

Archeological Exploration
of Patawomeke: The Indian Town
Site (44St2) Ancestral to the One
(44St1) Visited in 1608
by Captain John Smith

T. DALE STEWART

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Ancestral to the One (44St1)
Visited in 1608 by Captain John Smith

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SMITHSONIAN INSTITUTION PRESS

Washington, D.C.

1992

ABSTRACT

Stewart, T. Dale. Archeological Exploration of Patawomeke: The Indian Town Site (44St2) Ancestral to the One (44St1) Visited in 1608 by Captain John Smith. *Smithsonian Contributions to Anthropology*, number 36, 96 pages, 55 figures, 23 tables, 1992.—Excavations by Judge William J. Graham and by T. Dale Stewart of the U.S. National Museum/Natural History from 1935 to 1940 at Potomac Neck in Stafford County, Virginia (site 44St2), produced evidence of a Late Woodland palisaded village (seven concentric palisade lines), enclosing an area of about 1.4 acres (0.56 ha). In the village were circular and elongate houses, plus storage pits, and three mass graves (ossuaries). The village proper dates from pre-Contact times. Two burial pits (one outside the palisade, and one that intruded into the outer palisade line) contained European trade items, indicating use of the site during post-Contact times, probably limited to a short time following the first European visit to the area by Captain John Smith in 1608.

Extensive collections of cultural materials and data exemplify what Karl Schmitt in 1952 named the Potomac Creek Focus. Ceramics are predominantly Potomac Creek Cord-impressed types; projectile points are small triangles, usually of white quartz; a majority of the clay pipes are of the obtuse angle type; and there is a diversity of bone tools. Shell beads are numerous, especially in the ossuaries. Burials are predominantly secondary bundle burials, with a few articulated flexed or extended, and even fewer cremations. Coupled with evidence of long-term occupation of the site (e.g., six rebuildings of the palisade), there is evidence of evolving pottery types. The earliest ware equates closely with Shepard Cord-marked type of the Piedmont Potomac valley, and this evolves into the Potomac Creek Cord-impressed and Potomac Creek Plain wares typical of the early 17th century.

OFFICIAL PUBLICATION DATE is handstamped in a limited number of initial copies and is recorded in the Institution's annual report, *Smithsonian Year*.

Library of Congress Cataloging-in-Publication Data

Stewart, T.D. (Thomas Dale), 1901-

Archeological exploration of Patawomeke: the Indian town site (44St2), ancestral to the one (44St1) visited in 1608 by Captain John Smith / T. Dale Stewart

p. cm.—(Smithsonian contributions to anthropology ; no. 36)

Includes bibliographical references.

1. Patawomeke Site (Va.) 2. Woodland Indians—Antiquities. 3. Woodland Indians—Mortuary customs. 4. Stafford County (Va.)—Antiquities. I. Title. II. Title: Archaeological exploration of Patawomeke. III. Series.

GN1.S54 no. 36

[E99.W84]

975.5'26—dc20

92-28885

CIP

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Preface

Several things that culminated in this publication are worth explaining in advance of the body of the text, because otherwise the organization of this report will not be immediately apparent. As it is an archeological operation being reported, the first thing to note is that the field work involved underwent an evolutionary course between the years 1935 and 1940. This five-year period divides naturally into two major parts, marked by the death in November 1937 of Judge William J. Graham. Beginning in 1935, he headed a small group of local avocational archeologists, who thus became the first modern explorers of the site. The second part of the period began in 1938, when I took over the project for three seasons of excavations (1938–1940), aided by a succession of field parties working for the U.S. National Museum (now the National Museum of Natural History).

Gradually, during the second period, it became apparent to me that I had not seen important elements of Judge Graham's collection from the site. I realized that it would only be from these specimens, together with the two places where they were found, that I would be able to learn the true age and identities of the site. Especially significant in this connection were a variety of European artifacts, found by Judge Graham and his helpers, that really connected the palisaded village site with the arrival of Captain John Smith in 1608. The work of filling in the details of this approach to the site's history became the objective of the long writing period following 1940.

Unfortunately, preparation of this report of necessity had low priority over the years after 1942. From that year until 1961, I served as Curator of the Division of Physical Anthropology, and later as Director, of the National Museum of Natural History, and the demands of administrative work forced me to set aside the report. Upon returning to the Department of Anthropology in 1966, I had hoped to finish the report quickly, but unavoidable demands kept absorbing my time. Finally, late in 1978, seven years after retirement, I once more took up the report and slowly carried it nearer to completion. Final work began on the manuscript in 1982. Almost immediately, I came down with herpes zoster of my left trigeminal nerve and since then have had reduced vision. Although I still come to the office almost daily, my work output has slowed noticeably.

As a key element in the overall report, I counted on using the excellent artifact analyses compiled by Karl Schmitt. His work, added to my own report as the project director and as a physical anthropologist, make up the bulk of this report. In the early 1980s, I had been working on the report for some 40 years, and I saw a need to finalize it and ready it for publication. I edited the manuscript for unnecessary or redundant details, and thereby reduced it to the essential archeological findings and what they revealed of the Patowomekes when first met by Europeans. Comments from colleagues pointed out some gaps in aspects of the report and also recommended that the analyses and descriptions be updated, especially with reference to more current researches in the Potomac valley. To this end, Ms. Christine Jirikowic (graduate student at The American University, Washington, D.C.) was hired to review the artifact collection, not only from the 1935–1940 work, but also collections previously made at the site during the past century. Her analysis and descriptive details are added to the report, where indicated, as are the original details by Schmitt. Other elements of the report have benefited from the work of Howard A. MacCord, Sr., who has been active in Virginia archeology since the 1930s. He had known Judge Graham and had had a long and close archeological relationship with Carl Manson.

Many other people provided me with help in important ways during the field work and the manuscript preparation. Their contributions are acknowledged at various points in the text.

The following report incorporates the archeological efforts made at site 44St2, plus a description and interpretation of the results of that work. Because the archeological work was done almost 50 years ago, the report of it is obviously “dated,” with many gaps and possible errors, when viewed from today’s perspective. However, the data are still valuable and I have been urged by many workers in this field to publish my account.

Unfortunately, little if anything more can be added to this study by means of further excavations owing to the fact that much of the site has been subdivided and houses have been built on it.

T. Dale STEWART

Smithsonian Institution
Washington, D.C.



FRONTISPIECE A.—1937 aerial photograph of Potomac Neck (lower left) and Marlboro(ugh) Point (right), Stafford County, Va., from 5000 feet (1500 m), looking northwest. Accokeek Creek is on the left, Potomac Creek at the bottom right, and the Potomac River above and upper right. Indian Point, at the end of Potomac Neck, is out of sight at the bottom left. The reported site excavations were crossed by the fence row approaching Potomac Creek to the right of Indian Point. The site of Colonial Marlborough is at the bend to the right of the roadway running down the Neck parallel with the river. (U.S. Marine Corp photograph.)



FRONTISPIECE B.—1981 aerial photograph of Potomac Neck and Marlboro(ugh) Point, Stafford County, Va., looking north: (1) Indian Point (44St1; $77^{\circ}18'12''\text{W}$, $38^{\circ}21'00''\text{N}$); (2) site of the palisaded village (44St2; $77^{\circ}17'56''\text{W}$, $38^{\circ}21'07''\text{N}$); (3) the spring on the beach; (4) site of Colonial Marlborough; and (5) Marlboro(ugh) Point. (Photo courtesy of Va. Dept. of Transportation.)

Archeological Exploration of Patawomeke, The Indian Town Site (44St2) Ancestral to the One (44St1) Visited in 1608 by Captain John Smith

T. Dale Stewart

Introduction

The fact that the fields on Potomac Neck, located on the west side of the great eastward bend in the Potomac River in what is now Stafford County, Virginia, offer much evidence of Indian occupancy has been known to students of American history back as far as Thomas Jefferson (1787). The first professional archeologist to visit the neck and collect artifacts from the fields there appears to have been William Henry Holmes. During the period 1888–1910, he was Archeologist and Chief of the Smithsonian's Bureau of American Ethnology, as well as Curator of Anthropology in the National Museum of Natural History.

His visit was not followed up until 1934 when, according to Manson and MacCord, Sr. (1985), Hugh Stabler and Richard G. Slattery, young amateur archeologists of the Washington area, found the site. Whether Carl Manson, another local amateur archeologist, accompanied them or found his way there independently is not recorded. However, in 1935, Manson told Judge William J. Graham, Presiding Judge of the U.S. Court of Customs and Patent Appeals in Washington, who also searched fields along the Potomac River for Indian sites, that he had uncovered on Potomac Neck some artifacts of European origin in association with human skeletons.

Because previously the Judge's hobby had led him to enlist my help in dealing with Indian skeletal remains he had found on the Maryland side of the river (Graham, 1935), soon thereafter (28 March 1936) the Judge invited me to visit Potomac Neck with him. On that visit, I noted that the Judge had two local laborers uncover disturbances below the

plowline, mostly postmolds, and when these stains were seen to form rows, to follow them.

Because the Judge was not keeping detailed records of the excavations and the exposed sub-surface features, I suggested to him that he employ the current archeological procedure of staking out squares along a north-south axis, so as to map the site and its features. This the Judge proceeded to do but, as I discovered later, the squares had the somewhat unusual scale of 35 feet (10.5 m) on a side and were identified by an inflexible numbering system.

The Judge continued visiting the site at varying time intervals until 10 November 1937, when he suddenly died (Anonymous, 1939:310). In the spring of 1938, Mrs. Graham turned over to the Smithsonian Institution the Judge's archeological collection, field notes, and an incomplete manuscript, titled "Potowomeke." This material bears Accession Number 147,346.

About this time, Mr. John L. Pratt of Fredericksburg, Virginia, a retired vice-president of General Motors, came to me and expressed the wish that I carry on Judge Graham's work. As an inducement, Mr. Pratt offered to arrange with the new owner of the site for permission for me to continue the digging there. Because no one else on the staff of the National Museum of Natural History Museum, Smithsonian Institution (also referred to herein as the "Museum," the "National Museum," the "U.S. National Museum"), where I worked was familiar with the site, or had expressed interest in working there, and even though I had no formal archeological training, the museum administrators allowed me to take on the project.

The field work I conducted at the site from 1938 through

T. Dale Stewart, Department of Anthropology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.

1940 accounts for the broad data base of Part I of the following report. Part II deals with the artifacts and cultural data recovered during the site's exploration. This is largely an edited and updated version of the late Karl Schmitt's M.A. thesis, published in 1965. To this, I have added my analysis of the

European artifacts recovered by Manson and Judge Graham. Other cultural aspects deal with community data and the subsistence base of the Patawomeke Indians at the time of Contact. Part III of the report deals with burial customs and variations and with measurements and observations.

Part I: Field Work

The Geographical Setting

The great eastern bend in the Potomac River has long been regarded as the main geographical feature marking the location of the neck of land to the west containing evidence of Indian occupation. This conspicuous feature shares in most characteristics of the tidewater part of the river, e.g., navigability, brackish water, tidal changes, fringe marshes, and abundant aquatic food resources. The 1937 aerial photograph (Frontispiece A) shows only a limited area because of the low altitude of the flight. This panoramic deficiency is made up for, of course, by Frontispiece B and the plenitude of modern, detailed maps, as in Figure 1. However, mapmaking in the Potomac region goes back to the earliest Colonial times. Figure 2 shows the great bend quite accurately; the 1612 map is by Captain John Smith (1612), created from notes and sketches he made during his 1608 explorations of the Chesapeake Bay region; the 1635 map is attributed to Lord Baltimore. Part of the Smith map in Figure 2 is enlarged in Figure 3. Smith included names and locations of the Indian towns he visited (or saw without visiting), and many of his locations have been confirmed historically or archeologically.

What most of the maps and air views show is Potomac Neck, a western extension of Marlborough (now Marlboro) Point. The Neck is bounded by the Potomac River on the east and southeast and by Accokeek Creek on the west, with Potomac Creek linking the two on the south side of the Neck. Confirming the overall fixing of Potomac Neck on early maps are the many other identifiable features along the Potomac, such as Port Tobacco River, Aquia Creek, the mouth of the Anacostia River, and the location of the Falls of the Potomac.

The southern end of Potomac Neck, the main consideration here, rises from the water line of Potomac Creek by a narrow beach and steep banks to a height of from 10 to 25 feet (3 to 7.5 m). The banks, especially in the vicinity of Marlboro Point, reveal Eocene marl deposits, the Aquia Formation, which contain well-preserved fossil shells, especially of gastropods and pelecypods. Countless numbers of these shells occur in indurated beds and weather out along the beaches, usually exposed at low tides. Many of the fossil shells are found in the archeological deposit at Patawomeke.

Away from the river and creek banks, the Neck is relatively flat, rising gradually to a maximum elevation of 50 feet (15 m) above sea level. At the Potomac Creek shore, the highest

elevation is about 30 feet (9 m), and it is at this elevation that the Indian occupational debris is most concentrated. The soils there are sandy loams, containing light gravels and highly enriched by the accumulated humus, ashes, and minerals that mark long-term human habitational areas. Below the humic topsoils, there is a succession of clays, gravels, and marls overlying the Aquia fossil beds.

As Frontispiece B shows, a fence row ran from northeast to southwest toward Potomac Creek, dividing a large cultivated area in the western half of the Neck. Over a considerable area on both sides of the fence and a road paralleling the fence, the soil is distinctly darker, and it is replete with Indian artifacts and animal bones. Holmes had noted this concentration of debris and had concluded that this was the site of the 1608 village of Patawomeke (44St41, Frontispiece B (2)) (Holmes, 1903). According to Manson and MacCord (1985:8) the evidence of human occupation seen in this location represents the largest prehistoric-protohistoric Indian site in the tidewater part of the Potomac Valley.

At the foot of the bank fronting along Potomac Creek, not far from the 1937 line of the dividing fence, there is a good, never-failing spring, as of 1988 enclosed in concrete. This may have been the primary source of potable water for the aboriginal inhabitants, although the presence of other riverbank springs should not be ruled out. Just east of the spring, a gently sloping ravine leads from the site terrace to the shore, thus providing easy access to the spring, as well as to beaches suitable for canoe-related activities.

At the extreme southwestern tip of Potomac Neck, the land formation is known as Indian Point. This Point was similarly covered with Indian debris, although today the Point has been completely eroded or graded away. Erosion of the Point had been active for centuries, as was noted in the 1870s (Reynolds, 1881). Little of the Point remained in the late 1930s, and regrettably no archeological work was undertaken at that time. Later, in 1957, Manson tested the small remainder of the Point, and his finds will be published separately (see MacCord, 1991). The impression given by Manson's finds (and others') is that cultural material there was similar to that found at the main palisaded village (44St2), although with some greater concentration of European-derived trade items. From this, it appears that the occupation at Indian Point (44St1) lasted longer into the Historic Period than did that at 44St2. This topic will be discussed at greater length below.



FIGURE 1.—Map of the Tidewater Potomac River, showing the main geographic features and the boundaries of bordering counties. (Wilstach, 1932, frontispiece.)



FIGURE 2.—Three maps of the Lower Potomac River: *Left*, Captain John Smith, 1612. *Center*, Lord Baltimore, 1635. *Right*, author. Note the remarkable similarity of three maps brought to the same scale. The star between Aquia Creek and Potomac Creek (on all three maps) marks the location of Patawomeke. The circle and dot on the “present” (1970s) map marks the location of Washington, D.C.; arrow points to north.

Like most tributaries of the Potomac River, Accokeek Creek and Potomac Creek have silted in to the extent that they are no longer the deep streams that in Colonial times could accommodate sailing ships from England. Aquatic plants now cover much of the surface of the streams and spoil the fishing. The Potomac River flowing by the Neck is nearly three miles wide and is tidal. It is only mildly saline, thus accounting for the lack of oysters there. On the other hand, mussels thrive, and crabs are still trapped or caught nearby. Migrating ducks and geese are plentiful in season and in the Neck uplands, wild turkeys never disappeared. Other game animals found in historic times included deer, bear, beaver, and numerous species of smaller animals.

Nowhere else on the Virginia side of the river is there a site of an Indian town as well known and showing as much promise for study as the large one on Potomac Neck. However, by a middle 1930s, more archeological attention had been, or was being, given to Indian sites on the Maryland side, from the Anacostia River southward to Port Tobacco. Prominent in this work were Judge Graham, Mrs. Alice L. L. Ferguson, and the ethnohistorian William B. Marye. Despite many years of collecting of Indian artifacts at sites in the Potomac valley, little was known of the culture history of the region's prehistoric inhabitants. Information as to the Indians of the early 1600s is fairly abundant, based on the writings of early explorers and settlers. However, these data had not been verified nor augmented by archeological researches. It was timely, there-

fore, that such researches began at Patawomeke in 1935, while on the Maryland shore, similar work was begun at the Accokeek Site by Mrs. A.L.L. Ferguson (Stephenson et al., 1963).

Manson's and Graham's Explorations (1935-1937)

As explained in the Preface and “Introduction,” when the Judge died in 1937, I took over (in 1938) the archeological exploration of the east side of the cultivated fields along the south end of Potomac Neck. My assumption of management at that time makes it necessary for me now to treat the Judge Graham period work (1935-1937) separately from that of the Museum parties (1938-1940) that followed. Accordingly, I put together in this section of Part I what I regard as the most important items from the record of the work left by the Judge. This is primarily his diary-form record of what he had seen and/or done on each visit to the site. Selected quotations from this record (not available to me until after it had been accessioned at the Museum), all somewhat edited to save space, constitute the indented texts below.

The partial manuscript left by the Judge bears the title “Potowomeke,” which is one of the numerous spellings of the site name that has survived. The more frequently used spelling (and the one I prefer) is the one used in the title of this report, “Patawomeke.” The entries from the Judge's diary (Graham,



FIGURE 3.—Location of Patawomeke on Smith's 1612 map from somewhat simplified detail by Arber (1884). At the bend in the river just south of "Quiyough flu" (Aquia Creek), a house symbol near the name "Patawomeck" locates the residence of the chief.

1935) that follow have been grouped according to the main features found and worked on by him and his helpers, beginning with the first such major feature, the so-called "multiple burial."

MULTIPLE BURIAL

December 1, 1935. Went to Marlboro Point with Manson. He had been digging in corn field on site of Indian village of Potowmack on Potomac Creek and on Nov. 30 had found a burial with two skeletons and some artifacts—some large round shell beads, a small silver wine-taster, brass star-shaped ornament, two bone awls, etc. Arriving at site, which was about 165 feet [49.5 m] from spring on shore and about 50 feet [15 m] in from west side of corn field, found that a ditch about 2 feet [0.6 m] deep had been driven through cornfield northeasterly, ending in rounded pit where burials had been found. Remains were from 2 to 2½ feet [0.6–0.75 m] deep.

Removed balance of one skeleton partially dug out by Manson. Then found another, of a middle-aged man (most of teeth gone). Bones were in a heap, with skull

uppermost, badly crushed. Then took out skeleton of infant, (which judging) from teeth (was) about four months old (front incisors about to erupt). This skeleton to right of male. Then found flexed skeleton of young female to south of man. Arms seemingly folded over chest. This woman had fine teeth; wisdom teeth uncut. On top of this skeleton, as if buried with or upon it, was skeleton of young child, somewhat larger than the other. Beads everywhere in large quantities (mostly small shell disks; some of red, blue and green glass). Also found about 40 small bells, like sleigh bells, evidently of copper or brass; two disked copper buttons; one metal counter punched for use as a pendant, one-half of a shell gorget ornamented on inside with punched pattern; one roll of clay for pots; and one large decorated potsherd.

All skeletons were found in a small compass, not more than five feet [1.5 m] square, but were individual burials. Charcoal frequent in small quantities. Bodies encircled by postholes and near a kitchen midden on north.

Saturday, Dec. 7. Cleared out hole and soon struck bones of an infant (had eight teeth in upper jaw) in south bank of trench at extreme bottom, (body lay) with head to

east, on side...legs extended. Many beads—disk and cylindrical shell and some longer red beads. Worked lower jaw of deer (with teeth in place) lay on child's breast. A smooth, slate pipe, perfect and blue in color, lay between collar bone and ribs. Also just below this was a small conch shell. (Space between) lower limbs literally filled with shell of various sizes, some larger than any observed previously. Under body was a comb of horn or tortoise shell (fine teeth on one side, coarse of the other) in poor state of preservation, near feet was copper chain in four parts...evidently worn as a necklace. The amount of shell beads surrounding this child was astonishing—perhaps a quart. There were also four round copper buttons.

Back of this child was skeleton of adult, flexed, face down, with head to east, arms folded under body. A few disk beads (were scattered among the bones).... This skeleton was slightly higher than the child, and had broken decorated potsherds above it and about one foot from surface (evidently broken by plows). Back of this, and just above it, was another adult skeleton, head to the west, face down, legs and arms folded under the body. No artifacts with this adult.

Just before quitting uncovered part of another burial (child) in south side of pit.

December 10th. Some had been digging (during our absence). Skeleton in south (part of pit) had been removed.... Burial pit cleaned out is 6.3 feet [1.9 m] east and west and 6.3½ (feet) [1.9 m] north and south, 2.2 feet [0.6 m] deep at deepest point.

Later, when the Judge made a map of his explorations, he recorded the dimensions of the "grave pit" as 8 feet (2.4 m) long on the NE-SW axis, 6 feet (1.8 m) wide, and 2½ feet (0.75 m) deep. The pit was at Line 5 on the north-south axis (Figure 9).

