wrecked Western Australia 1656. British Archaeology Series Supplementary Series 36, Oxford.
- Griffith, Daniel R.
1980 Townsend Ceramics and the Late Woodland of Southern Delaware. Maryland Historical Magazine 75(1):23-41.
- Hall, Clayton Colman, ed.
1910 Narratives of Early Maryland. New York.
- Handsmen, Russell and Charles McNett
1974 The Middle Woodland in the Middle Atlantic: Chronology, Adaptation and Contact. Paper presented at the fifth Middle Atlantic Archaeological Conference, Baltimore.
- Hanson, Lee H.
1971 Kaolin Pipe Stems: Boring in on a Fallacy. Conference on Historic Sites Archaeology Papers 4:2-15.
- Harrington, J.C.
1954 Dating Stem Fragments of Seventeenth and Eighteenth Century Clay Tobacco Pipes. Quarterly Bulletin of the Archaeological Society of Virginia 9(1):9-13.
- Haslam, Jeremy
1975 The Excavation of a 17th-century Pottery Site at Core, East Hampshire. Post-Medieval Archaeology 9:164-87.
- Heighton, Robert F. and Kathleen A. Deagan
1972 A New Formula for Dating Kaolin Clay Pipestems. Conference on Historic Sites Archaeology Papers 6:220-9.
- Henry, Susan L.
1979 Terra-Cotta Tobacco Pipes in 17th-century Maryland and Virginia: a Preliminary Study. Historical Archaeology 13: 14-37.
1980 Physical, Spatial and Temporal Dimensions of Colono Ware in the Chesapeake, 1600-1800. Unpublished M.A. Thesis, The Catholic University of America, Washington, D.C.
- Hodder, Ian and Clive Orton
1976 Spatial Analysis in Archaeology. Cambridge University Press, New York.

- Holling, F.W.
1969 Seventeenth-Century Pottery from Ash, Surrey. Post-Medieval Archaeology 3:18-30.
- Hurst, J.G.
1977 Spanish Pottery Imported into Medieval Britain. Medieval Archaeology 21:68-105.
- Jackson, R.G. and R.H. Price
1974 Bristol Clay Pipes: A Study of Makers and their Marks. Research Monograph No. 1, Bristol City Museum.
- Jones, Olive
1971 Glass Bottle Push-Ups and Pontil Marks. Historical Archaeology 5:62-73.
- Keeler, Robert Winston
1978 The Homelot on the Seventeenth Century Chesapeake Tidewater Frontier. Unpublished Ph.D. dissertation, University of Oregon.
- Kelly, J.H. and S.J. Greaves
1974 The Excavation of a Kiln Base in Old Hall Street, Hanley, Stoke-on-Trent, Staffordshire. S.J. 885475. City of Stoke-on-Trent Museum Archaeological Society Report No. 6.
- Kelso, William and Edward Chappell
1974 Excavation of a Seventeenth Century Pottery Kiln at Glebe Harbor, Westmoreland County, Virginia. Historical Archaeology 8:53-63.
- Kidd, Kenneth and Martha A. Kidd
1970 A Classification System for Glass Beads for the Use of Field Archaeologists. Canadian Historic Sites Occasional Papers in Archaeology and History 1:45-87.
- Korf, Dingeman
1963 Nederlandse Majolica. Van Dishoeck Bussum - Holland.
- Kraft, John C.
1971 Sedimentary Facies Patterns and Geologic History of a Holocene Marine Transgression. Geologic Survey of America Bulletin 82:2131-68.
- Kraft, John C. and Grace S. Brush
1981 A Geological-Paleoenvironmental Analysis of the Sediments in St. John's Pond and the Nearshore Zone Near Howard's Wharf at St. Mary's City, Md. Unpublished ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Lawrence, Simon
1979 York Pipes and Their Makers. The Archaeology of the Clay Tobacco Pipe 1:67-84. British Archaeological Reports 63:67-84.