From the account of the first excavation it appears that a shallow pit about 6 to 8 feet (1.8–2.4 m) in diameter was encountered (Figure 4, *top*) containing at least 10 bodies of adults and children. One skeleton may have been disarticulated and bundled, but the others, except perhaps the children, seem to have been articulated and flexed. Because Judge Graham favored a view that the bodies had been buried individually and presumably at different times, I have refrained from designating this group burial as an ossuary. In retrospect, the large quantity of European objects clearly indicates a date of burial either in the last part of the town's occupancy or after its abandonment.

The postholes mentioned by Judge Graham as surrounding the burial pit are not clear as to details or significance. When later the area surrounding the pit was explored more fully, many more postholes were found, often in rows. The arrangement of the holes was confusing to the excavators and hence there are entries in the Judge's diary referring to them

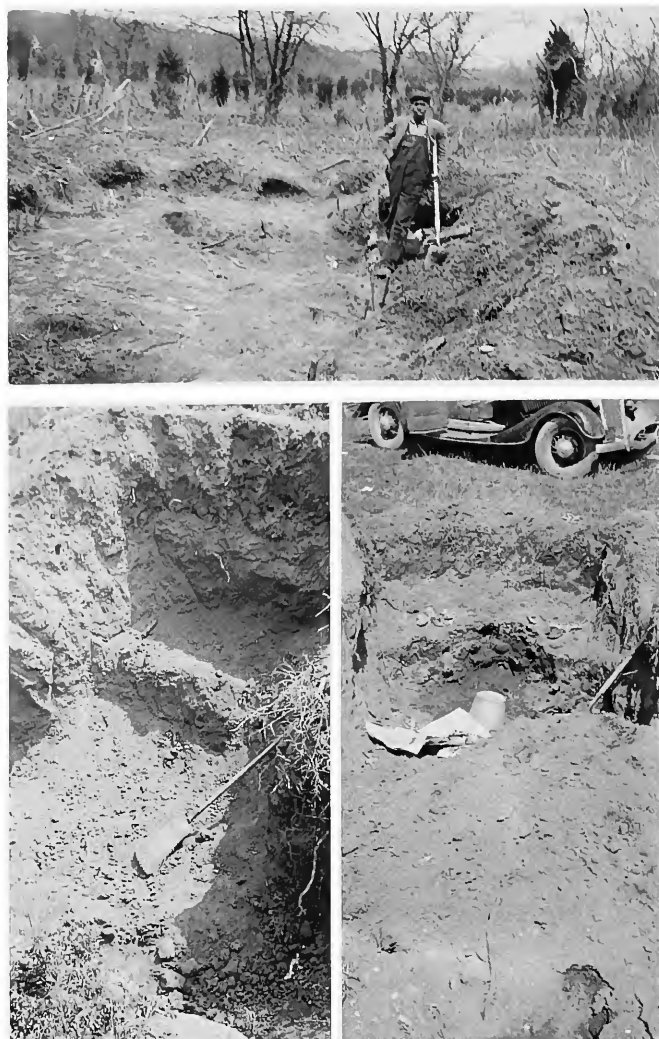


FIGURE 4.—Three views of the 1935–1936 excavations by Judge Graham: *Top*, workman late in 1935 or early 1936 on edge of shallow pit where first group burials were found. *Lower left*, Ossuary 1 after reopening in September 1936. *Lower right*, Ossuary 2, probably in spring of 1936. (Graham collection photographs.)

first as a stockade and then as a house (also sometimes referred to as a "death house"—the "quioccasin house" of the coastal Indians). In an effort to settle this point, the Judge undertook, at my suggestion, following my first visit to the site on 28 March 1936, to make a careful map of his findings. However, as will appear, he never carried this project far enough to reach a valid interpretation concerning the "multiple burial" pit and any adjoining or enclosing structure.

FIRST OSSUARY

The second important find, discovered on 21 March 1936, was a large and undoubted ossuary. On leaving the site that evening, Manson noted bones around the opening of a

groundhog hole, about 100 feet northeast of the group burial pit. On examination, these bones proved to be human. Further excavation the following day revealed many skeletons. Work was then centered here and continued as opportunity permitted for over a year, i.e., until April of 1937 (Figure 4, *lower left*, and Figure 5).

One characteristic of this ossuary was its segmentation—groups of skeletons were separated by layers of earth. From time to time the Judge recorded in his diary that he believed he had reached the end of the pit, only to follow this with a statement that further clearing of the earth fill had exposed another layer of bones. The Judge's descriptions of this fill are as follows (page numbers in brackets are from his diary):

On south side of pit, removed large quantities of charcoal and several sherds of different pots. Here, I think, the filling came from old camp sites near here and thus contained these pieces of charcoal, etc. Noticed, also, in this part of grave, quantities of various colored earth, in quantities and bunches as if they had been dumped from baskets and had been procured from various sources. Thus, dark swamp soil was found in contact with clay, or light sandy soil, while over the top of the whole were several feet of solid clay of homogeneous texture and appearance. This was due to wash and cultivation, I assume. [Page 53]

After clearing out dirt (in south end), found many bones in two layers as sometimes before, about 1 foot [0.3 m] apart. Whole south side of pit showed mixed dirt of all colors. [Page 95]

At last, when all bones had been removed, the outline of the ossuary pit was revealed as oval, the long axis running NE-SW. It was 37½ feet (11 m) long, 15 feet (4.5 m) across at the widest point, and 5 feet (1.5 m) deep at the lowest point (to the south). By count of skulls, the ossuary population was placed at 181—men, women, and children of all ages. Although I urged the Judge to save certain parts of each skeleton for census purposes, he did not do this consistently. Therefore the figure given for the ossuary population can be regarded only as an approximation.

The Judge's diary also gives some indication as to the mode of burial, both as regards the arrangements of the bones and the placement of any accompanying cultural objects. However, the Judge was more interested in finding artifacts than in observing signs of mortuary practices, and his methods of excavation did not favor such observations. In all fairness to him, it should be pointed out that he had to make small exposures in pits because of sporadic visits to the site and because of the threat of vandalism during his absences. Further, he interspersed digging in the ossuary pit with work in other areas of the site.

Secondary burials, consisting of bundles of disarticulated bones, seem to have been encountered frequently, as Judge Graham's diary entries indicate:

Found the long bones of the legs and arms extending north-northeasterly direction, overlying miscellaneous bones of the body.... Bodies in small compass usually occupying space about 18 inches [45 cm] or 2 feet [60 cm] in length at maximum. [Page 10]

Long bones of arms and legs laid lengthwise, side by side and on top of each other, as if laid there. Looked as if bundled and secondary. [Page 14]

These individual burials were placed in no apparent order, but appeared as if in pockets, with intervening layers of yellowish earth, mixed with darker surface earth.... In all cases all bones of the body are present and the bodies occupy but



FIGURE 5.—Three views of Judge Graham's Ossuary 1 during excavation. Photograph at top taken in June 1936; others taken in September 1936. (Graham collection photographs.)

a small space, perhaps 8 inches [20 cm] in width and 2 feet [60 cm] in length. [Page 15]

These burials usually occupy a space of 8 or 10 inches [20 or 25 cm] thick and bones are all compactly folded together. [Page 17]

Bodies all together, but not articulated. [Page 19]

Bones were distinctly bundled here, long bones laid in piles. [Page 38]

A male adult lay with head on top of long bones of legs, with ribs and clavicles to one side, as if the body had been buried in a sitting posture, and the head had afterwards fallen over the ribs. Lower jaw was above and to north of skull, while some teeth were at knees. Legs extended to south, but could not find feet. [Pages 43–44]

The head was in center, ribs and vertebrae behind head, pelvic bones under head and legs and arms in front of head, extending parallel to each other. [Page 56]

Long bones of these latter two skeletons...laid in piles, side by side. [Page 60]

These skeletons are secondary burials—arm and leg bones laid together in

piles, with skull lying near in each case. [Page 66]

These bones all at 5 feet [1.5 m] level and all together in pocket, with long bones bundled. [Page 69]

Burned bones, probably indicating secondary burial, are mentioned as being encountered at three different points in the ossuary. In one case, the burned bones were those of a left foot; in another they were of an infant. Further evidence of secondary burial is supplied by observations on extraneous materials in some skulls. In three cases, the Judge notes sand inside the skull:

Three skulls empty, and one partially filled with light colored, sandy soil, differing in quality and color from earth of pit. [Pages 10–11]

Skulls empty, except for fine sand which partially fills them. [Page 20]

...skull crushed and filled with soft, fine, yellow sand, not common to that locality. This skull had either been filled with sand manually, or had been formerly buried in sandy place. Much like skulls at Port Tobacco. [Page 60]

Another time

On removing skull of one man, found 12 disk shell beads in interior, resting on facial bones. [Page 49]

Articulated, extended skeletons were also encountered, perhaps in a minority of cases, as indicated by the following diary entries:

Body extended lengthwise, north and south. [Page 14]

All bodies were together with no evidence of bundling.... They lay with feet in opposite directions, but with skulls touching...while bodies may have been buried at the same time, they were evidently buried here originally—that is, they were not secondary. [Pages 20–21]

Man was on back and [I] was able to see bones of body all in natural position, legs and arms extended fully. [Pages 22–23]

In contrast to the Judge's meager descriptions of the bones in the ossuary, he gives fairly full details about the cultural objects found therewith. From the enumeration of these objects another characteristic of this ossuary emerges, namely the presence of considerable amounts of copper and glass of European origin. Copper was found associated with at least 28 skeletons and glass with six. Other European objects found were a pair of scissors, two hand-wrought iron nails, a piece of scrap iron, and three pieces of glazed "tile." Of these only the scissors was found in association with a skeleton; the others were in the earth filling the pit.

The copper was usually in form of tubular beads, and more than 60 are mentioned. These are made by rolling thin sheets of the metal and varied in length from 5 mm to 5 cm and in diameter from 2 to 5.5 mm. Other copper beads, seeming few in number, were in the form of solid spheres. The only size given for these is a diameter of 3.5 mm. In addition, there were four badly disintegrated thin copper plates, probably square and small; two small balls (brass?); a few small cone-shaped pendants(?); and a small copper band fitted to a pipe stem. Owing to the oxidation of copper and the spread of copper salts to neighboring objects, some materials and relationships are preserved. These are described by the Judge as follows:

...several—probably six or eight—copper beads, cylindrical, 6 × 22 mm, laid side by side. [Page 18]

One man had a plate of copper (on what appeared to be cross-woven bark cloth), very thin.... [Page 19]

All these beads (shell, copper, glass) had been strung, several sections being adherent, owing in some cases to the exudation of the copper.... [Page 23]

Also, near one knee found a single large barrel-shaped solid copper bead, 7 mm in length and of an equal width. This had a part of the original string in it, of two strands, twisted counter-clockwise upwardly. The threads, as was usual, were made with a clockwise twist upwardly, and were made of a grass-like fiber. [Page 42–43]

...found copper stains and then beads...15 were counted, of three varieties.... These had been strung and were separated by small disk shell beads about 1 mm in thickness. This had evidently been a necklace.... [Page 46]

This long bead (copper—32 × 7 mm) was made by wrapping the plate copper around a reed, which still remains in (place), preserved by the copper salts. A section of the cord is also present. This is about 1 mm in diameter and is the longest I have found. It is composed of six threads, as nearly as I can discover, which are twisted from left to right. The filaments are of plant fiber and are twisted from right to left. This thread is large enough to fill the diameter of the large copper bead and is brown in color, when dry. [Page 61]

The glass was in the form of small, crudely spherical beads. The majority of these (19) were dark blue in color and ranged up to 4.5 mm in diameter. Other plain, colored beads about the same size were violet-blue (3), light blue (2) and green (45). Also, there were eight red beads with black centers and one striped bead (red, white, and blue).

In addition to these European objects, a considerable amount of material of native manufacture was found in association with the skeletons and to a lesser extent in the earth fill. Shell beads, both disk and tubular, were the most common objects. There were also pipes, shell gorgets, and potsherds. The beads were often associated with children's skeletons.

SECOND OSSUARY

While the first ossuary was being excavated, Judge Graham had a laborer make narrow trenches following lines of postholes. One trench was carried westward from the site of the initial excavations and through the fence row separating the corn field from a brush-covered lot. Just west of the fence row, on 28 November 1936, a second ossuary was discovered. The bones here were in better condition than those in the first ossuary (Figure 4, *lower right*, and Figure 6). Hence the latter, being already largely explored, probably received diminishing attention thereafter. Certainly the second ossuary was finished in much less time than the first. It was roughly oval, the maximum dimensions being 38 × 11 × 4 feet (11 × 3.3 × 1.4 m), with the long axis NE-SW. It was broadest and deepest at the northeastern end. By count of the skulls, Ossuary 2 contained an estimated 287 individuals of both sexes and all ages.

As with the other burials, it is possible to get some idea of the relationships of the bones and cultural objects from the Judge's diary. He repeatedly observed that the bones were more closely and continuously intermingled than in the first ossuary. Hence,



FIGURE 6.—Three views believed to show Judge Graham's Ossuary 2 in the process of excavation. Judge Graham in top view; part of an articulated skeleton in bottom view. (Graham collection photographs.)

they were more difficult to remove when he approached them from the side, as was his custom. The supposition that this arrangement of bones was due to secondary burial is supported by the following quotations:

Many of the long bones of these three burials were alongside and back of these skulls. [Page 71]

Bones, including skulls, were intermingled, making it hard to disentangle them.... These bones were evidently a secondary burial and buried at the same time. [Page 72]

Removed seven bodies.... These were bundled closely in center of pit.... Long bones mostly laid in rows with skulls on top and close together in most instances. [Page 78]

Skulls very close together. [Page 80]

Skulls were close together, on two occasions so close as to intermingle. [Page 85]

All eight skulls were within space of two square feet [0.6 square m], and were superimposed, three touching each other. [Page 90]

...found a large number of skulls close together, five of them touching each other, interspersed with other bones. [Page 93]

Removed nine bodies in east end, closely jammed in together.... All bones interlaced, not bundled, and exceedingly hard to get out. [Page 96]

Many skulls piled in middle touching each other. [Page 100]

Long bones piled up on both east and west sides; for instance, on west the socket ends of five humeri protruded from wall all bundled with heads close together. At one place seven skulls were so close together they touched. [Page 111]

Further observations of practices associated with reburial are as follows:

One skull contained a considerable quantity of green marl. [Page 107]

Found one skull burnt over a considerable area on left side—seemed to be an adult. In one place was almost burned through. [Page 111]

Began to encounter burned bones. One pile was lying between and under several skeletons which were untouched by fire and in some places intermingled therewith. This pile was evidently there when other skulls were placed in, as the new skulls had caked the burned bones to a solid layer in places. Intermingled with these burned (bones) were burned beads... These burned remains covered an area of about 2 feet [0.6 m] in length. [Page 112]

In contrast with the evidence of secondary burial are two statements indicating the presence of articulated skeletons:

On top (of bone layer) was skeleton of man lying with face to east, on left side. Ribs were in place and arms raised in front of head—all bones there. Legs were in place, but seemed folded at knees, as all bones were above knees. Backbone in place under ribs. [Page 73]

In southeast corner skeleton lying slanting upward, head at bottom. [Page 110]

The curious statement regarding first of these skeletons, namely that the "legs were in place, but seemed to be folded at knees" suggests that the lower legs may have been folded unnaturally forward at the knees (cf. Stewart, 1941, and Ubelaker, 1974).

The distinguishing characteristic of the second ossuary was not the arrangement of bones, but the types of artifacts accompanying the bones. These did not include anything of European origin. Also, copper was limited to three small pieces, which testing proved to be of native origin. A letter in the accession record to Judge Graham from J. A. Scherrer, Chemist, National Bureau of Standards, dated 12 July 1937, states, "The sample of copper you left at the chemical laboratory was analyzed and found to be pure metal. No lead, tin, antimony, bismuth, zinc, nor iron were found to be present." The origin of this sample does not appear, but in view of the date, it probably was one of three pieces found in the second ossuary.

The absence of European objects was more than offset by the abundance and variety of artifacts of native manufacture, especially shell beads. At first, the Judge meticulously recorded the number and average size of each lot of shell beads, but later he resorted to general terms, such as "many" and "several," or gave the quantity in terms of ounces, and described the types as

disk, round, barrel-shaped, etc., qualified by the words small, medium, or large. In general, the beads ranged from minute disks (1–2 mm in diameter) to long cylinders (up to 4 inches (10 cm) long and about the diameter of a pencil) and large spheres (up to 1.4 cm in diameter). There was some evidence in places that they had been strung together, retaining their relative positions until excavated.

It is noteworthy that *Marginella* shells prepared for stringing were common in this ossuary, but were not encountered in the first ossuary. As noted before, most commonly the beads were found with children's skeletons. Another observation, perhaps significant, was the presence of large beads, mostly barrel-shaped or spherical, scattered over the floor of the ossuary. In many cases they are reported to have been embedded in the earth floor under the bones, as if sprinkled there before burial. The quotations indicate that this arrangement was frequent:

On bottom of grave found several more large barrel-shaped shell beads. These are almost universally on the bottom, half-buried in sand of bottom. [Page 78]

Under the bones removed were a number of shell beads, embedded in sand bottom, averaging about 9 mm by 1.1 cm—27 in all were recovered. [Page 80]

About 40 large shell beads on floor of pit on east side, distributed over distance of about 2 feet [0.6 m]. [Page 82]

Found 34 round shell beads under remains in east end, in good condition. All on bottom, partly embedded. [Page 92]

Part of these (45 large round shell beads) were under a male pelvic bone, coiled as if they had been in necklace. All beads on ground under bones. They were either placed there or fell through bones on ground. Seem to be quite deeply embedded in ground, so that they must be undercut to get them out whole. [Page 99]

In some places beads, both disk and *marginella*, are in windrows on bottom as if thrown there before bones were put in. [Pages 106–107]

Quite a large number of large beads . . . Pretty well scattered over bottom, of all sizes. [Page 108]

Beads of all kinds found, many so scattered over skulls as to indicate they were thrown there, perhaps as an offering. [Page 111]

Other objects encountered were potsherds, broken animal, bird, and fish bones, clay pipes (a few whole), quartz arrowheads, scrapers, and pieces of hematite. Some animal and bird bones had been shaped into implements.

INDIVIDUAL BURIAL

On 16 May 1937, while Judge Graham was excavating his second ossuary, his hired helper struck human bones in a small test pit about 110 feet (33 m) southwest of the second ossuary (probably in the northeast corner of the square later numbered 4L5). These were not fully exposed until 9 September. Then it was found that, instead of being another ossuary as expected, the bones were part of single individual (a young adult male). Not only was the skeleton incomplete, but some bones had been burned. A partial skeleton of a dog was found in association. Unfortunately, the record does not give the position and state of articulation of either the human or canine skeleton. Because no bones answering this description have

been found in the museum collection, either they were not collected, or they were discarded after reaching the museum. This being the case, no further reference to them will be made.

THIRD OSSUARY

The day after the individual burial was disposed of (10 September), the Judge's assistants located, presumably through test pitting, another true ossuary about 77 feet (23 m) southwest of the second. Smaller than the others, it was estimated to contain 67 bodies—as usual of both sexes and various ages. Excavation was completed on 17 September. The outline was somewhat egg-shaped with the longer axis NW-SE and the greatest width at the northwest end. Dimensions were $18 \times 11 \times 3\frac{1}{2}$ feet ($5.4 \times 3.3 \times 1$ m).

Like the second ossuary, no European objects were found with the bones. Little even in the way of native manufactured artifacts was encountered: a few small shell disk beads, a number of bone awls, some parts of worked deer antlers, and broken animal bones and pottery sherds. Almost all of the Judge's statements about the position of the bones refer to articulated skeletons. Thus:

... bones, thus far, are not piled up and bundled as is usual. [Page 116]

Bodies are not piled together, and on top of one another, but seem to be laid, side by side, irregularly, on bottom. [Page 117]

This was skeleton of adult woman, all parts present. She was lying on right side . . . [Page 117]

Bodies as before. [Page 119]

There are only two references that seem to refer to secondary burial:

All parts of bodies do not seem to be present. Few hand and foot bones found. [Page 116]

... found remains of one youth, cremated, lying by itself, under other skeletons. [Page 118]

FOURTH OSSUARY

The last entry in the Judge's diary—that telling of the completion of the third ossuary—is dated September 17. There is no further record of work at the site until 30 October, when Manson, testing away (north) from Potomac Creek on the west side of, but parallel with the fence row, found a fourth ossuary. The distance along the fence row from the second ossuary was about 105 feet (31.5 m). Between 30 October and 1 December 1937, Manson spent six days clearing parts of this ossuary of an estimated 41 skeletons. From his brief notes, it appears that the bones were poorly preserved. No European objects and very few objects of Indian manufacture (eight sherds, small piece of undecorated pipestem, baked clay ball) were encountered. Some bones were found in positions of natural articulation, but as a rule the parts were disarticulated and bundled in pockets. Burned bones were not noted. Overall size of this ossuary was judged to be $23 \times 13 \times 3$ feet ($6.9 \times 3.9 \times 0.9$ m). None of the

bones from this ossuary were retained for accessioning or study at the Museum.

Field Work by Museum Parties

THE 1938 FIELD SEASON

When I came to the site in June 1938, to take up where Judge Graham had left off, I found the fields overgrown with tall weeds and the Judge's grid stakes in a dilapidated state. This was not surprising, because during the two years the Judge had worked there, farming had been discontinued pending settlement of the estate of which the farm was a part. On 27 August 1937, the Judge was advised of the sale of the property and after that date made arrangements with the new owner to renew the lease. The transfer of the lease from the Judge to me had been still more recent. Thus, everything conspired to make unlikely the resumption of cultivation of the site fields. Accordingly, I set about unhurriedly to renew the Judge's layout of squares, make a contour map, and record thereon all evidence visible of the previous digging.

RE-ESTABLISHING THE GRID.—A search of the old corn field on the eastern half of the site (east of the fence row and the parallel farm road) revealed the Judge's stake number 10 still in place (Figure 7). Without looking farther, I placed five stakes at 35-foot (10.5 m) intervals (the interval used by the Judge) in a line running north from this point. Then 38 feet (11.4 m) beyond and slightly west of his number 7 stake, I found another of his original, but unnumbered, stakes still in place. On the assumption that these two original stakes represented the north-south axis adopted by the Judge, I shifted my stakes accordingly. Next, I was fortunate to discover in the western field (brush lot) two more original stakes bearing the numbers 5D and 5E. The line of these two stakes made a right angle with the north-south axis at the number 8 stake. However, careful measurement showed the 5D and 5E stakes to be about three feet (0.9 m) short of their true positions. Probably as Judge Graham worked away from the main axis of his grid, he accumulated an error in the positions of his other stakes. Anyone who has attempted to lay out a grid over a large area without adequate help and proper instrumentation will recognize the difficulty that confronted the Judge. Fortunately, from my viewpoint, the Judge's recording had not reached the point where such errors were unsettling or beyond correction.

Aside from more accurately locating the stakes, the only change made in the Judge's system was in numbering the squares (Figure 7). Instead of following his practice of assigning numbers as required, I adopted a more flexible system, whereby all squares were identified by reference to the north-south axis numbers and by an indication of the distance, in terms of squares, right or left of this axis. Thus, 3R1 represents the first square to the right of the one in the axis row bearing the designation 3. For further clarification it should be

understood that, whereas the Judge had identified each square by the number of the stake in the southwestern, or lower left-hand, corner (facing north), I adopted the more common practice of naming a square after the stake in the southeastern, or lower right hand, corner (again facing north). This means that I was able to retain only numbers 1 to 6 of the Judge's squares without a change of numbers. Beyond this, my number 7 designating the axis square number 7 was north of his and my number 6. His square number 7 I made my number 6R1. The rest of the changes should be easily understood from inspection of Figure 7.

Aside from allowing greater flexibility in extending the area of exploration, the change in numbering the squares resulted in a shift of the axis line the distance of one square (35') (10.5 m) to the east. By this shift, the intersection of the axis line with the fence and hedgerow was at or near the periphery of the site. In view of the uncleared state of the western half of the site, this was an advantage in charting the areas the Judge had trenched.

Obviously, a 35-foot square (10.5 m square) is too large for anything but a general reference. It became necessary, therefore, to have means of designating the 49 five-foot (1.5 m) squares contained therein. As Figure 8 shows, this was accomplished by assigning letters from A to G to the seven east-west rows beginning at the south and going north, and assigning numbers from 1 to 7 to the seven north-south rows beginning at the east and going west. Thus, the subsquare in the lower right-hand (southeast) corner of the 35-foot square (10.5 m square) is designated A1 and that in the upper left-hand (northwest) corner is G7.

THE CONTOUR MAP.—The next step after re-establishing the grid was to work out the contours of the site, so that the elevation of each stake could be shown on a map. For this purpose, a datum point was selected on the Potomac Creek shore nearest the axis line and at the point of high tide on 16 June 1938 at 10:00 A.M. Using a Brunton compass, the elevation of the first stake was determined, and in turn each of the others. As the resulting topographic map (Figure 9) shows, the highest elevation, 29 feet (8.7 m), represents a slight ridge running diagonally northeast to southwest across the site. On either side of this ridge the area of occupation descends gradually, and probably by not more than four feet (1.2 m), except to the southeast. This means that the creek bank south of the site is around 25 feet (7.5 m) above sea level.

RECORDING JUDGE GRAHAM'S EXCAVATIONS.—With the grid system re-created and the topographic map made, I next located on the latter map all evidence of previous excavations. Obviously, surface disturbance is a crude measure of the extent of previous subsurface exposure. Nevertheless, short of re-excavation, this approach was deemed the next best thing for future reference and as a check on the Judge's records. Also, it was desirable to see where those signs of excavation appear in relation to the re-established squares, as well as to the Judge's charts (Figures 10-12). The agreement is fairly good, but, at the same time, the comparison shows that the Judge did not use

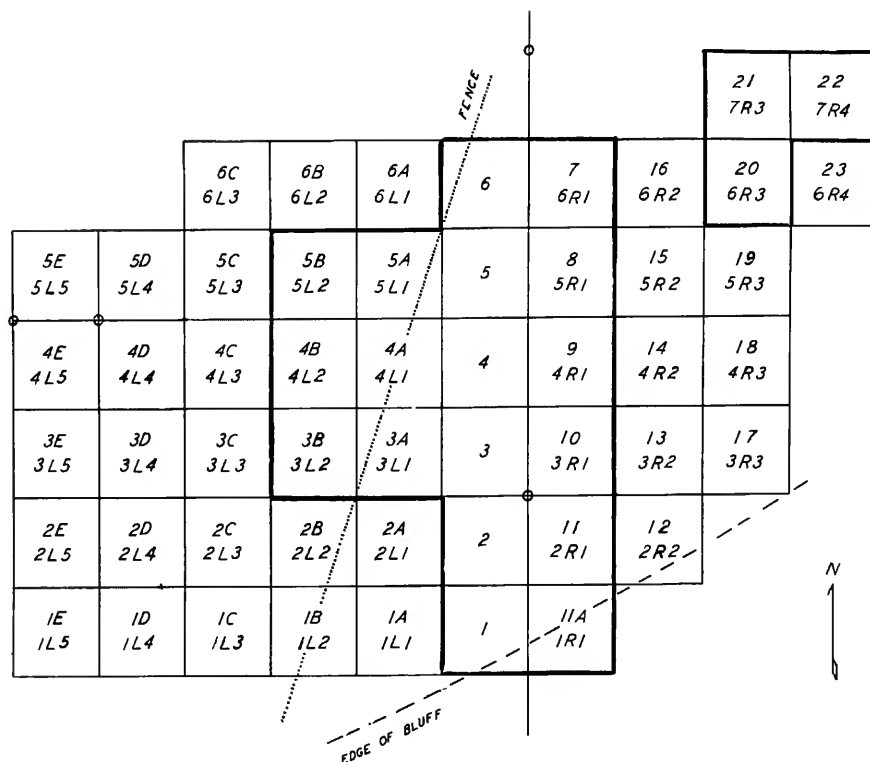


FIGURE 7.—Judge Graham's 35-foot squares extended and re-numbered by author. The Judge's numbers (top ones) apply to the lower left-hand corners of the squares; the superseding numbers of the author (bottom ones) apply to the lower right-hand corners. The corners circled are the only ones found with stakes still in place on 1 June 1938. The heavily outlined areas are those for which the Judge left charts.

great care in charting exposed features. This is not surprising in view of the way the digging by the workmen had been carried out (Figure 4, for example).

In addition to this problem, there was also the one created by the Judge's own excavations. How could they be avoided in further explorations? As will appear, much subsequent trenching by the Museum parties had to be planned to avoid areas previously excavated.

SAMPLING BY FIVE-FOOT SQUARES.—Up to this point in 1938, the survey work at the site had required five visits during June and July by me and one assistant, Robert N. Ladd of Washington. Digging was not begun until 8 September. When we returned to the site on that date, after almost two months absence, we found the place transformed. The hedgerow had been cut down, and the field on the east side of the fence plowed. The plowing had broken off or removed many of the stakes so recently and carefully relocated.

After correcting the damage to the grid system, we began to delimit the area of Indian occupation by exploring the site from the north. With the help of two hired laborers, we elected to excavate the five-foot (1.5 m) square (numbered G1) in the

northeast corner of each 35-foot (10.5 m) section, beginning at a point judged to be well outside the site and working south along each row of stakes until significant soil disturbances were encountered. The results were completely negative in the first (R1) row, between stakes 8R1 and 4R1 (four squares). As we mapped the squares and features noted, we found it helpful to indicate on the field map the directions followed in exploratory trenching. For this reason, in the following discussions, we will use the word "arrow" and a number keyed to Figure 23 to indicate the path of our test squares or trenches.

South of stake 4R1, the land slopes off rapidly to the southeast (to the ravine leading to the spring), and thus did not seem promising. The northeast square in section 6 was also found to be negative. South of this point, the row had been disturbed by the Judge's trenches and hence was not further tested at this time. Moving west of the road and clearing away the brush as we worked, we found the northeastern corner of squares 7L1, 7L2, and 6L2 to be negative (Figure 23, arrows 2-4). These rows were not pursued further at this time. Later, we were to discover that such broad sampling was sometimes straddling occupational features. However, being ignorant of

NORTH						
G7	G6	G5	G4	G3	G2	G1
F7	F6	F5	F4	F3	F2	F1
E7	E6	E5	E4	E3	E2	E1
D7	D6	D5	D4	D3	D2	D1
C7	C8	C5	C4	C3	C2	C1
B7	B6	B5	B4	B3	B2	B1
A7	A6	A5	A4	A3	A2	A1
SOUTH						

WEST

EAST

FIGURE 8.—Sub-square number system employed by author. A 35-foot square is subdivided into 49 five-foot sub-squares, showing the numbering system used.

this, we next moved to square 6L3 (Figure 23, arrow 5) and there encountered a wide ditch. Perhaps because we were intent on finding postholes, this ditch was not thoroughly checked until much later.

The desired postholes (in an east-west row) and a pit were found in square 6L3 (Figure 13, *bottom left*). Because we were then under the impression that this row of postholes was the outermost feature of this part of the site, we followed it, first eastward into square 5L2 (Figure 23, arrow 6), where it was interrupted by Ossuary 2, and then westward in a circular line through squares 5L4, 5L5, 4L5, 3L5, and 2L5 (Figure 23, arrow 7). At the latter point a maze of postholes was encountered. After much sampling, it was possible to discern in squares 1L4–1L3 (Figure 23, arrow 8) a curving line of postholes that seemed to continue the circle we were pursuing.

In the course of further sampling (Figure 23, arrows 9 and 10) we noted other curving lines of postholes in the southwestern section of the site (particularly in squares 1L6 and 0L4) outside, but concentric with, the circle first exposed. The postholes in the outer circle(s) had a fresher look, the contained earth being softer and blacker.

On the basis of this discovery, we returned to the northern section of the site and sampled outside the first circle (Figure 23, arrow 11). Again, we picked up (in square 7L2) an outer circle with fresh-looking postholes. However, because of the approaching end of the field season, we were not able to pursue this circle very far in either direction. We did determine,

happily, that both circles were continuing east of the fence and road. Yet by this time, the eastern field had been planted in barley, and no further explorations could be carried out there. Finally, we defined the limits of Ossuary 3 (Figure 23, arrow 12). The appearance of the site on 8 November 1938, as seen from the foot of the hedgerow (now cleared) is shown in Figure 13, *top*.

These details should make it clear that by sampling an area no larger than five feet square (25 square feet) (1.5 m square, 2.25 m²) at a time, I was able to get an idea as to the layout of the whole site in a relatively short time and with minimum effort by the laborers. As a result, by the end of the 1938 season, I could see that the outermost circle of postholes on the west side, when projected eastward, could account for the location of many of the features discovered by Manson and the Judge. I deduced on this basis that the diameter of the outer palisade was about 280 feet (84 m). This would make the enclosed area about 61,575 square feet, or roughly an acre and a half (5541 m², 0.6 ha).

On the other hand, the diameter of the inner palisade, the postholes of which were less well defined than those of the outer, was only about 175 feet (52.5 m), enclosing an area of about 24,328 square feet (2189 m²), or just over one-half an acre (0.2 ha). The contrast in the two diameters and the appearance of their postholes (the outer ones looked fresher or more recent than the inner ones), gave me reason to think that the town had existed and had expanded over a lengthy, but uncertain, time span.

THE 1939 FIELD SEASON

To develop plans and make arrangements for the second field season, I visited the Potomac Creek site on 15 May 1939, accompanied by Mr. Ladd. By this time the landscape had undergone further change (Figure 14, *top*). Now the field on the west side of the site had been plowed and planted with grass. Also, a heavy wire fence had been constructed parallel with, but across the road from, the former fence-hedgerow. All this meant, of course, that more of our stakes had been removed. However, I learned that after 1 June when the barley in the eastern field was to be harvested, no further farming operations were anticipated until Fall. On the basis of this information, I decided to set up camp at the site on 15 June and to work intensively as long as funds permitted. The camp was established as we had planned and the field party included Robert Ladd, James E. Gillis, Jr., and myself. Again, two local laborers were employed to move topsoil.

The first operation was to re-establish the layout of squares that had been disrupted by the plowing. The process was simplified by the discovery in some cases that the plow had cut off the stakes below the surface. By establishing the approximate location of a stake, a little digging often would locate a broken stake still in place.

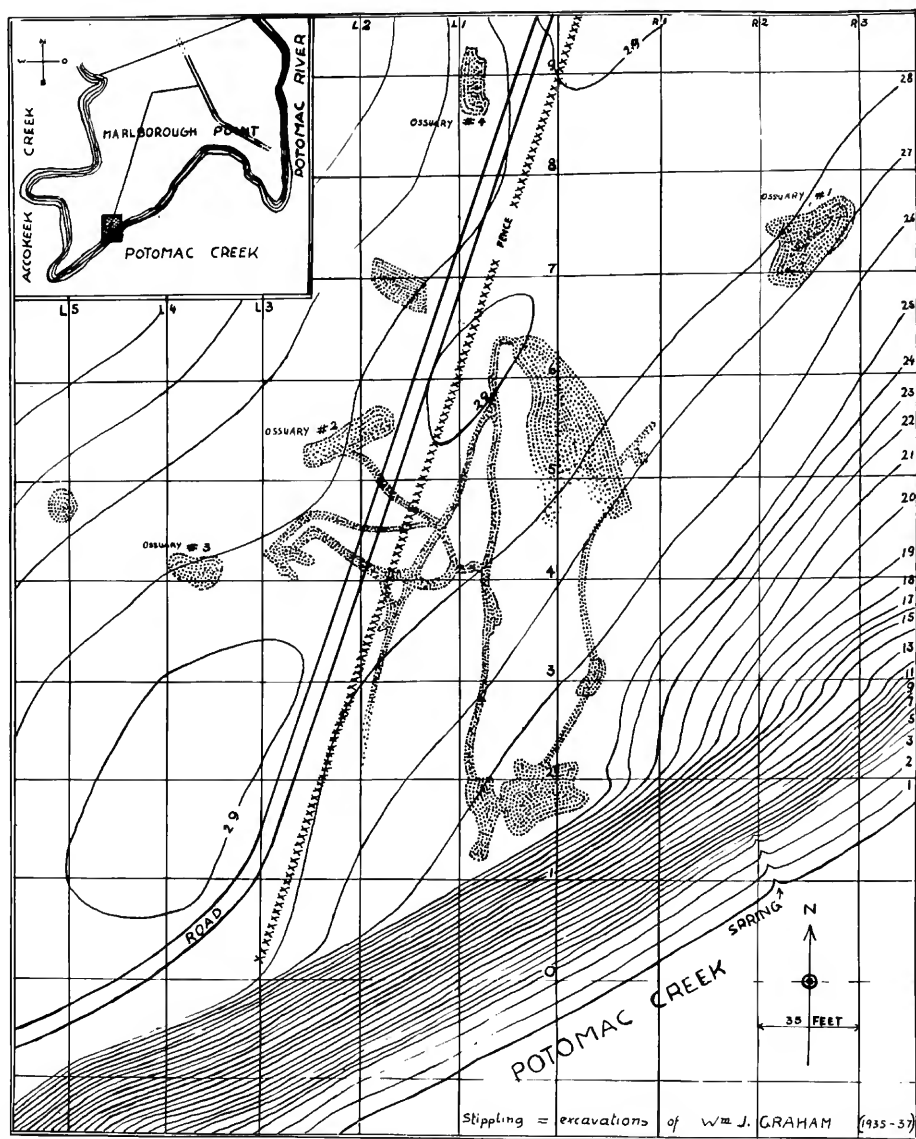


FIGURE 9.—Contour site map, July 1938, combining squares, contours, and areas of exploration by Manson and Judge Graham (stippled). Contour lines not marked represent less than 29 feet. Inset in upper left corner is based on frontispiece; multiple burial site is at Line 5 on the north-south axis.

SAMPLING BY 10-FOOT SQUARES.—As experience had shown that sampling by five-foot (1.4 m) squares was leaving to chance the discovery of many features, I decided to change the procedure this year and dig 10-foot (3 m) wide trenches where they could be extended a considered distance. Also, because the eastern field had not been explored in the 1938 season, I decided to begin trenching there. Accordingly, a trench was begun in the northwestern corner of square 1L1 and carried eastward for the length of this square (Figure 23, arrow 13). Beyond this point was an area excavated by Judge Graham.

Next, we started a like trench at the southwestern corner of square 2 and carried it northward along the L1 line through four squares (Figure 23, arrow 14, and Figure 14, *left*). From this trench, like trenches were carried eastward and northward (Figure 23, arrows 15–18), avoiding as far as possible the earlier disturbed areas. The latter trenches in turn were joined by a trench of the same width along the western side of the R1 line (Figure 23, arrow 19). Besides revealing the expected circular trends in the lines of postholes and “ditches,” these excavations clearly delimited the eastern extent of the site.

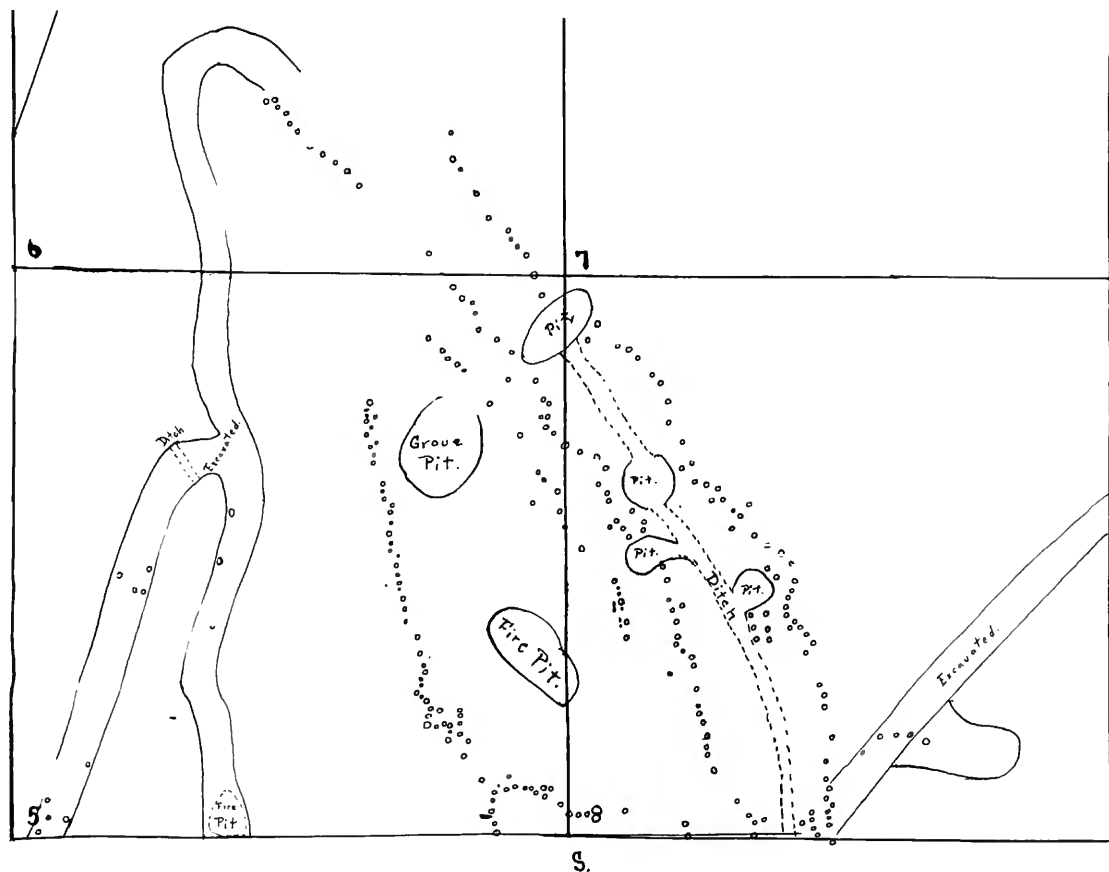


FIGURE 10.—Judge Graham's chart of his trenches and findings in squares 5–8. The grave pit in square 5 is where work began in 1935. This chart fits the top of the one in Figure 11.

Next, further trenching of square 1L1 was undertaken to examine the deep deposit at the edge of the bluff overlooking Potomac Creek (Figure 23, arrow 22). To our surprise, the postholes and ditches extended to the edge of the bluff, under nearly four feet of soil. The rich, but uniform, cultural content of this deep topsoil suggested that the latter had accumulated subsequent to the beginning of cultivation there, probably in the mid-seventeenth century. (For another analysis of this deposit, see Manson and MacCord, 1985).