- Lorrain, Dessamae
1968 An Archaeologist's Guide to Nineteenth Century American Glass. Historical Archaeology 2:35-44.
- MacCord, Howard
1969 Camden: A Post-Contact Indian Site in Caroline County. Quarterly Bulletin of the Archaeological Society of Virginia 24(1):1-55.
- McCashion, John H.
1979 A Preliminary Chronology and Discussion of Seventeenth and Early Eighteenth Century Clay Tobacco Pipes from New York State Sites. In Peter Davey, ed., The Archaeology of the Clay Tobacco Pipe II: The United States of America. B.A.R. International Series 60:63-150.
- McNett, Charles W. and William M. Gardner
1975 Archaeology of the Lower and Middle Potomac. Ms. on file, Department of Anthropology, American University, Washington, D.C.
- Miles, T.J. and A.D. Saunders
1970 King Charles' Castle, Tresco, Sicily. Post-Medieval Archaeology 4:1-30.
- Miller, Henry M.
1981 Summary of Current Research on the Potteries and Wares of Morgan Jones. The Chesapeake Bay Area Potter Research Group Newsletter 1(1):4-5.
- Miller, Henry M. and Robert W. Keeler
1978 An Analysis of Gunflints, Tools and Flint Debitage from the St. John's Site (ST 1-23) in St. Mary's City, Maryland. Unpublished ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Miller, Henry M., Alexander H. Morrison II and Garry Wheeler Stone
1980 An Archaeological Survey to Locate Leonard Calvert's 'St. Mary's House'. Unpublished ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Miller, Henry M., Dennis J. Pogue and Michael A. Smolek
in press Beads from the Seventeenth-Century Chesapeake.
- Morrison, Alexander H., II
1980 Leonard Calvert Survey Report of the 1980 Fieldwork. Unpublished ms. on file, St. Mary's City Commission, St. Mary's City, Maryland.
- Mountford, Arnold R.
1971 Staffordshire Salt-Glazed Stoneware. Praeger Publishers, New York.
- Mudge, Jean McClure
1962 Chinese Export Porcelain for the American Trade: 1785-1835. University of Delaware Press.

- Mueller, James W., ed.
1975 Sampling in Archaeology. University of Arizona, Tucson.
- Muldoon, Sara
1979 Marked Clay Pipes from Coventry. In Peter Davey, ed., The Archaeology of the Clay Tobacco Pipe I: Britain - The Midlands and Eastern England. B.A.R. British Series 63:255-78.
- Nelson, Lee H.
1963 Nail Chronology as an Aid to Dating Old Buildings. History News 19(2).
- Noël Hume, Ivor
1954 Neglected Glass. Country Life 116(3007):716-17.
1958 German Stoneware Bellarmine: An Introduction. Antiques 74(5):439-41.
1966 Excavations at Clay Bank. Contributions from the Museum of History and Technology Paper 52. Smithsonian Institution, Washington, D.C.
1972 A Guide to Artifacts of Colonial America. Alfred A. Knopf, New York.
1977 Early English Delftware from London and Virginia. Colonial Williamsburg Foundation, Williamsburg, Virginia.
1982 Martin's Hundred. Alfred A. Knopf, New York.
- Noël Hume, Audrey
1979 Clay Tobacco Pipes Excavated at Martin's Hundred, Virginia, 1976-1978. In Peter Davey, ed., The Archaeology of the Clay Tobacco Pipe II: The United States of America. B.A.R. International Series 60:3-36.
- Pat. Lib.
n.d. Patent Liber #20 f.381. Maryland Hall of Records, Annapolis.
- Prov. Court Deeds
n.d. Provincial Court Deeds. WRG. #1 ff.605-10. Maryland Hall of Records, Annapolis.
- Oswald, Adrian and James Barber
1969 Marked Clay Pipes from Plymouth, Devon. Post-Medieval Archaeology 3:122-42.
- Oswald, Adrian
1975 Clay Pipes for the Archaeologist. British Archaeological Reports No. 14, Oxford.
1979 The Clay Pipes. In Graham J. Fairclough, ed., St. Andrews Street, Plymouth Excavations. Plymouth Museum Archaeological Series 2:114-9.
- Platt, Colin and Richard Coleman-Smith
1975 Excavations in Medieval Southampton, 1953-1969. Leicester University Press.

- Potter, Stephen R.
1982 An Analysis of Chicacoan Settlement Patterns. Unpublished Ph.D. Dissertation, University of North Carolina, Chapel Hill.
- Rutter, J.A. and P.J. Davey
1980 Clay Pipes from Chester. The Archaeology of the Clay Tobacco Pipe III: Britain - The North and West. B.A.R. British Series 78:41-272.
- Shea, G.
1865 Shea's Early Southern Tracts. Baltimore.
- Smith, John
1624 The Generall Historie of Virginia, New-England, and the Summer Isles. Readex Microprint, 1966.
- Sopko, Joseph S.
1982 An Analysis of Dutch Bricks from a 17th-Century Structure Within the Site of Fort Orange at Albany, New York. New York State Bureau of Historic Sites, Peebles Island, Waterford, New York.
- South, Stanley
1972 Evolution and Horizon as Revealed in Ceramic Analysis in Historical Archaeology. Conference on Historic Sites Archaeology Papers 6:71-116.
- Steniut, Robert
1974 The Wreck of the Fluit Lastdrager Lost Off Yell, 1653. International Journal of Nautical Archaeology 3(2):213-57.
- Stephenson, Robert and Alice Ferguson
1963 The Accokeek Creek Site: A Middle Atlantic Seaboard Culture Sequence. Museum of Anthropology, University of Michigan Papers No. 20, Ann Arbor.
- Steponaitis, Laurie Cameron
1980 A Survey of Artifact Collections from the Patuxent River Drainage, Maryland. Maryland Historical Trust Monograph Series No. 1, Annapolis.
- Stone, Garry Wheeler
1974 St. John's: Archaeological Questions and Answers. Maryland Historical Magazine 69(2):146-168.