The large exposure of subsoil resulting from the use of 10-foot (3 m) wide trenches permitted and encouraged more thorough investigation of features than had been possible previously. In this way, we discovered that the bottoms of some of the narrow ditches contained rows of shallow postholes. From this, we concluded that these narrow ditches had been dug to facilitate the setting of posts for structures. At certain times of the year, this would have been easier to do than driving posts from the ground surface or digging individual postholes.

At this stage of the excavations, it seemed desirable to move

to the west of the new fence and to carry a 10-foot (3 m) trench northward across the center of the site. Thus on 1 July, I located a starting point for a trench that eventually extended to square 9L3, a distance of 245 feet (73.5 m). The last 35 feet (10.5 m) were completely devoid of features. Up to that point signs of human occupancy varied in intensity, with some squares made up of pale tan soils, as opposed to the midden-laden black soils usually found (Figure 14, bottom right). However, the trench yielded two surprising features: a moat-like ditch in the 7L3 square, and a new ossuary, number 5, at the junction of squares 2L2, 2L3, 3L2, and 3L3.

The moat-like ditch was found to run close to and parallel with at least one of the outer rows of postholes encircling the site (Figure 15, top). The black soil in the ditch was full of potsherds, animal bones, and other debris. After this feature was plotted, we realized that it probably had a circular course and that we had encountered it at several points further east, especially in work done by the Judge. Because of its relation to a row of palisade posts, I have likened it to a moat. This ditch

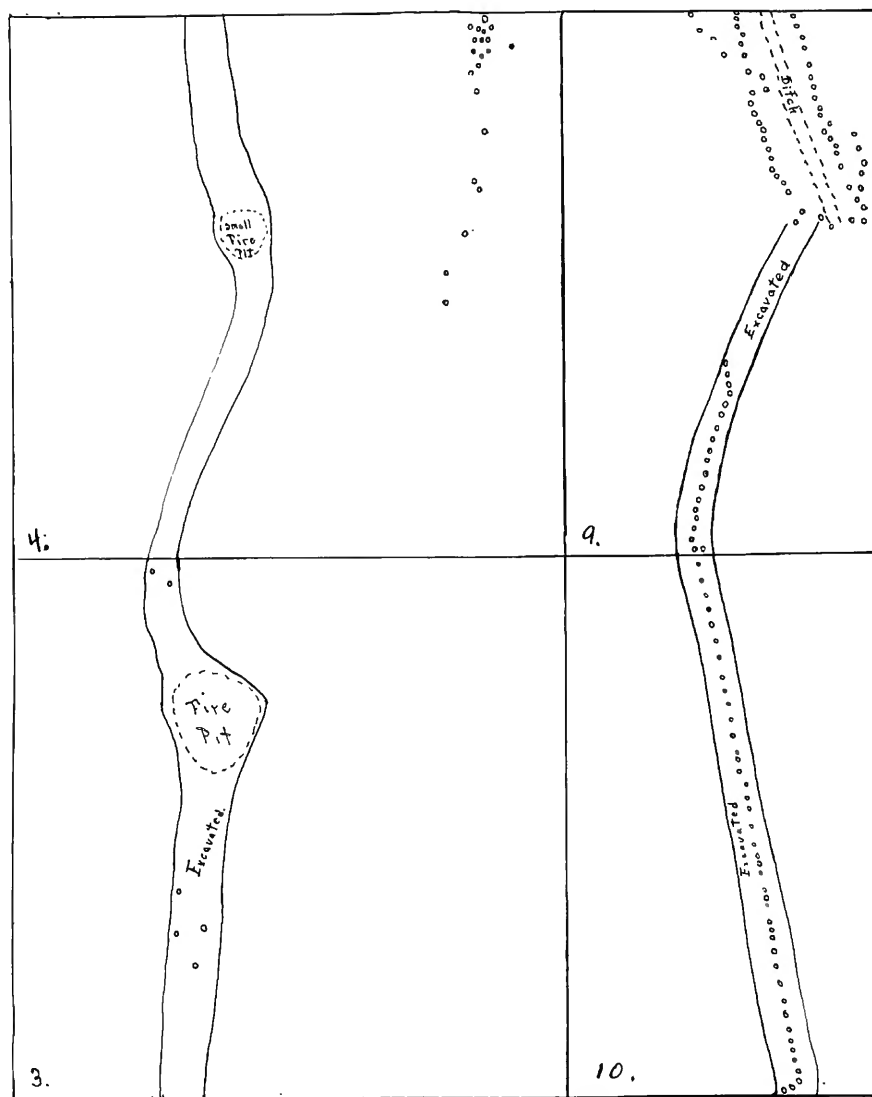


FIGURE 11.—Judge Graham's chart of his trenches and findings in his squares 3-4 and 9-10. This chart fits the top of the one in Figure 12.

may have been a source of earth banked along a palisade to help support the posts. Then, perhaps during the last years of the site's occupancy, the ditch served as a convenient repository for trash. In any event, this ditch, with its distinctive greasyblack earth fill, extending sometimes well over a foot into the subsoil, proved to be one of the most productive features of the site for cultural objects.

To continue with the excavations, the next step was to run trenches westward at three points from the north-south trench along the L3 line. These were (1) just south of line 8 as far as L4 (Figure 23, arrow 26), (2) just south of line 7 as far as L6

(Figure 23, arrow 28), and (3) just south of line 5 to slightly beyond L7. These three trenches defined the northwestern periphery of the site, gave a fuller picture of the plan already revealed by the initial sampling, and verified the predicted course of the moat-like ditch and its accompanying line of postholes.

In running the last-mentioned trench through square 4L6, a puzzling feature was encountered. The moat-like ditch appeared at the expected place (just southeast of stake 5L7 in square 4L6) but the refuse therein was found to extend to an unusual depth—four feet (1.2 m). Included in the refuse was an

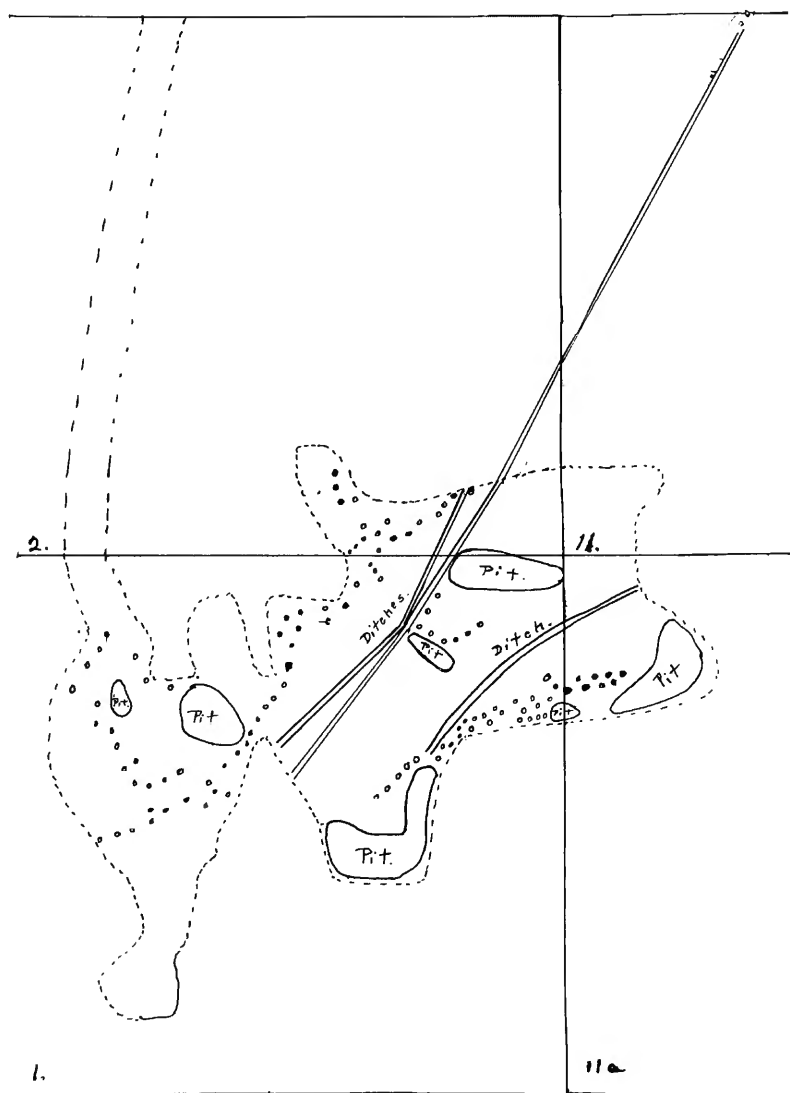


FIGURE 12.—Judge Graham's chart of his trenches and findings in squares 1, 2, 11, and 11a. The excavations in square 1 reflect his interest in the deep deposit near the edge of the bluff.

unusual amount of pottery sherds larger than usual. Because on the day it was found an early morning rain had made the soil sticky, the excavator, James Gillis, did not realize at first that the pottery type differed from that usually found in the ditch. When I inspected the work, I noticed that the pottery was not the usual cord-marked, grit-tempered ware but was an incised, shell-tempered type. We immediately checked the possible stratification of the location (Figure 15, *bottom*). Apparently there had been an earlier, deep pit at this point containing the shell-tempered ware. Subsequently, the moat-like ditch was dug into the upper level of the deep pit. The deeper pit

obviously predated the village construction, and this constituted the only clearcut instance of stratification found in the work done at the site.

BEGINNING EXPLORATION OF THE FIFTH OSSUARY

Exposure of the bones in the fifth ossuary (Figures 23, 24) began on 12 July 1939, in the last week of the second field season. Between that date and 23–24 July, when we broke camp, there were two weekends and two rainy days. Thus only about 5½ days could be devoted to this part of the project. In



FIGURE 13.—Three views of 1938 excavations, showing 5-foot squares and lines of postmolds in trenches: *Top*, view to northeast from creek-end of former fence row on 8 November 1938. *Bottom left*, postholes and shallow pit near stake 6L3 exposed in five-foot-wide trench early in 1938 season. *Bottom right*, postholes exposed near stake 3L6 later in same season.

the first place, the surface extent of the ossuary pit was determined and a fence built around it to keep out the cattle then grazing in the western field. Rather than remove the bones from the exposed side of a vertical cut, as Judge Graham usually did (Figure 6), I decided to work down from above and

expose the upper surfaces of the skeletons before removing them. Although this was time-consuming and required constant protection of the exposed bones, it permitted fuller observation of the skeletal arrangements.

The long axis of the ossuary being east-west, the initial

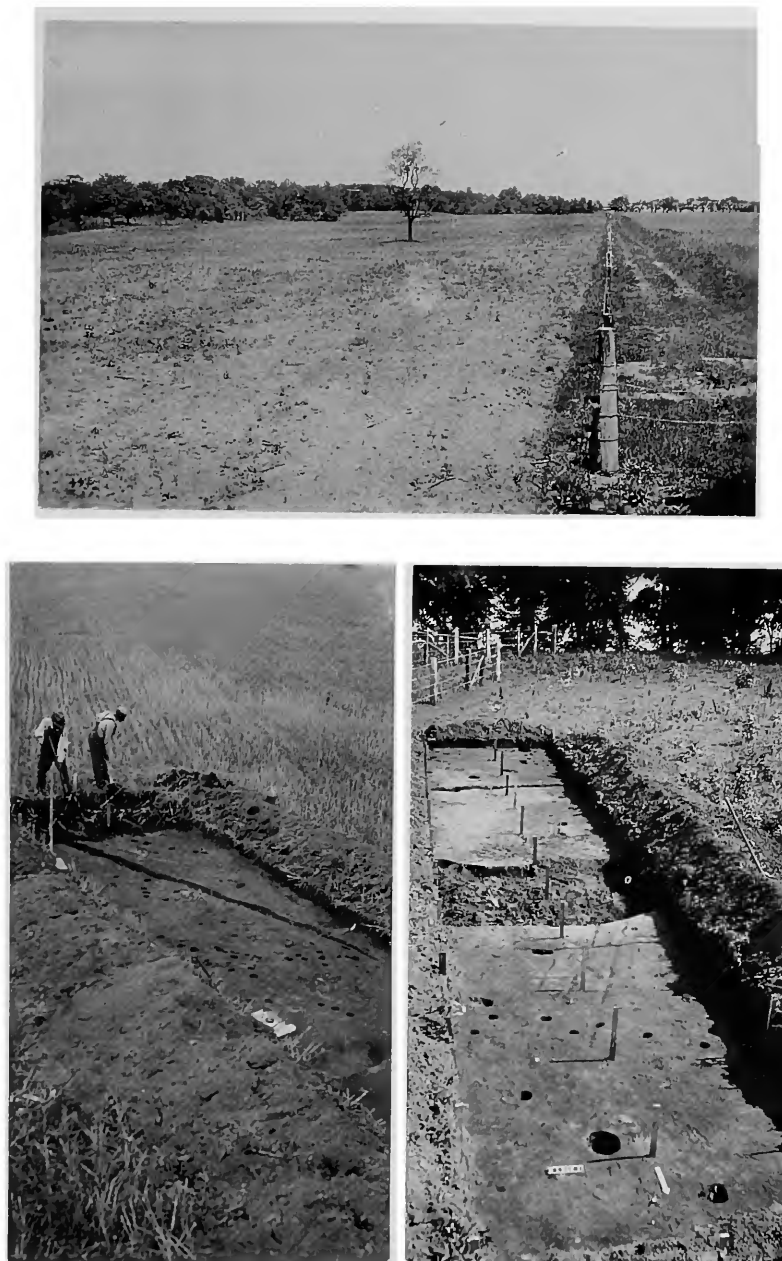


FIGURE 14.—Three views of 1939 excavations, showing 10-foot wide trenches: *Top*, view to north on 15 May 1939 from creek-end of a new wire fence opposite former fence row. *Bottom left*, a 10-foot-wide trench being continued northward along ling L1 in June 1939. *Bottom right*, south portion of trench along L3 line in July 1939. Deeper excavation marks location of Ossuary 5; arrow points to site north.

exposure was begun at the eastern end and carried westward five feet (1.5 m) over the full width of the pit. When thus exposed, some bones were seen to be arranged in bundles, whereas others were articulated. Both bundled and articulated

skeletons had been laid in without apparent regard for direction, seemingly according to the dictates of space. In at least two cases, articulated skeletons were seen to have their lower legs bent unnaturally forward at the knee joints so that the feet were



FIGURE 15.—*Top*, north end of the 10-foot-wide trench along line L3 late in the 1939 season. Curving lines of postholes are beyond the outermost palisade and accompanying moat-like ditch. *Bottom*, deep pit underlying moat in northeast corner of square 4L6 and found to contain Rappahannock Fabric-impressed pottery (Townsend series). Arrows point to site north.

against the pelvis and lower abdomen. For a possibly similar find by Judge Graham, see Diary, page 22.

Shell beads of various types were the most common cultural objects found with the bones. In one case, a large number of different kinds of beads were found inside a skull forming part of a bundle. This is evidence of secondary burial, as Judge Graham had noted earlier (Diary, page 20). Other evidence of secondary burial was in the form of burned bones, a pile of which was found against the southeastern wall. Again, Judge Graham had noted this feature before (Diary, page 22). Upon removing the bones from this part of the pit, the total depth of

the pit below the base of the topsoil was about three feet (0.9 m).

Having exposed the bones from above, I soon discovered the need to number each skeleton as it was identified. The simplest method seemed to be to assign a number to each adult skull as exposed. This system needed modification only for fetal or infant skeletons, which almost always were placed on top of adult remains. As a result, the small bones tended in time to sift down through and mix with the larger adult bones. The numbering in such cases was to assign the infant bones the number of the nearest intact skull, usually adult, and to add an appropriate letter (a,b,c,...), depending on how many immature individuals were represented.

The advantage of exposing bones from above rather than from the side was demonstrated by one of the first skeletons to be fully uncovered (Figure 16, *bottom*, Burial 3). The skeleton was one of those found articulated with the legs folded forward at the knees. Numbers 1 and 4 showed the same burial position, although less clearly.

A clearer example of this leg arrangement was found at the end of the season along the wall of the pit in the northwestern exposure. Figure 16 (*top*) shows the lower half of this skeleton. (See also Stewart, 1940, fig. 88). As pointed out on page 22, the Judge had found an example of this burial type in Ossuary 2.

Artifacts found with the skeletons are equally noteworthy. In removing the earth filling the skull of Burial 5, an adult female, four cylindrical beads, the largest 70 mm long, were found. Mention was made on page 9 of similar finds by the Judge in Ossuary 1. Beads of large size within a skull are certain evidence of secondary burial. The beads in the case of Burial 5 could have belonged to no. 5, or to one of the two children associated with her, nos. 5a and 5b. Marginella and small disc beads were found with these two children.

An unusual artifact found was a three-foot (0.9 m) long piece of pine heartwood, extending east-west on top of the bones along the north side of Burial 4 (Figure 16). It seems reasonable that this piece of wood dates from the placement of bones in the ossuary. It had probably been used to carry one or more bundles or bodies to the pit and then had been discarded with the bones. It is also possible that the wood had been part of a structure associated with any ceremony or practice used in the burial activity. Whatever its meaning, such a find is unique for ossuaries along the lower Potomac River, insofar as I know.

Besides articulated and bundled skeletons, the eastern end of the ossuary included disarticulated skeleton number 1, lying directly on a pile of burned bones (Figure 16). Judging from the absence of other signs of fire, the bones, had to have been brought from a cremation site located elsewhere. Several individuals, mostly adults, were represented. As noted above, burned human bones had been found in three of the four earlier ossuaries, as well as with the single burial found.

When the 1939 field season ended on 24 July, only 10 skeletons had been completely removed. At that time, the

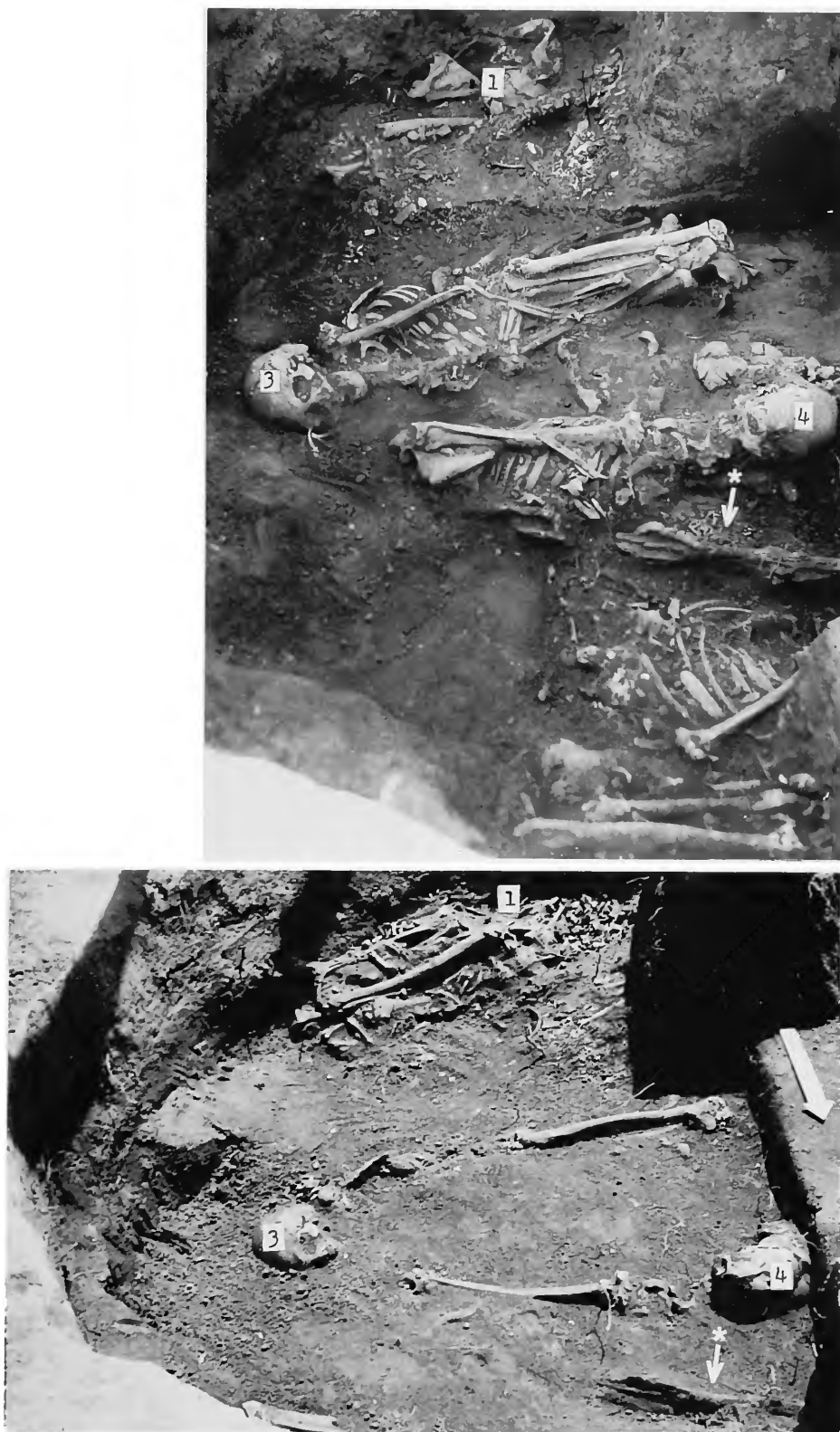


FIGURE 16.—Two sequential stages (*bottom to top*) in the exposure of bones in the eastern end of Ossuary 5. Beginning removal of bundled skeleton no. 1 (*bottom*) has revealed an underlying pile of burned bones. No. 4 is another bundle. Skeleton no. 3 has the lower legs flexed abnormally forward. The star and arrow in each view locates a pine log; large arrow points to site north.