1982 Society, Housing and Architecture in Early Maryland: John Lewger's St. John's. Unpublished Ph.D. Dissertation, University of Pennsylvania, Philadelphia.
- Terlinden, A.M. and D.W. Crossley
1981 Post-Medieval Glass Making in Brabant: The Excavation of a Seventeenth Century Furnace at Sasenel, Nethen. Post-Medieval Archaeology 15:177-206.
- Van Bock, Gisela Reineking
1971 Steinzug. Kataloge Ves Kunstgewerbemuseums Koln. Volems 4. Cologne, West Germany.

- Walker, Iain C.
1977 Clay Tobacco Pipes, with Particular Reference to the Bristol Industry. History and Archaeology IIa. Parks Canada, Ottawa.
- Watkins, Lura W.
1950 Early New England Potters and their Wares. Harvard University Press, Cambridge.
- Watkins, C. Malcom
1960 North Devon Pottery and its Export to America in the 17th-Century. United States National Museum Bulletin 225, Washington, D.C.
- Wells, Peter K.
1979 The Pipemakers of Lincolnshire. In P. Davey, ed., The Archaeology of the Clay Tobacco Pipe I: Britain - the Midlands and Eastern England. B.A.R. British Series 63:123-70.
- Wittkofski, J. Mark
1979 The Seventeenth Century Bandolier Cap. Quarterly Bulletin of the Archaeological Society of Virginia 33(3):118-24.
- Wright, Henry
1973 An Archaeological Sequence in the Middle Chesapeake Region, Maryland. Archaeological Studies No. 1. Department of Natural Resources, Maryland Geological Survey.

Individuals Cited for Personal Communications

- Lois Carr - Historian, St. Mary's City Commission. Dr. Carr is an expert on 17th-century Maryland history and has published widely on the subject.
- Wayne Clark - Archaeologist, Maryland Historical Trust. Mr. Clark has conducted excavations in Maryland and Virginia and has an extensive knowledge of Chesapeake prehistory.
- Keith Egloff - Archaeologist, Virginia Research Center for Archaeology. Mr. Egloff has excavated and studied prehistoric materials in Virginia and North Carolina, and has particular expertise with prehistoric ceramics.
- Charles F. Hayes, III - Research Director, Rochester Museum and Science Center. Mr. Hayes has studied artifacts from many prehistoric and contact period Indian sites in the Northeast.
- J. Spence Howard - St. Mary's City Resident. Mr. Howard is a descendant of Dr. Brome, who built the Brome-Howard house which presently stands on the site. He spent much of his youth in the house and is an invaluable source of oral history information.
- Paul Huey - Archaeologist, New York State Parks and Recreation. Mr. Huey conducted rescue excavations at the Dutch settlement of Fort Orange and has tested other Dutch sites in the New York area.
- Barry Kent - Archaeologist, Pennsylvania Historical and Museum Commission. Mr. Kent has studied the material remains from many prehistoric and contact Indian sites in the Pennsylvania area.
- Geoffrey Moran - Archaeologist, Wilbur Smith Associates. Mr. Moran has excavated and analyzed materials from a number of sites in the New England area.
- Fraser Neiman - Archaeologist, Yale University. Mr. Neiman conducted extensive excavations and analysis of the Clifts Plantation site in Virginia and has excavated other 17th- and 18th-century sites in the region.
- Merry A. Outlaw - Curator, Virginia Research Center for Archaeology. Mrs. Outlaw is a recognized expert regarding colonial material culture in the Chesapeake area, particularly ceramics.
- Dennis J. Pogue - Archaeologist, Southern Maryland Regional Preservation Center. Mr. Pogue has excavated a variety of sites in Virginia and Maryland and written several reports concerning them.
- Stephen Potter - Archaeologist, National Park Service. Dr. Potter has conducted intensive survey and testing of prehistoric sites along the Potomac River. He is an expert on Late Woodland aboriginal ceramics.

Robert Shaw - Naturalist, St. Mary's City Commission. Mr. Shaw possesses an extensive knowledge of Chesapeake ecology and has focused his research on Indian subsistence practices in the region.

Michael Smolek - Archaeologist, Southern Maryland Regional Preservation Center. Mr. Smolek directed an intensive survey of the St. Mary's River Valley and has done cultural resource evaluations of sites throughout the southern Maryland area.