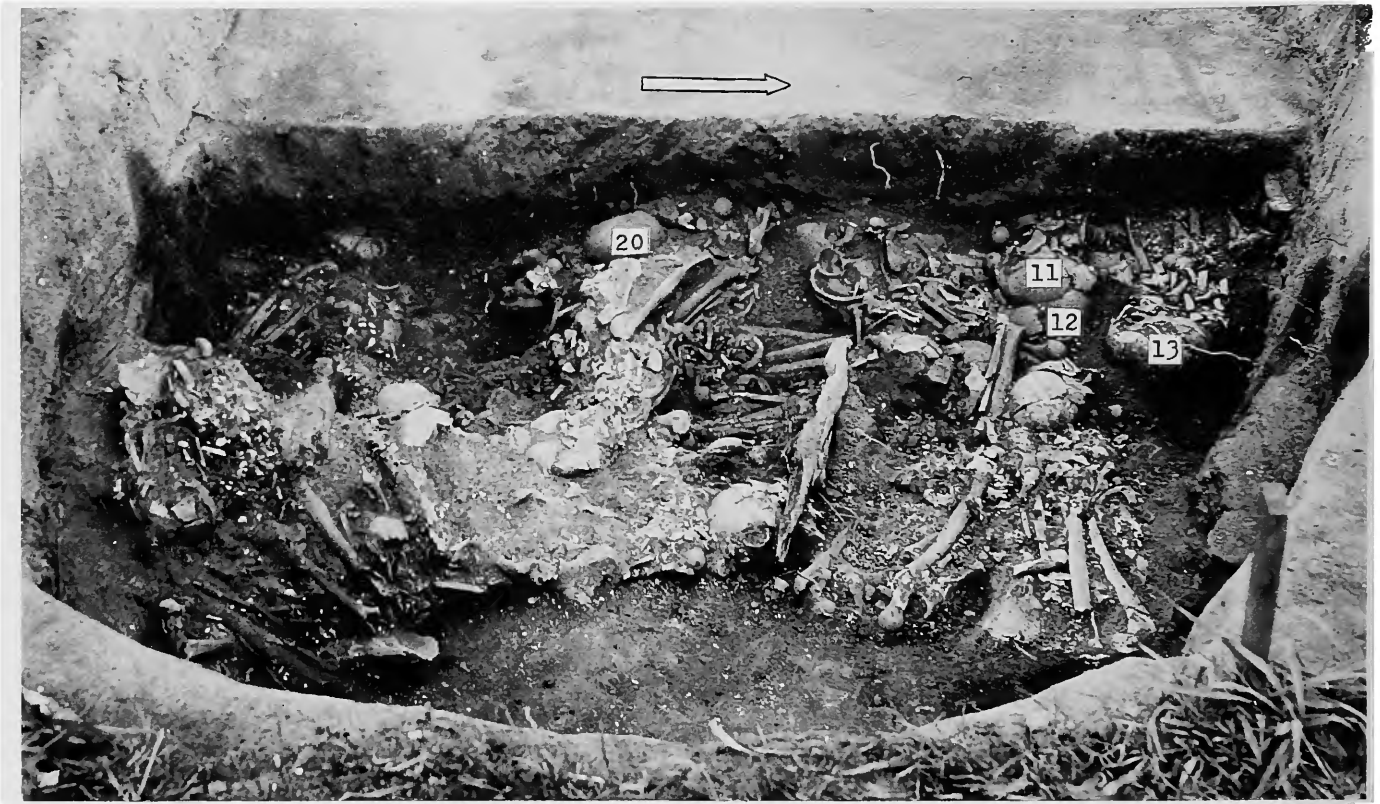


FIGURE 17.—Bone exposure in Ossuary 5 after removal of the first skeletons encountered in 1939 in east end. Knee bones in upper right corner provide a means of gauging further progress. Unfortunately, not all of the skulls here yet bear numbers. Arrow points to site north.

exposed layers of bones were covered with earth, and the excavation was levelled.

THE 1940 FIELD SEASON

The incompletely explored Ossuary 5 provided the main reason for our spending a third season at the Patawomeke site. With this in mind and for the purpose of planning the work, I visited the site on 10 May, accompanied by Karl Schmitt. Again the land had changed. Now the western field (the locus of Ossuary 5) was planted in corn (Figure 18, *top*). Thus we could not re-open the ossuary until the corn was cut around the end of August. For this reason, I decided to use the extra time to learn more about the shell-tempered pottery found in the deep pit in square 4L6. Having noted in Bushnell (1937) the occurrence of similar pottery at sites along the Rappahannock River, I decided to spend the last two weeks of August visiting some of his sites.

On 20 August, the camp was again established at Patawomeke. Our crew consisted of Karl Schmitt, Chandler Rowe, and the writer. One laborer was engaged to join us when we could

begin work in the corn field.

Using the camp as a base, we made daily trips to promising sites along the Rappahannock. Suffice it to say, we found further evidence of the pottery we sought. Bushnell's site of Nantaughtacund (sites Ex 3, 4, and 5) on the east side of Tobago Bay, yielded the most plentiful sample of this pottery type, (Bushnell, 1937, pl. 13). Other sites produced smaller amounts of the incised, shell-tempered wares, and a few produced pottery identical with that in the majority at Patawomeke.

On 26 August, the farmer began to cut corn in the field where we wished to work. As in previous seasons, an occasional stake, although broken, often had the distal piece still in place. After replacing broken stakes, we were able to re-establish the grid and then re-open Ossuary 5. When we had cleared away our backfill and exposed the bones, we found everything as previously charted (Figure 18, *bottom*). Accordingly, from then until 30 September, our main effort was directed toward completing the excavation of this ossuary.

Because at times it was inconvenient for three men to work in the pit, Schmitt and Rowe took turns working elsewhere on



FIGURE 18.—*Top*, view of site from creek-end of wire fence in September 1940. Reopened ossuary is shaded by tarpaulin. A tripod has been erected for photographing contents. *Bottom*, part of contents of Ossuary 5, just before the close of the 1939 season.

the site trying to clear up remaining problems.

Concurrently with work in the ossuary, we carried on a series of trenching operations. One operation was to see if there was evidence of cultural change in the deep deposit along the bluff edge fronting on Potomac Creek. Our testing in that area (square 1L1) in 1939 had been directed entirely toward locating disturbances below the topsoil. The 1940 work sought evidence within the topsoil. Nine squares were excavated along the L2 line south of squares 1L1 and 1L2 (Figure 23). The soil was removed in six-inch (15 cm) levels. The findings verified the 1939 impression that the cultural objects were uniform in type and distribution. (However, see Manson and MacCord, 1985, for new data on this).

Next, trenches were laid out and dug through unexplored areas in the western and southwestern part of the site. These, along with those dug earlier, would provide long, continuous exposures. The first trench dug was five feet (1.5 m) wide, just south of the 4 line, between L6 and L8 (Figure 23). The last 17–18 feet (5.1–5.4 m) of the trench were completely negative. As this trench exposed a part of the moat-like ditch, this was explored a short distance north and south.

A second trench, discontinuous this time, was carried parallel with, but south of, the 3 line from L5 nearly to L8. Where the western part of the trench intersected the moat-like ditch, exploration of this feature was extended about 35 feet (10.5 m) to the south. Here we found that the moat-like ditch was interrupted for a distance of nearly 15 feet (4.5 m). Also, the neighboring palisades seemed to stop abruptly. All of this suggested the existence here of a defensible opening formed by an overlap of two ends of the palisade. An opening here would have provided access in the direction of Indian Point. A final trench, five feet (1.5 m) wide, was extended southward on the western side of the L6 line from 2 to 0. This simply confirmed the indications found in earlier testing. Rather than develop another exploratory trench during the remaining few days of the season, Schmitt decided to verify the position of Ossuary 4. By opening a few squares where this feature had been charted, just east of stake 9L1, he was able to work out approximately the area of earlier disturbance. No bones were encountered.

BACK TO EXPLORING THE FIFTH OSSUARY

It was a simple matter to resume the exposure of bones from where we had left off in 1939. However, we noted some damage to bones as a result of our having filled the pit and then cleared it. This damage shows in Figure 19, *bottom*, when it is compared with Figure 18, *bottom*. Also, it seems pertinent to explain in some detail the actual removal of bones in an ossuary.

The removal of any particular skeletal unit in an ossuary is apt to be difficult, as anyone who has worked in one can attest. This is not due so much to the state of preservation of the bones, which at Patawomeke was good, but to their arrangement, one atop or across another. After starting to remove a bone, a worker finds the next bones to be removed are often pinned down in one way or another by bones protruding from an adjacent, undug unit. Occasionally, efforts to free a bone can cause one to lose sight of the artificially set unit boundaries. Also, eventually one comes to the point where some bones of a unit are pinned down by undug overburden. Such things limit the possibility of successfully separating individual skeletons.

Disentanglement of the bones is easier when they are approached from above, as we were doing. However, there is the matter of hardened, dried earth to deal with, especially if the soil is clayish and the weather is hot and dry. The bones seem to become locked in place. To reduce this effect somewhat, the

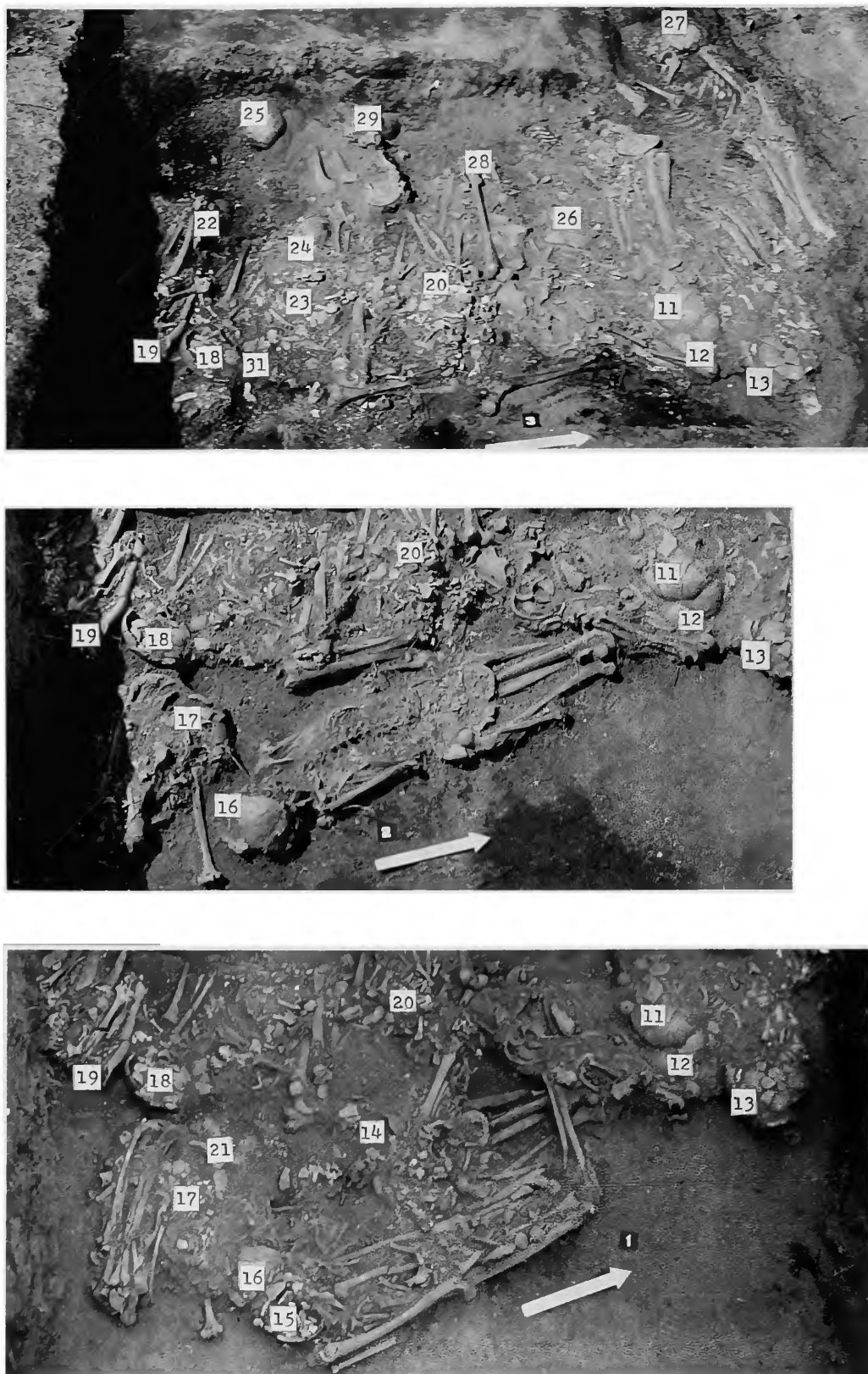


FIGURE 19.—Three sequential views (*bottom to top*) of the bones in Ossuary 5 after the re-exposure of many of them in the 1940 season. Here numbers 16 and 27 repeat the unnatural position of the lower leg bones seen in 1939 in skeleton no. 3. Arrows point to site north.

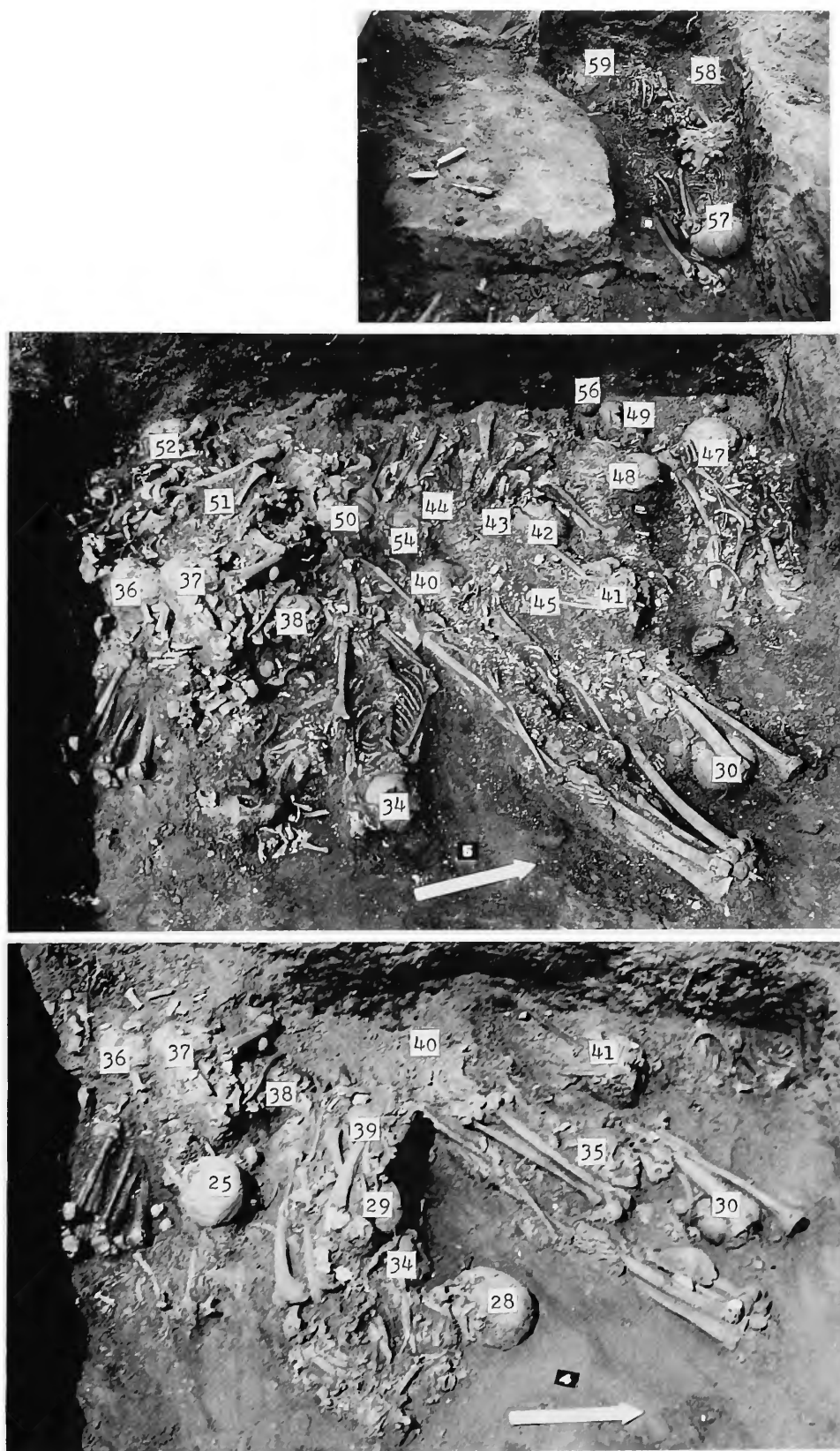


FIGURE 20.—Continuation of sequential views (*bottom to top*) of bones exposed in 1940 in Ossuary 5. It is beginning to appear (*center*) that also numbers 34 and 40 have their lower legs unnaturally flexed. Arrows point to site north.

workers rigged a tarpaulin over the work area (Figure 18, *top*). Although this helped to some extent, it also proved to hinder our shovelling and interfered with photographic efforts.

As each new area of bones was exposed, a sketch of the layout was made to show the direction of the long bones, any natural articulations, any aggregations into bundles, and the position of all skulls. In addition vertical photographs of the exposed bones were taken from an elevated tripod to provide additional documentation (Figure 18, *top*). Correlating a sketch with a vertical photograph was an innovation for us in the 1940 season.

After the recording was done, the exposed bones were removed. Then the most accessible and obvious skeletal unit, often a bundle, was next addressed. As the removal progressed, notes were made about bone arrangements (including the direction the skull faced) and other details, such as the presence of associated artifacts.

One of the first photographs taken (Figure 19, *center*) shows that when articulated burial 15 was removed, burial 16 was revealed as another articulated skeleton with unnaturally folded leg bones. Also, Burial 15, when examined, showed a surprising find—inside the skull was a large nest of the mud dauber, *Sceliphron caementarium* (Drury), with cells still containing larval remains (Stewart, 1941, fig. 68). Because mud daubers do not build nests underground, this find proves that after death the remains of the individual, an adult female, were allowed to decompose above ground during at least one warm season, as a primary treatment before burial. With the completion of skeletonization, the mud dauber found the skull an attractive nesting place. The nest remained in place when the skeleton was brought to and deposited in the ossuary. This is the first such occurrence I know of such a find.

Figure 19, *top*, taken on 2 September, shows that the bones exposed at the end of the 1939 season had been largely removed. To connect the two periods of work, Figure 18, *bottom*, shows an articulated skeleton with unnaturally folded legs. This had been fully exposed by 2 September, and the skeleton was given the number 27. At this point, too, about one-half of the ossuary had been exposed.

Five days later, 7 September, the work had reached the stage shown in Figure 20, *bottom*. Comparing the numbers on exposed skulls in Figures 19, *top*, and 20, *bottom*, indicates that all but three (nos. 25, 28, and 29) had been removed. My notes state that removing the bones was difficult, because the limits of individual skeletons were poorly defined, numerous child or infant remains were intermixed with adult remains, and additional adult skeletons were found articulated and with the unnatural leg bone arrangements. Also, three more mud dauber nest were encountered, one each in skulls nos. 19 and 29 and the third among the long bones on no. 19. This shows that the first such find (with no. 15) was not a fluke.

More important by now was the first find of copper in Ossuary 5. The metal showed up in association with cylindrical shell beads among the remains of two children (nos. 26a and

26b) in the form of two badly corroded knife-blade-shaped pieces about an inch long and a half-inch wide. A hole in the end of one suggested that they had been pendants.

Between 7 and 15 September, when the picture in Figure 20, middle was taken, three rainy days and a weekend prevented much work. During the period, many visitors, especially from the Fredericksburg area, dropped in to see the work. Also, on 15 September, we hosted a visit by the Virginia Indian Relic Collectors Club, which in early 1941 was reorganized as the Archeological Society of Virginia.

Nevertheless, as Figure 20 shows, the area of exposure of bones had greatly increased. One burial shown (no. 40) is articulated, and certainly shows the unnaturally placed leg bones. Also in Figure 20, *top*, taken probably on September 24, the southwestward curvature of the pit wall shows that we were nearing the west end of the ossuary. This photograph shows that most skeletons seen in Figure 20, *center*, had been removed. One of these, no. 38, was found to have a mud daubers' nest in the antrum of the maxillary bone. Ultimately, burials numbered 57 and 59, shown in Figure 20, *top*, were also found to have mud dauber nests among their long bones. This brought to six the number of mud dauber nests found in this ossuary.

The last bones in the ossuary were exposed by 27 September (Figure 21, *bottom*). This view is notable for showing the second pile of burned bones found in this ossuary. The position of the pile against the southwestern wall of the pit (to the left of skulls no. 71 and no. 72 in Figure 21, *bottom*) thus matches that of the first pile against the southeastern wall, shown in Figure 16. Among the bones between these two piles, only two small lots of burned bones were discovered, each representing a child, numbers 40b and 58c.

Interestingly, the last skeleton removed from Ossuary 5 (no. 77) was articulated, with its lower legs unnaturally arranged (Figure 21, *top*). Altogether, eight skeletons certainly were arranged in this manner. This is the maximum number of such cases thus far observed in any ossuary along the Potomac River. In nine other cases of articulation of the upper half of the body, the position of the lower legs was uncertain. Figure 22 shows the random distribution of articulated skeletons in Ossuary 5.

Figure 22 provides the further information that as many articulated skeletons were on their backs as were face down. Only two were lying on one side. Also, about as many had the cranial end of the axis to the east, southeast, or northeast as to the west, southwest, or northwest. On the other hand, when bundled and articulated skeletons are considered, the axial directions were: east-west—43.8%, north-south—16.4%, and diagonal (northeast-southwest or northwest-southeast)—39.7%. The north-south arrangement occurred mostly at the ends of the ossuary. Thus, compass direction seems not to have been an overriding consideration in placing remains in the pit.

The distribution of children's remains in Figure 22 also appears to be random. However, the randomness in this

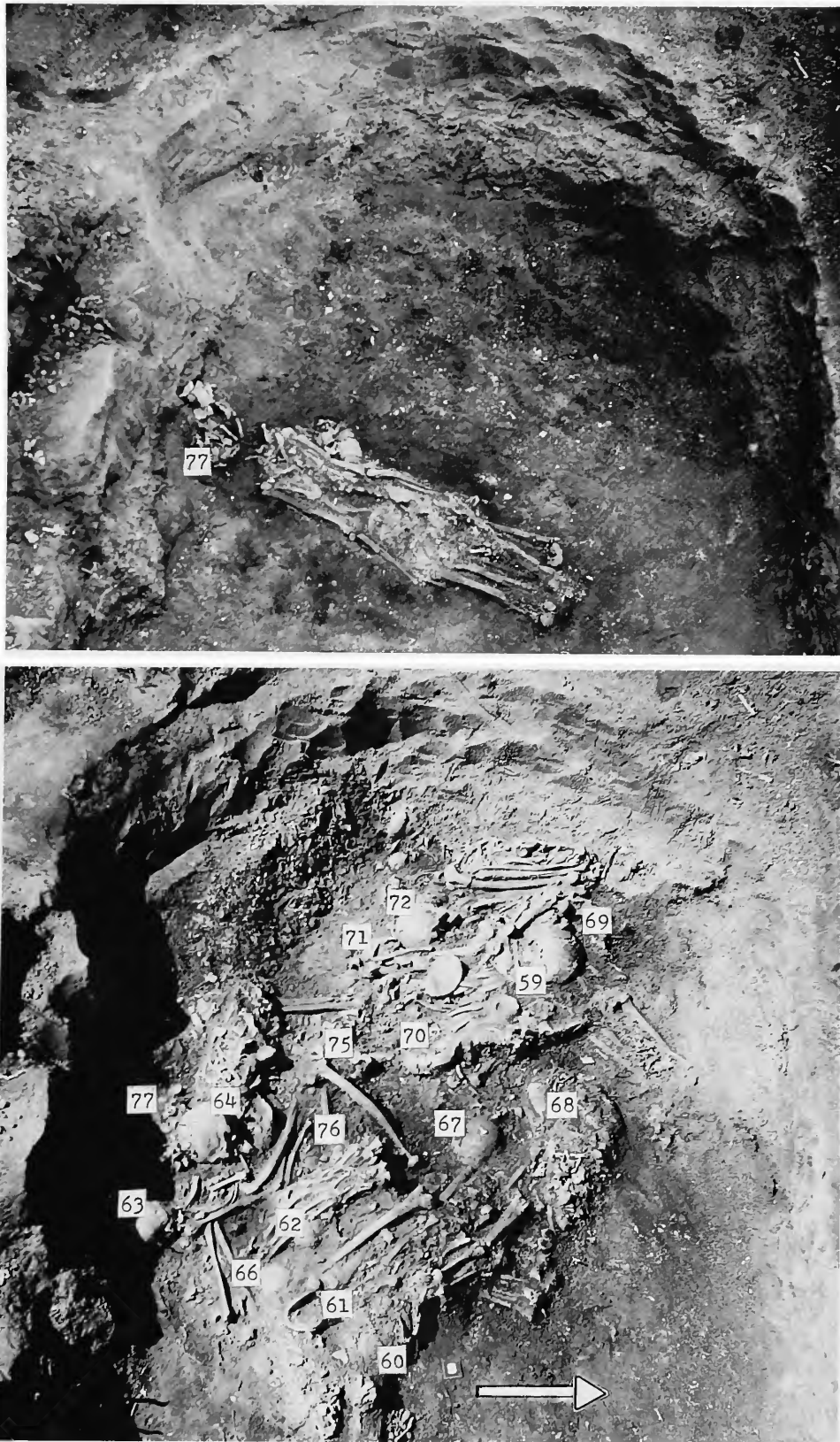


FIGURE 21.—Two sequential views (*bottom to top*) of last bones exposed in west end of Ossuary 5 in 1940. No. 77 is still another skeleton with abnormally flexed lower legs. Arrow points to site north.

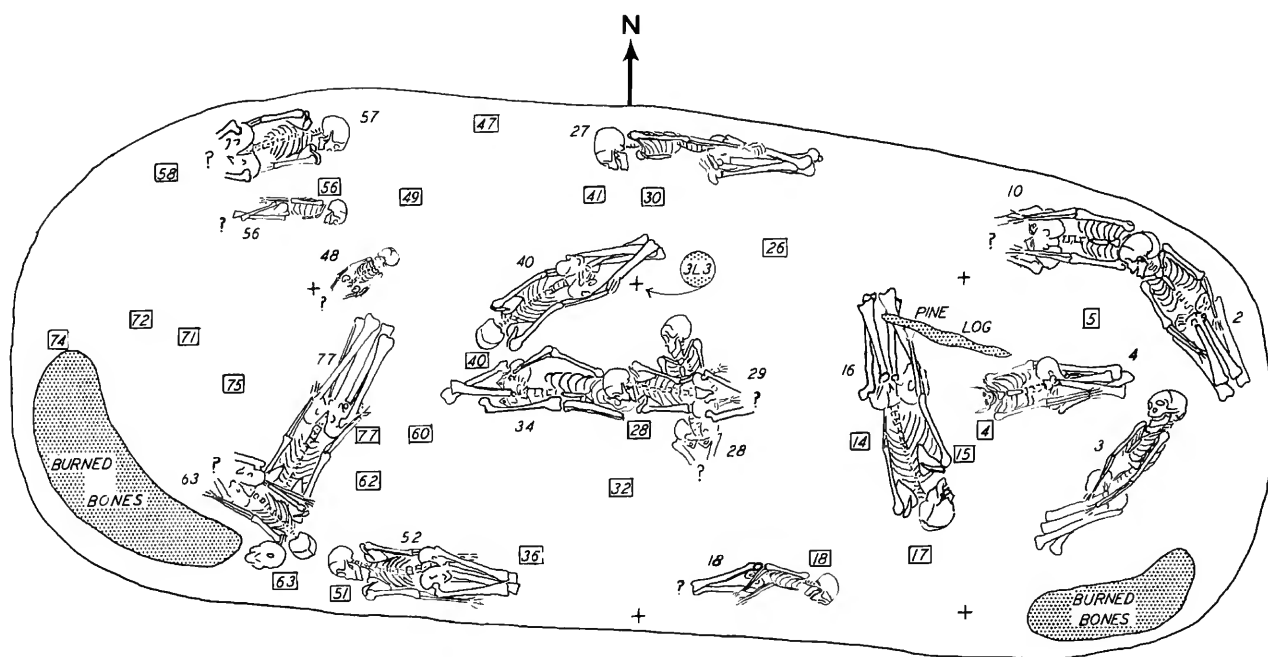


FIGURE 22.—Outline of Ossuary 5 showing the positions of the articulated skeletons so far identified. Bundles of disarticulated bones filled remaining spaces. A number in a box indicates the likely adult with which one or more subadults were associated.

instance is likely exaggerated because the numbers plotted represent the well-preserved skull with which the child remains were found associated. (See Table 1 for details on these and other burial positions and associations.) In one such instance, burial 56, a 4–5-year-old child had six younger children in association. Therefore, although some family relationship may be represented, Table 1 also gives my best appraisal of the individuals occupying Ossuary 5. The total number clearly identified is 135, of which 63 are clearly adult and 72 subadults. I judged 34 of the adults to be males and 27 to be females. In two cases I was uncertain of the sex. Agewise, the subadults show the usual high mortality around the time of birth, with a rapid decline in mortality ages thereafter. For details as to cranial measurements and indices, refer to Part III of this paper. In Part III, details of mortuary customs and occurrences will also be presented, using data from all five ossuaries. With this will be limited comparisons with other ossuaries studied in the Potomac Valley.

Mapping the Excavations

As should be evident now, the work on the Potomac Creek site led year by year from 1935 through 1940 to a growing appreciation of the site's size and its make-up as an Indian town. During the first three years of this period, Judge Graham

assembled quite a bit of evidence about the extent of the eastern and southern parts of the site, as indicated by subsurface features exposed in his random excavations. This led me to produce a couple of formal maps when I took over from the Judge in 1938. Both of these maps have been reproduced and dealt with early in the preceding pages. One is Figure 7, a beginning division of the site into a flexible system of 35-foot (10.5 m) squares or sections. This eased the task of plotting the excavations already done and others still to be undertaken. The second map is Figure 9, showing the topography of the site and the locations of the Judge's trenches.

The next step was to fit into Figure 7 the areas excavated through 1937, and again those in 1938, 1939, and 1940. The latter three efforts were subsequently assembled into a composite map, Figure 23, showing the total areas explored, including those of the Judge. In addition, Figure 23 shows by means of arrows the directions in which the Museum parties progressed during each season of work.

What Figure 23 does not show are the subsurface features exposed by the excavations. These details are reserved for the final site map, Figure 24, drawn up for me after 1940 by E.G. Cassedy, illustrator in the Bureau of American Ethnology. Because so much detail was involved, the finished map was large (approximately three feet (0.9 m) square), with the center of the innermost palisade area being located about where the

TABLE 1.—List of skeletons in fifth ossuary with their individual characteristics.

Field no.	Age	Sex	Condition of skeleton		Orientation of skeleton		Anomalies and pathological changes	Cultural associations ³
			Art. ¹	Bundle	Long axis	Position of head ²		
1	adult	F		+	NE-SW	?		
2	adult	M	+(B)		NW-SE	NW(R?)		lower legs unnaturally flexed
3	adult	M	+(B)		NE-SW	NE(R)		lower legs unnaturally flexed
4	adult	M	+(B)	-	E-W	W(Ba)		lower legs unnaturally flexed
4a	1½ yrs.	?		+	?	?		
4b	newborn	?		+	?	?		
5	adult	F		+	N-S	?	-	large cyl. beads inside skull; cut marks on humerus
5a	newborn	?		+	?	?		marginella and smallest size
5b	newborn	?		+	?	?	-	discoidal beads among bones
6	young adult	F		+	E-W	E		
7	young adult	F?		+	NE-SW	?		on top of pile of burned bones and itself superficially burned
8	adult	M		+?	E-W	?	hypertrophic arthritis of spine; destructive lesion of right acetabulum; polydactyly of right hand	large and small discoidal beads among bones and under skull
9	adult	F	-	+	NE-SW	?		
10	adult	M	+(B)	-	E-W	E		position of legs uncertain
11	adult	M	-	+	E-W	E	osteitis of tibia, fibula, and radius	few medium-size cylindrical beads
12	adult	M		+	N-S	N		smallest-size disc beads in skull
13	young adult	F		+	E-W	E(L)	osteitis of many long bones	
14	adult	F?		+	E-W	E		
14a	9 yrs.	?		+	?	?	advanced osteoporosis of parietal	cylindrical bone beads; medium-size discoidal beads; spherical clay bead; few shells (beads?) of the marine snail, <i>Littorina irrorata</i> Say
14b	fetus	?	?	?	?	?	?	-
15	adult	F	-	+	NW-SE	SE(F)		few small cylindrical beads; mud dauber's nest in skull
15a	newborn	?	-	+	?	?		
16	young adult	M	+(F)		NW-SE	SE(F)	upper median incisors hypoplastic	two cylindrical beads close to skull; lower legs unnaturally flexed
17	adult	M		+	E-W	W		
17a	newborn	?	?	?	?	?		
17b	newborn	?	?	?	?	?		
17c	newborn	?	?	?	?	?		
17d	nr. ½ yrs.	?	?	?	?	?	-	
18	13-14 yrs.	?	+(S)		E-W	E(L)	-	position of legs uncertain
18a	newborn	?	?	?	?	?		few large discoidal beads; convex biconical clay bead
19	adult	F?		+	E-W	E(Ba)	osteitis of many long bones	mud dauber's nest in skull; another under femur
20	adult	M		+	E-W	?		-
21	adult	M		+	?	?		beneath burned bones
22	adult	F		+	NW-SE	NW		
23	adult	F		+	NW-S	?	frontal bone slightly thickened	
24	7-8 yrs.	?		+	?	?	osteoporosis of parietals	smallest-size discoidal beads; small cylindrical beads
25	adult	F	?	?	?	?(Ba)		
26	adult	F		+	N-S	S	scars on frontal in right supra-orbital region; osteitis of long-bones	few medium-size cylindrical beads

TABLE 1.—*Continued.*

Field no.	Age	Sex	Condition of skeleton		Orientation of skeleton		Anomalies and pathological changes	Cultural associations ³
			Art. ¹	Bundle	Long axis	Position of head ²		
26a	newborn	?	?	?	?	?		cylindrical beads of various sizes up to 1 inch (25 mm); two blade-shaped pendants(?) of native of copper
26b	6-8 mos.	?	?	?	?	?		
27	adult	M	+(S)		E-W	W(R)	unusual groove in midline of frontal; osteitis of longbones	lower legs unnaturally flexed
28	adult	M	+(B)		N-S	N(R)		position of legs uncertain; medium-size cylindrical beads; small discoidal beads
28a	newborn	?	+		E-W?	E	-	position of legs uncertain
29	adult	M	+(F)		E-W	W(R)	left elbow arthritic; old osteitis of longbones	few small shell beads of various shapes; mud dauber's nest in skull; position of legs uncertain
30	young adult	M	-	+	NE-SW	NE(Ba)	marked bowing of tibiae	-
30a	late fetus	?	?	?	?	?		
30b	newborn	?	?	?	?	?		
30c	6-8 mos.	?	?	?	?	?		numerous cylindrical shell beads of various shapes up to 3/4 inch
31	adult	F		+	NW-SE	SE		
32	young adult	M		+	NW-SE	?		many small discoidal and a few cylindrical beads of various sizes in skull; cut marks on neck of condylar process of mandible
32a	newborn	?	?	?	?	?	-	few small discoidal beads
32b	newborn	?	?	?	?	?		few small discoidal beads
33	nr. 4 yrs.	?	?	?	?	?		string of beads, consisting of cylindrical elements with discoidals (2) serving as rondells
34	nr. 15 yrs.	?	+(B)		E-W	E(B)		string of beads, consisting of large discoidal elements, with small discoidals (1 or 2) serving as rondells; right lower leg unnaturally flexed (whole left leg extended over trunk)
35	adult	M		+	NE-SW	NE(Ba)		
36	5 yrs.	?		+	NE-SW	SW(L)		
36a	late fetus	?	?	?	?	?		
36b	late fetus	?	?	?	?	?	-	
37	adult	?		+	NW-S	NW(L)	-	many small and medium-size discoidal beads in skull
38	adult	M	?	?	?	?	probably some osteitis	mud dauber's nest in maxillary antrum
39	adult	M	-	+	E-W	W(Ba)	localized osteitis in distal third of right tibia	many small discoidal beads in and around skull; also one or two worked mussel shells
40	adult	M	+(F)		NE-SW	SW(F)	anomalous first ribs (seventh cervical ribs?)	lower legs unnaturally flexed
40a	2 yrs.	?		+	NW-SE	?		many minute discoidal beads among bones; shell gorget on top of skull
40b	newborn	?	?	?	?	?		burned
41	13 yrs.	?	-	+	NE-SW	NE		-
41a	newborn	?	?	?	?	-		
41b	newborn	?	?	?	?	?		

TABLE 1.—Continued.

Field no.	Age	Sex	Condition of skeleton		Orientation of skeleton		Anomalies and pathological changes	Cultural associations ³
			Art. ¹	Bundle	Long axis	Position of head ²		
41c	1-1½ yrs.	?	?	?	?	?	-	
42	adult	F?	-	+	NE-SW	NE	-	
43	young adult	F	-	+	E-W	?	-	
44	10-11 yrs.	?	-	+	E-W	?	-	many small discoidal and a few cylindrical beads
45	adult	?		+	E-W	W(R)		-
46	adult	F		+	E-W	W(L)		numerous discoidal beads
47	14-15 yrs.	M?		+	E-W	W(R)		numerous cylindrical beads of all sizes up to 1½ inches (37.5 mm); one specimen of the marine shell <i>Oliva sayana</i> rav
47a	newborn	?	-?	+?	E-W	?		
48	nr. 16 mos.	?	+(B)		NE-SW	NE		one small specimen of the marine shell <i>Busycon contrarium contrad</i> over lower legs; string of small discoidal shell and copper beads (alternating) at neck arms and legs articulated; cut marks on radii, ulnae and tibia
49	young adult	M		+	E-W	W(Ba)	-	
49a	newborn	?	?	?	?	?		
50	adult	F?	?	?	?	?		portion of the maxillary point (unworked) of a common loon
51	adult	M	-	+	NW-SE	NW(L)		many small discoidal and a few small cylindrical beads in dependent part of skull
51a	newborn	?	?	?	?	?		
51b	newborn	?	?	?	?	?		
51c	3-4 mos.	?	?	?	?	?		-
52	adult	M	+(F)		E-W	W(R)	-	lower Legs unnaturally flexed; few smallest-size discoidal beads
53	adult	F?	-?	+?	?	?		-
54	adult	F		+	E-W	E(R)		spine articulated
55	adult	F?	-?	+?	?	?		
56	4-5 yrs.	?	+		E-W	E(L?)		legs flexed (unnatural ?); many small discoidal and a few small cylindrical beads; a little copper (badly corroded); many marginella originally attached to garment. String of large discoidal beads
56	1½ yrs.	?	?	?	?	?		
56b	3-4 mos.	?	?	?	?	?	-	
56c	3-4 mos.	?	?	?	?	?	-	
56d	newborn	?	?	?	?	?	-	
56e	newborn	?	?	?	?	?	-	
56f	newborn	?	?	?	?	?	-	
57	adult	F	+(F)	-	E-W	E(L)		lower legs appeared to be disarticulated; mud dauber's nest under right tibia
58	adult	M?		+	E-W	W		mud dauber's nest among bones
58a	1½ yrs.	?	?	?	?	?		
58b	2-3 mos.	?	?	?	?	?		
58c	newborn	?	?	?	?	?		
58d	newborn	?	?	?	?	?		
58e	newborn	?	?	?	?	?		burned
59	adult	M		+	N-S	N(R)		

TABLE 1.—Continued.

Field no.	Age	Sex	Condition of skeleton		Orientation of skeleton		Anomalies and pathological changes	Cultural associations ³
			Art. ¹	Bundle	Long axis	Position of head ²		
60	adult	M?		+	NW-SE	SE(Ba)		vertebrae articulated
60a	newborn	?	?	?	?	?		Numerous medium-size
60b	newborn	?	?	?	?	?		discoidal and a few marginella beads
61	adult	M		+	NW-SE	SE(V)		
62	adult	F		+	NW-SE	C		
62a	1-2 mos.	?	?	?	?	?		
62b	newborn	?	?	?	?	?		
62c	newborn	?	?	?	?	?		
63	adult	F	+	(F)	NW-SE	SE(R)	metopic suture	position of legs uncertain
63a	newborn	?	?	?	?	?		traces of copper beads about neck; parts of the maxilla and mandible (unworked) of a common loon
64	nr. 15 yrs.	M?	-	+	NW-SE	SE(Ba)		a few bones articulated
65	adult	M	-	+	E-W	W(R)		a few marginella beads within skull
66	nr. 6 yrs.	?		+	NE-SW	SW(Ba)		vertebrae articulated; few small bones within skull
67	adult	M		+	E-W	E(Ba)	tibiae markedly and symmetrically curved; especially in fibulae	cut marks on neck of right femur and near distal end
68	adult	F		+	E-W	W(R)		
69	adult	F	-	+	NE-SW	SW(L)	osteitis of tibiae and fibulae; two lower incisors are fused	
70	nr. 16 yrs.	M?		+	N-S	S(Ba)		numerous marginella beads; numerous cylindrical beads up to 1 inch (25 mm)
71	adult	M	+	+	N-S	?		one of the adults in the group 71-75 shows many cut marks on the long bones
71a	nr. 2 yrs.	?	?	?	?	?		
72	nr. 20 yrs.	M?		+	N-S	S(L)		
72a	newborn	?	+		N-S	?		position of legs uncertain
72b	3-4 mos.	?	+		N-S	?		position of legs uncertain
73	adult	F		+	N-S	?	arthritic deformity of mandibular condyles	few cylindrical beads
74	newborn	?	+		E-W	W		position of legs uncertain
74a	newborn	?	?	?	?	?	unusually slender bones	
75	adult	M		+	N-S	S(V)	one of the adults in 71-75 group shows osteitis of the tibiae, fibulae, and a metatarsal	
75a	newborn	?	+		?	?	in one of the infants the ends of some of the long bone diaphyses are expanded	a mussel shell (worked?) and some cylindrical beads (up to 1 inch (25 mm)) were found among bones
75b	newborn	?	?	?	?	?		
75c	newborn	?	?	?	?	?		
76	adult	M	?	?	?	?(Ba)		-
77	adult	M?	+(F)		NE-SW	SW(R)		lower legs unnaturally flexed
77a	newborn	?	?	?	?	?		-
77b	1-2 mos.	?	?	?	?	?		numerous marginella beads

¹Articulated adult skeletons were noted as being face up (i.e., on the back = B), face down (i.e., on the face = F), or on one side (= S). Time did not permit the working out of this detail for children.

²It was noted that the skull, in addition to being located at one end of the skeletal axis (or near the center of a bundle = C), rested on its right (= R) or left (= L) side, on its base (= Ba), on its vertex (= V), or on its face (= F). For the relation of the face of the skull to its respective bundle see the accompanying text.

³Except where noted beads are shell.

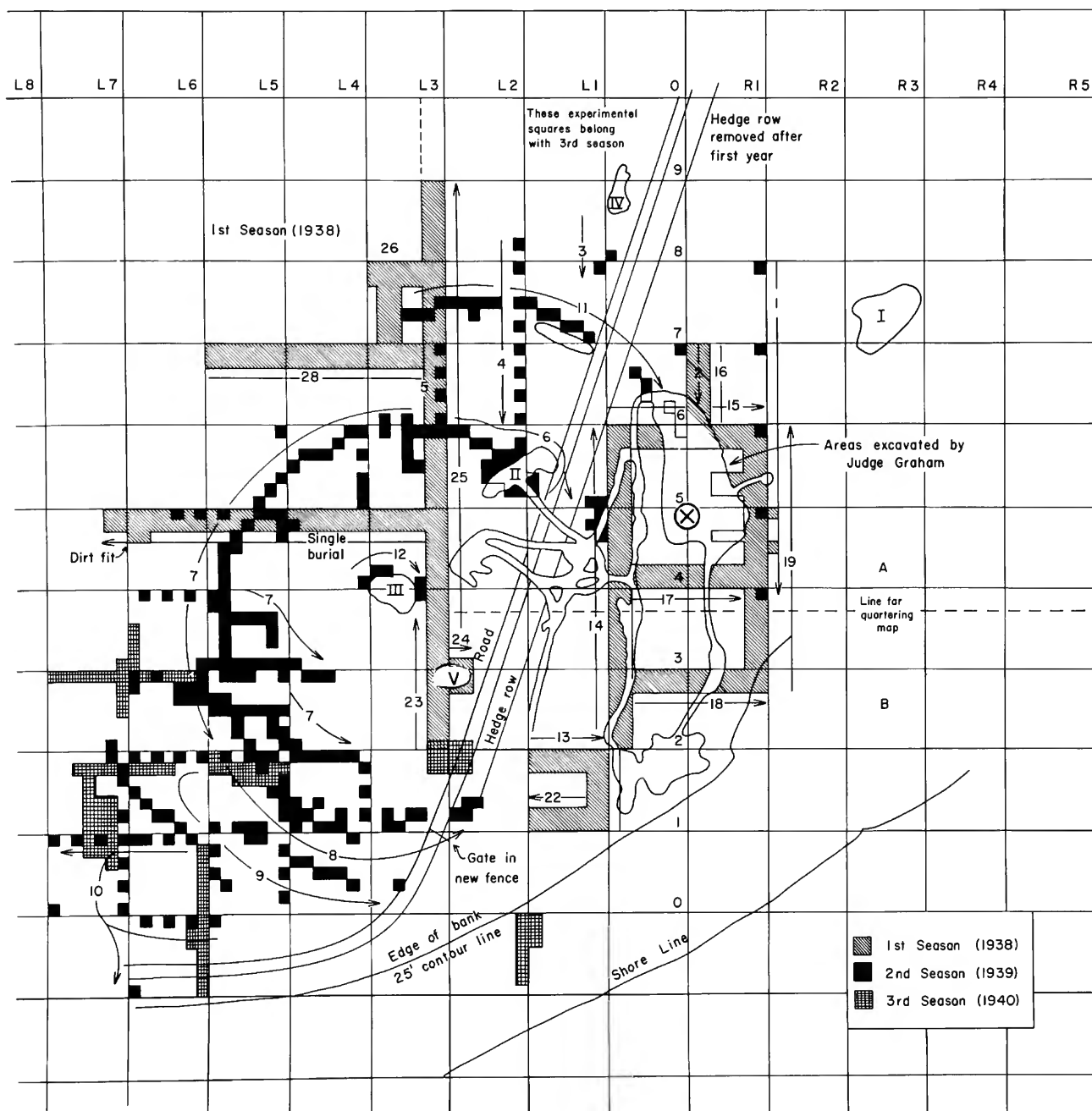


FIGURE 23.—Composite map of excavations, showing trenches and test by Judge Graham and by the U.S. National Museum parties. Ossuaries are identified by Roman numerals; ⊗ = multiple burial; grids are oriented N-S/E-W.

east-west axis line 3 crosses the north-south line L3. This intersection is close to the north edge of Ossuary 5, where the latter is crossed by line 3 and well southeast of Ossuary 3.

A disturbing feature that stands out in the mapmaking is the fact that little of Judge Graham's excavation records can be

accurately fitted into the system of 35-foot (10.5 m) sections with which he covered his part of the site. For example, his squares 5 and 8 (Figure 10), subsequently renumbered 5 and 51, included features that were re-excavated by the Museum parties and hence appear on the part of the final map as derived

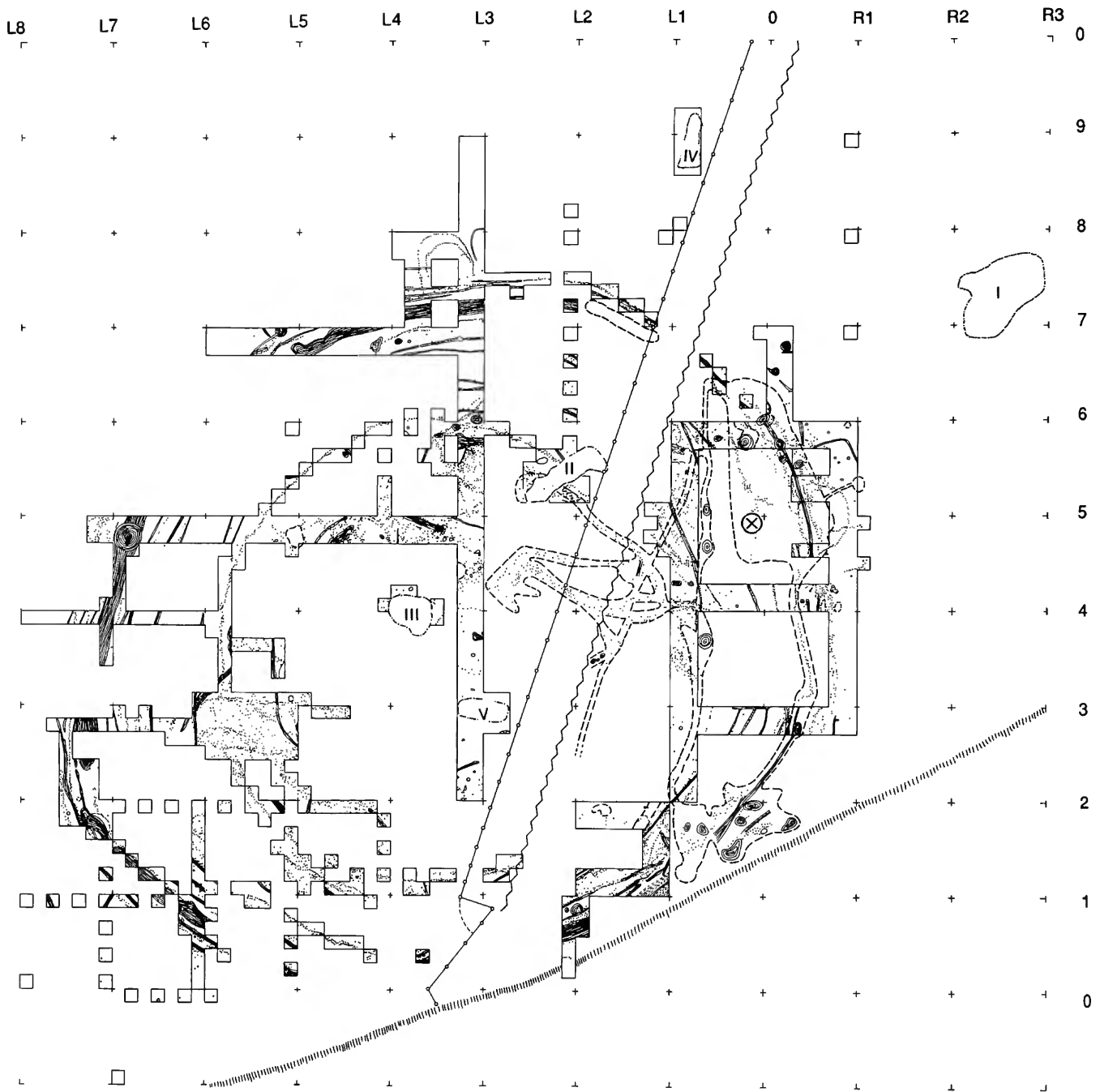


FIGURE 24.—Final map of site, showing major features recorded. Ossuaries are identified by Roman numerals; ⊗ = multiple burial; grids are oriented N-S/E-W.

from the 1938–1940 excavations. When these features of the two maps, Figures 23 and 24, are superimposed, the squares do not quite match. Nevertheless, it seems better to have the main features correctly placed and to assume that the main disagreement is in the location of stakes. Thus, the estimated limits of the Judge's excavations have been adjusted accordingly.

Proceeding in a similar fashion, the Judge's map of his squares 9 and 10 (Figure 11), now known as squares 4R1 and 3R1, shows a line of postholes running north-south across them. Our subsequent work revealed that the only line of postholes matching this one was to the east. When these two features are superimposed, no serious distortion of the Judge's other finding results, and the combination of findings is logical.

A similar slight shift resulted in a satisfactory adjustment of the Judge's finds in his squares 1, 2, 11, and 11a (Figure 12), now designated as squares 1, 2, 2R1, and 1R1. The key to this adjustment was the long narrow ditch crossing his square 1, and because the Judge's digging there was unsystematic, it is hardly likely that all subsoil disturbances were seen and plotted.

The large area included within the subsequently numbered squares 3L1, 4L1, 5L1, and 5L2 remains to be considered. The Judge left several versions of his map of these squares that I have had to combine. Fortunately, his findings can be located on the final site map (Figure 24) with a fair degree of accuracy because they connect with Ossuary 2, the position of which is the same on all maps. In digging these squares, the Judge was probably not following rows of postholes as his map implies; more likely he was encountering a scattering of postholes in every exposure of subsoil, and it would have been impossible for him to detect the real pattern without a larger exposure.

The first four ossuaries, opened by Graham and Manson, can be located on the final site map (Figure 24). The exact location of Ossuary 1 was not verified beyond noting the position of the surface evidence. All of the others were checked. In addition, it was apparent that the Judge had dug test pits at random over the site. When one of these was encountered in our subsequent work, care was taken to ensure that any subsoil disturbances were not due to this cause.

Features of the Site in General

In addition to the ossuaries (five in all) and the individual and multiple grave, all described in previous pages, the work revealed numerous patterns of postholes, plus many which seemed random. Other features recorded were pits, basins, and ditches of various sizes. The final map, Figure 24, shows most of these features, and they are more fully described below.

POSTHOLES AND STRUCTURES

The number of postholes encountered was so great that no attempt was made to measure each one individually. Mostly, they ranged from 3 to 5 inches (75–125 mm) in diameter, the bottoms were pointed, and they penetrated 6–8 inches (15–20 cm) into the subsoil. Experience soon taught each member of the work parties to recognize postholes and to dismiss imitations thereof due to roots, rodents, or other causes. As already noted, postholes of the innermost palisade, encountered mainly in the 1938 season, were indistinct because the soil in them was only a little darker than the surrounding subsoil and only a little less hard. In contrast, the postholes discovered later in the more peripheral locations were much more distinct and for the opposite reasons. During the 1939 season, more of the faded (old?) postholes were seen in the following squares:

4-D6, D7, E7	outside the trench
5-F6, G6	in line but not in trench
5-F7, G7	in semicircle

Occasionally, a deep hole was encountered that did not appear distinguishable from the usual posthole. Because their diameters were too small to class them as storage pits, it is likely that they had held extra-large posts, or they had served as smudge-fire pits or caches. Evidence to confirm either such latter use was not recorded.

The major patterns of postholes make up a series of concentric palisade lines, with adjoining bastions. These patterns seem to equate with seven individual defense lines, probably no two of them in existence at the same time. If this interpretation is valid, the sequence indicates that the village defenses were rebuilt six times. Since posts set in most Virginia soils are exposed to termites and other borers, the life expectancy for such post structures is only about 10 to 15 years. The indicated sequence of seven palisades thus indicates a village occupancy of from 75 to 100 years approximately. This possibility will be discussed later in this paper. Since the entire concept of palisading a village implies a defense system, we lump these together as "fortifications." It is difficult to improve upon the descriptions provided by Karl Schmitt in his 1942 M.A. thesis, from which we quote the following (Schmitt, 1965:6).

FORTIFICATION.—The site of Patawomeke was heavily fortified by a system involving oval stockades and a ditch or moat concentrically arranged. Stockades were of two types: (1) with posts set or driven into individual holes, and (2) with posts set into small trenches. In the first type, the posts were three to five inches [75–125 mm] in diameter and simply set or driven into the ground, rarely penetrating more than a foot into the subsoil. Of course there was a 6 to 12 inch [15–30 cm] layer of plough-disturbed soil overlying the subsoil, and this would have increased the depth of the placing of the posts. In the second type, posts of the same size were placed in small trenches between six inches [15 cm] and one foot [30 cm] in width and of the same range of depth. These trenches were predominantly U-shaped in vertical section, but were occasionally V-shaped. Postholes occurred in some of the trenches but were very shallow, rarely over four inches [10 cm] in depth. In both types of stockade, posts were generally regularly and widely spaced, the intervening distances between posts averaging between six and eight inches [15–20 cm].

Three stockades, represented by individual posts, were more consistent and strongly indicated than the others. The innermost one was of oval shape with the longest diameter measuring 175 feet [52.5 m]. Possible entrances were indicated on the north and southwestern side where the lines of post holes appeared to overlap for a distance of 20 to 30 feet [6–9 m]. On the west, the stockade pattern was interrupted by a bastion-like arrangement of postholes, rectangular with rounded corners in shape, and approximately 18 feet [5.4 m] long and 10 feet [3 m]

wide. There was some indication that the posthole pattern of this feature continued in two parallel lines some 50 feet [15 m] in length toward the center of the village. Unfortunately the termination of this arrangement was not located. The most logical explanation for this feature would be that it was a defensive bastion, although there is a strong possibility, also, that it was the remnant of a long, arbor-like house which was left jutting out of the inner stockade.

The second concentric stockade, again marked by individual postholes, was approximately 200 feet [60 m] on the longest diameter. The pattern of postholes was not as completely followed as in the previous case though it was located in all expected places, except two on the west where a definite break occurred.

Outside the second stockade, at a distance of two to five feet [0.6–1.5 m] on the north and only a few inches on the south, was a ditch or moat. This feature quite consistently measured five feet [1.5 m] in width; in depth it ranged between one and two feet. In vertical section it tended to drop sharply on the inner side and to slope very gently to the bottom on the outer side. The eastern quarter of the village apparently lacked the ditch, though there is the possibility that Judge Graham's excavations obliterated the evidence in that sector. A short break of 10 feet [3 m] coincident with the break in the median strong stockade, was present on the western side, undoubtedly marking the entrance to the inhabited area. No evidence of heaping of dirt on either the inner or outer side of the ditch was encountered, though it is probable that such a feature, if it had existed, would have been erased by plough action. The fill within the ditch was consistently a homogeneous rich, black midden-like material. It was from this refuse that the great majority of the artifacts and almost the totality of pottery specimens was recovered. Some evidence of a slight fill by wash was encountered in the bottom of the ditch. This was of a very light color, closely approaching that of the subsoil, and rarely, if ever, was over an inch [2.5 cm] in thickness. The midden-like material gave the impression of having been deposited within a very short period. Sherds of the same pot were occasionally found lying 40 feet [12 m] apart and sherds of one restorable pot were recovered from diametrically opposed portions of the ditch.

A third strong stockade pattern, again composed of individual postholes, was found outside the ditch, and was approximately 280 feet [84 m] on the longest diameter. The total extent of this feature is not known, but it was found in all sections of the site excavated except in one of the western trenches. Four bastion-like patterns were found along this outer stockade, one on the north and three on the east. The northern example consisted of double series of postholes, the outer conforming to a rectangular shape with rounded corners

and dimensions of nineteen feet by 18 feet [5.7 m by 5.4 m], the inner conforming to a more semi-circular shape with a 15 foot [4.5 m] diameter. The bastions on the east overlapped and very likely represented replacements after decay. The median one consisted of a line of single holes, elliptical in shape with measurements of 15 feet by 25 feet [4.5 m by 7.5 m]. Just to the north and partially intersecting the median bastion was a rectangular arrangement of small trenches approximately 25 feet by 15 feet [7.5 m by 4.5 m], indicating the position of another bastion. To the south and again intersecting the median bastion was another pattern consisting of a line of single postholes. This last feature was not completely excavated but appears to have been rectangular with dimensions of fifteen by twenty feet [4.5 m by 6 m]. Unlike the innermost stockade, the outer stockade was not interrupted by the bastions but was continuous past them.

Between the innermost and median strong stockades were evidences of weaker elements, four or five showing in every lengthy excavation trench. These features were small narrow trenches containing postholes in the bottom although occasionally they were represented by lines of single postholes. The precise nature and arrangement of these patterns was not evident. They were not continuous and they varied in number in the different excavation trenches. It would seem, however, that they represent short fortification elements set between two major stockades, possibly to create a maze-like entrance to the inner village.

A smaller fortification element was found in the interior of the village, encompassing two large ossuaries. This was a stockade set in a small trench and was circular with a diameter of approximately 100 feet [30 m]. In connection with this, the following quotation can be cited from Beverly (1705:149), who in speaking of the Virginia Indians says:

Their fortifications consist only of a palisado of about ten or twelve foot [3 or 3.6 m] high, and when they would make themselves very safe they treble the pale. They often encompass their whole town; but for the most part only their Kings' Houses, and as many others as they judge sufficient to harbor all their people, when an enemy come against them. They never fail to secure with their palisado, all their religious reliques and remains of their Princes.

Schmitt postulates at least two periods of building of stockades. He thinks that the inner and median palisades, strengthened by an inner maze, were in use together, and that later the outer palisade was built. This would render superfluous the moat-like ditch, thus inviting the occupants to throw their rubbish into it and thereby fill it. He also provides a relative temporal placement for the Historic period Multiple Burial pit, although he called it an "ossuary" in the following quote: "The large ossuary [sic] from which Judge Graham obtained the great bulk of the historic material interrupted the

inner palisade pattern and is presumably later in time" (Schmitt, 1965:8).

Accompanying the above descriptions of stockade elements by Schmitt, he provides a schematic map, his figure 3, which gives an overview of the palisade relationships. These are shown in greater detail in Figure 24, where site layout and the arrangements of structural and other features, as they were mapped in the field, are more accurately shown.

COMMUNITY PLAN.—The palisades, whether single or multiple, enclosed a cluster of other structures. Among these were houses of two types, and possibly storage structures. As with the fortifications, it is appropriate to quote from Schmitt's (1965) descriptions, as follows:

No definite house type was discovered on the site. Possibly the bastion-like swelling on the western side of the inner stockade represents such a feature. If this is the case, the structure of fifty or sixty feet [15 or 18 m] in length and twenty feet [6 m] in width is indicated.

A partially excavated circle of post holes, 20 feet [6 m] in diameter, occurs in the very center of Patawomeke. This possibly is the pattern of one of the conical type of houses but could equally as well represent a circle of dance posts such as is pictured in Beverly (1705).

As can be seen in Figure 24, several rows of postholes and/or shallow ditches form alignments, which may be portions of rectangular, arbor-like structures. The number of such wigwams that can be identified in clusters totals only three.

The circular pattern of postholes noted by Schmitt could easily be seen as the residence of an important person in the site, due to its prominent location, as well as to its shape, which differed from the long houses used by most of the inhabitants. If this circular pattern predates or postdates the site then it is possible that the center of the site was an open area. From the evidence at hand, this question cannot be resolved, although future work at the site might produce the evidence needed.

STORAGE PITS

Storage of surplus foods and other materials would have been an important aspect of village life. Such items could have been stored in the rafters and along the walls of the houses, or special storage houses may have been built, using shallowly set posts, for which no evidence has survived plow destruction. Another storage method would involve pits of varying sizes, similar to the common potato-cellar of historic farmers. In the work done at this site, only a few pits were found, indicating that pit storage was not a widespread custom. Several pits are noted or are described in the Judge's diary, as follows:

about 50 feet [15 m] north from Square 1, encountered a fire or pit hole, round and dropping below surface of ditch (top of subsoil?) for about one foot [30 cm]. Full of all sorts of waste material. Pit lined at bottom with quartzite and quartz rocks, quartzite predominant and mostly broken. Much charcoal and ashes.... Interior of pit soft and digs easily...deer horns are those of adults...shell of water turtle...many land tortoise shells in entire condition...stratified sandstone pieces (slabs?) approximately 1/2 inch [1.25 cm] thick doubtless used for cooking purposes...large fossil shells, one...8 inches [20 cm] in length...am of opinion these were used for dishes...many screw-shaped fossil shells (Turritellas)...large num-

ber of dorsal spines of fish.... [Page 48]

This pit was oval, 5 feet [1.5 m] in length, 3'6" [1 m] in width and two feet [0.6 m] deep from surface. Contents...as follows: (partial list)

shells, oyster	10	potsherds	322
mussel	43	deer bones	194
fossil	7	small clay dish	1
garfish jaw	1	hammerstone	4
bone bead (bored)	1	anvil stones	2
currier (beamer)	1	quartz scrapers	7
beaver mandible	1	points and fragments	1
abrading stone	1	shell disc ornament	7
worked antler	4	bone awls	2

[Pages 50-51]

At south end, in Square 1, fire pits are very deep—4 feet [1.4 m]—with much evidence of long occupied camp site. Much charcoal and ashes. [Page 54]

a post hole [sic] was found, about 3 feet [0.9 m] deep, 2 feet [0.6 m] in width, and full of ashes, charcoal, soapy deposits, many potsherds, five bone awls, one large deer horn, one broken clay pipe, a cut deer bone, some miscellaneous pieces of deer, bird, and turtle bone and shell. [Page 116]

Pits such as those described above had probably been dug for storing materials below ground, and when emptied, they had been used for the disposal of refuse.

Evidence for hearths in and around wigwams was not seen or recorded. Because such features were often on top of the ground, it is likely that they had been completely obliterated by plowing. Some fire-pits, though, may have been dug for use as smudge fires for tanning hides, and some of the larger postholes may have served this purpose.

NARROW DITCHES

Narrow ditches ranked second to postholes in frequency of occurrence. Besides being narrow (4-8 inches (10-20 cm) across as a rule), the ditches had fairly straight courses for considerable distances, e.g., Figure 14, bottom left. Their sides were steep and their bottoms V- or U-shaped, sometimes with shallow postholes at the base. There is thus some reason to believe that all may have served to support posts. A majority of the ditches paralleled in a rough way the circular palisades, as defined by rows of postholes and the moat-like ditch. The contents of the narrow ditches rarely included cultural debris. Judging from the alignments shown in Figure 24, the narrow ditches seem most likely to have supported the side or end walls of rectangular wigwams.

Subsistence Base

Although no vegetal food remains were noted in the excavations, the presence of smoking pipes hints strongly that tobacco was cultivated. No remains of agricultural products were found, although the ethnohistorical record is replete with references to the abundant supplies of corn to be had through trade at Patawomeke. No tools that may have been used in agricultural work were found, either. However, it can safely be deduced that agriculture was an important source of food for

the villagers. This was supplemented by wide-ranging hunting, fishing, oystering, and gathering. Gathering no doubt included nuts, berries, greens, and fruits in season, although no remains of these foods were found or recorded. Much charcoal was noted in refuse accumulations at the site, and no doubt many nut hulls and possibly other plant parts would have been found in the charcoal, had an effort been made to sort or fine-screen this material. Judge Graham notes one charred hickory nut shell in midden (Diary, page 33).

Hunting for game probably produced most of the protein foods sought. Hunting techniques would have included solitary hunts, group "surrounds" including the occasional use of a fire-drive, and routine use of snares and traps. Most small game was no doubt taken through trapping, whereas the killing of a deer or other large game animal would have been an infrequent occurrence at best. The results of successful hunting are reflected in the refuse bone found in the midden, as well as in the bones used as tools or other manufactured products. The species identified areas follows:

Deer	<i>Odocoileus virginiana</i>	Bob cat	<i>Lynx rufus</i>
Raccoon	<i>Procyon lotor</i>	Muskrat	<i>Ondatra zibethica</i>
Beaver	<i>Castor canadensis</i>	Gray squirrel	<i>Sciurus carolinensis</i>

No doubt any animal encountered would have been captured or killed, because this pattern has been identified at most late prehistoric sites. Sampling size and the vagaries of preservation could account for the somewhat short list shown above.

Birds of all sort would also have been taken, although only the following species were identified from the refuse bones and artifacts:

Turkey	<i>Meleagris gallopavo</i>
Red Tailed hawk	<i>Buteo jamaicensis borealis</i>

The absence of migratory waterfowl is conspicuous, as is the now-extinct Passenger pigeon.

Reptiles, being comparatively numerous and easy to catch, served as an additional source of proteins. Of those which live in the area of Patawomeke, only the turtle varieties have been identified in the village midden. The common box turtle (*Terrapene carolina*) was the most abundant species recognized. In addition to the refuse bones and shells found in the midden, the carapace was frequently trimmed and cut to serve as cups, dippers, ladles, and so on. The other species found was not identified at the time, but was referred to as a common water turtle.

The broad Potomac River and its numerous tributaries

provide an inexhaustible supply of fish, crustacea, and shellfish. Bones and shells of these animals were plentiful in the midden and in the various pits excavated. Oysters do not occur in the river immediately adjacent to the site, but they do occur plentifully about 10 miles (16 km) downriver in the area of Pope's Creek, Maryland and Mathias Point on the Virginia shore. A few hours in a dugout canoe would suffice to obtain these foods, and the numerous oyster valves found in the excavations attest to the exploitation of this food source. On the other hand, freshwater clams (mussels) occur at the site and were heavily exploited. Some of the mussel shells were also used as spoons or small knives, sometimes with saw-tooth edges filed into one edge of the shell. Crabs were caught in quantities, and fragments of their carapaces, especially the claws, occurred in the midden, usually charred to some degree.

Finned fish provided much food for the villagers, and their bones occur frequently in the midden. Species identified are

Sturgeon	<i>Acipenser</i> sp.
Garfish	<i>Lepisosteus</i> sp.
Yellow perch	<i>Perca flavescens</i>
Catfish	<i>Ictalurus</i> sp.
Sucker	<i>Catostomus</i> sp.

Colonial records indicate that the sturgeons sometimes attained a length of nine feet and a weight of over 200 pounds, thus making this fish a major game animal and an important food source.

Although not normally considered a game animal, the domestic dog (*Canis familiaris*) was available as an emergency food. No dog bones were recognized in the midden, although one skeleton of a dog was found in the pit with an individual human burial. The role played by dogs in the day-to-day life of late prehistoric Indians has not been defined. They may have assisted in hunting or tracking, and they may have been effective at giving the alarm when a stranger approached the village. In addition, they no doubt were effective scavengers, thus aiding in keeping the village habitable.

The excavations conducted by Judge Graham and by the several Museum parties produced much data about the site, its occupants, and their uses of the environment. Important, too, are the data concerning the burial customs of the Patawomekes.

These data have been covered in some detail in the foregoing Part I of this study. Some of the topics will again be treated later in this work. One result of the excavations not yet described is the accumulation of artifacts. These will be described and analyzed in the following Part II.

Part II: Cultural Remains

Introduction

My original intent for this report was to edit and publish in Part II the portions of Karl Schmitt's 1942 M.A. thesis dealing with the Indian artifacts from Patawomeke. Accordingly, a year before Karl's tragic death on 8 August 1952, I asked him to revise this part of the thesis. He complied in his usual cooperative manner, leaving it to me to make any necessary or desirable editorial adjustment. In doing these I had many helpful suggestions from Margaret Blaker, then employed in the National Museum's Division of Archeology. Margaret's capabilities in this field were exemplified in her excellent report on the ceramics from the Townsend Site near Lewes, Delaware (Omwake and Stewart, 1963:14-39).

As time went by, however, the thesis was published in full in the Archeological Society of Virginia's quarterly bulletin (Schmitt, 1965). There it has served as an interim source of data on Patawomeke and the archeological work done there. As a tangential action, Schmitt had used his data from Patawomeke and from the Maryland site of Moyaone to define what he named the Potomac Creek Focus (Schmitt, 1952). A present-day weakness in the thesis as published is the absence of references to work done in the region since 1952, especially in the definition and distributional studies of the ceramics. Similarly, Schmitt's classification of projectile points is no longer current, and these needed to be updated.

Another factor worth mentioning is that Karl had not attempted to analyze the horizontal distribution of the ceramics within the site. Doing so might have helped in dating the several palisade lines and their related structures. Because many of the potsherds sent to him at Chicago have been discarded, it is highly unlikely that such a study can be made now. What seems likely is that most of the extant sherds are from the periphery of the site, e.g., from the moat-like trench, and therefore may date from the closing decades of the village occupation, when the decorative elements seem to have reached maximum elaboration.

The illustrations for this revised portion of Schmitt's thesis are new, although they include many of the same specimens used originally. The new pictures were made when prints of the original (1942) illustrations could not be found. The earlier photographs carry the USNM negative number 34,260, and the new pictures are numbered 41,414.

During the summer of 1988, when this report was being edited and prepared for publication, the extant artifact collection from Patawomeke was re-examined to (1) confirm Schmitt's findings; (2) provide insights developed through archeological work in the Virginia-Maryland area since 1940; and (3) include, when feasible, data from other, earlier collections in the National Museum that had not been available to Schmitt. The re-examining was done by Christine Jirikowic, then a graduate student at the American University, Washing-

ton, D.C. She was hired for this task by the National Museum, and the work was done under the overall guidance of Douglas Ubelaker, with help from Howard A. MacCord, Sr. A retired archeologist, MacCord had done work at Patawomeke and at numerous other sites in the Potomac-Rappahannock River valleys. Further, he had known Judge Graham and had worked extensively with Carl Manson.

To a great extent, the following descriptions of artifacts and the tabulations and relationships are based on and quote from Schmitt's excellent M.A. thesis work. Where new or amended data are at hand, these have been added as indicated and credited to Ms. Jirikowic or to H.A. MacCord, Sr. Artifacts were found throughout the excavated area, occurring in the plowed topsoil and in pits and ditches penetrating the subsoil. Adjacent to the bluff fronting on Potomac Creek, some materials were found in the accumulated midden, sometimes as deep as four feet (1.2 m). Because of the high concentration of shells, bones, and wood ashes in the soil, bone preservation was normally good.

The artifacts collected in the 1935-1940 work consisted of two main groupings: those of aboriginal manufacture, usually ceramic, lithic, bone, or shell; and those of European manufacture, usually glass, copper, or iron. To follow the usual conventions of archeological publishing, the aboriginal artifacts will be described and analyzed first, beginning with the ceramic. This will be followed by sections on the lithics, bone, etc., and finally by the artifacts obtained through trade with Europeans.

Aboriginal Artifacts

THE CERAMIC COMPLEX

SCHMITT'S ANALYSIS.—Schmitt's study of the pottery from Patawomeke is based on 252 rim and 367 body sherds from the Graham collection and 532 rims and 3215 body sherds collected by the Museum parties. Six pottery types were differentiated on the basis of attributes relating to whole vessels. Descriptions of two types, Potomac Creek Cord-impressed and Potomac Creek Sand-tempered, are reasonably complete; those of the third type, Rappahannock Fabric-impressed, are based solely on the Potomac Creek collection, although other collections are now available. The fourth type, Pope's Creek Net-marked, is only a suggestion. This ware has been fully described by R.L. Stephenson in his report on the Accokeek Creek site in Maryland (1963:92-96). The remaining types have been described respectively in two publications, e.g., Keyser Cord-marked (Manson et al., 1944) and Shepard Cord-marked (Slattery and Woodward, 1992).

For the two wares in the Potomac Creek series, it is well to define the attributes used by Schmitt (and confirmed by Jirikowic). The three attributes described are: Aplastic (temper-

ing), Surface treatment, and Decoration. Schmitt defines these in the following quote (Schmitt, 1965:9-10):

Aplastic

The following types of aplastic were distinguished:

1. "*Coarse*" gravel: a quartz gravel apparently obtained from the beach of Potomac Creek just below the site. Particles range from 1.0 mm to 7.0 mm in size and possibly larger.

2. "*Fine*" gravel: apparently a variation of the former but with grains running consistently smaller. The larger particles were crushed to give a uniform size of 1.0 mm and under.

3. *Sand*: a fine sand which was more evident to touch than to the eye. Possibly this was naturally inclusive in the clay used.

4. *Shell*: crushed and iridescent shell occurring in flakes up to 5.0 mm in size.

5. "*Leached*" shell: a crushed shell temper which has leached out on the surface (shell flakes and lumps were usually discernible in fresh breaks). The leaching is possibly due to a difference in firing conditions.

6. *Mixed shell and gravel*: a mixture of the coarser gravel with occasional flakes of shell, possibly of accidental inclusion.

7. *Sandy micaceous*: sand tempered but with numerous mica flakes, giving an iridescent appearance. Possibly the mica was naturally inclusive in the clay or sand used.

Surface Treatment

Four categories of surface treatment were noted:

1. *Cord impressed*: apparently applied with a paddle wrapped with twisted cords. In applying this to the surface, strokes were usually overlapped to give a continuous linear effect at right angles to the lip.

2. *Smoothed*: probably done with the worked sherds found on the site. Smoother surfaces ranged in appearance from irregular, lumpy ones to carefully treated ones. Many striations were visible.

3. *Plain plaited fabric impressed*: often called "basket impressed." The warp consisted of large, closely spaced elements while the weft was made of much finer, but also closely spaced, elements. Sherds exhibiting this type of treatment were usually badly weathered.

4. *Net impressed*: produced by impressing a knotted net.

Decoration

Decoration was broken down into the following techniques and design elements:

1. *Pseudo-cord impressed*: produced by impressing a stick, a sharp edge (such as a Unio shell) or occasionally

a group of cords about which a twisted cord or possibly a leather thong had been wrapped. All three techniques produce a very similar impression, and minute inspection is necessary to differentiate between them. Cord wrapped stick predominates.

a) Short parallel elements. This design, as the name implies, consists of a series of short parallel elements of pseudo-cord impressions (five to twelve wrappings of the cord), which are usually placed on the rim obliquely to the lip.

b) Simple. In this category the impressions overlapped end to end to form continuous lines. Designs consist of bands parallel to the lip; hachuring between the lip and a band parallel to the lip; a series of joined hachured triangles; and intersecting lines producing rectangles and diamonds in the negative.

c) Complicated. Impressions are again overlapped to form continuous lines but other impressions are superimposed on these to bring out various designs. Depth of impression is also used to bring out the design motif.

2. *Cord impressed*: produced by impressing individual cords.

a) Short parallel elements. A series of short parallel impressions are usually placed obliquely to the lip. Occasionally knot impressions are visible at one end.

b) Simple. Impressions are longer and form continuous bands parallel to the lip, hachured triangles, and hachured lines between the lip and a band parallel to the lip.

3. *Incised*: usually produced with a blunt instrument but occasionally by one with a sharp point. Crude horizontal bands and bold stroked elements can be differentiated from a technique in which execution is more careful and in which rows of parallel nested triangles and parallel lines accompanied by punctates are utilized.

4. *Punctated*: usually produced by some tool, such as a hollow reed, which leaves a raised portion in the center of the impression. This type of decoration is very rarely used alone; it often accompanies complicated pseudo-cord impressed.

5. *Finger-nail impressed*: usually a design of parallel lines of concentric impressions at right angles to the lip.

JIRIKOWIC'S ANALYSIS.—During the summer of 1988, Ms. Christine Jirikowic re-examined the pottery collection at the National Museum from Patawomeke. She examined not only the collections made by Judge Graham and the Museum parties during the period 1935-1940, but she also compared them with collections made over many years by others, from William Henry Holmes up to Richard G. Slatery, who collected there around 1934-1935. Her observations (most of which parallel those of Karl Schmitt) are set forth below.

Description of Selected Variables
(by Christine Jirikowic)

- I. Surface Treatments vary as follows:
 - a. Smooth—smoothed surface with or without previous cord marks still visible. (Note: this category is named *Potomac Creek Plain* by Stephenson et al., 1963:119).
 - b. Fine cord-marked—fine cords tightly wrapped on paddles; carefully applied; resulting impressions are closely spaced, mostly vertical without much superposition.
 - c. Coarse cord-marked—thicker cords; loosely wrapped on paddle; tends to be more haphazardly applied; resulting impressions are more widely spaced, horizontal and diagonal, as well as vertical and superimposed.
 - d. Fabric—impressed with loosely woven fabric with weft threads thinner and more closely spaced than warp.
- II. Decorative Techniques largely follow those of Schmitt (1965):
 - a. Twisted cord—design applied directly with single length of cord composed of two strands of single or multiple ply cords twisted together, either left over right (Z-twist) or right over left (S-twist).
 - b. Cord-wrapped—design applied with an implement (stick, wire, cord, paddle edge, etc.), which had been wrapped with twisted cords. The resulting impressions form series of short parallel lines.
 - c. Hollow punctate—produced with hollow tool such as a reed, resulting circular impression has a raised portion in center.
 - d. Solid punctate—produced with a solid tool.
 - e. Single cord/knot impression—series of individually produced single impression made from either a knot or a small section of twisted cord, e.g., wrapped once around a finger tip.
- III. Decorative Motifs: Schmitt's three motif categories can be enlarged as follows (with definitions below and shown in Figure 30):

<i>Schmitt</i>	<i>Jirikowic</i>
"Short parallel elements"	Short diagonals Short perpendiculars Short horizontals
"Simple"	Horizontal lines Bound diagonals Infilled geometrics
"Complicated"	Fine cord-wrapped combinations Simple combinations

- a. Horizontal lines—impressions (either simple twisted cord or a cord-wrapped implement) overlapped end to end to form continuous lines (as per Schmitt). Usually 3–5 parallel lines encircling the rim edge (Figure 30-I).
- b. Bound diagonals—encircling band of parallel lines diagonal to rim edge; bounded on top by rim edge and below by simple horizontal line (Figure 30-II).
- c. Short diagonals—short parallel lines, diagonal to the rim edge and without horizontal line boundary. Often less closely spaced and less carefully placed than bound diagonal designs (Figure 30-III).
- d. Short perpendiculars—same as short diagonals except lines are placed perpendicular to rim edge (Figure 30-IV).
- e. Short horizontals—groups of short parallel lines placed parallel to the rim edge (Figure 30-V).
- f. Infilled geometric figures—parallel and diagonal lines forming figures filled in with closely spaced parallel lines. The figures are most frequently triangular (Figure 30-VI).
- g. Fine cord combinations—usually multiple bands of different designs; often one closely spaced motif superimposed on another, e.g., diagonals over horizontals. Usually executed with a fine cord tightly wrapped around a small implement. Frequently includes a punctate "accent" in the design. Also frequently associated with a thickened rim (Figure 30-VIII).
- h. Simple combinations—applied with a thicker element and not as closely spaced as above combinations. Includes multiple bands of different simple motifs, e.g., one band of horizontals with one of diagonals, simple superimposed designs and simple open geometric figure designs (Figure 30-VII). (This is admittedly a catchall category.)

Discussion

The results of my examination of ceramics from the Potomac Creek collection of Graham, Stewart, Slattery, and Holmes concurs with the general results Schmitt obtained from his examination of the original Graham and Stewart collections. The majority of sherds from these collections are consistent with Schmitt's descriptions of Potomac Creek Cord-impressed or Potomac Creek Sand-tempered.

The ware appears to encompass a fairly distinct range of tempers from pure sand to mixtures of sand and gravel to predominantly coarse gravel. Similarly, the decorative motifs range from plain cord-marked to simple arrangements of parallel lines to intricate geometric figures and superimposed designs. The finer, more intricate designs are applied with fine cord-wrapped implements and tend to be associated with finer tempers.

This association is not, however, entirely consistent. This fact suggests that the makers of this pottery were experimenting (within limits) with a variety of stylistic expressions and manufacturing techniques. Without spatial or temporal control, it is impossible to determine whether these experiments reflect trends over time, or if the variations in style and manufacture were associated with particular functional or social contexts. Future work at the site should seek such associations or correlations.

Schmitt's description of the ware types represented in the Potomac Creek collection is consistent with results of my examination. I would, however, question (as others have before me) the usefulness of distinguishing the Potomac Creek Sand-tempered pottery as a ware separate from other Potomac Creek pottery on the basis of data from this collection alone. Without contextual data, there is no justification for separating into a discrete ware the extreme examples of the range of variability found within the general parameters of Potomac Creek ware.

OTHER ANALYSES.—The several ceramic wares and their included types have been described (and in some instances named) by other researchers. A Potomac Creek "type" was first named by James B. Griffin in 1943, during his analysis of ceramics from the Keyser Farm Site in Page County, Virginia (Manson et al., 1944:411–413). In naming the type Griffin was continuing the category first named by Holmes in his monumental work on the pottery of the eastern United States (Holmes, 1903:155–156). Holmes had included what we now recognize as several wares in his compilations for the Potomac River area. These include Pope's Creek and Marcey Creek wares, which he thought to be contemporaneous with the pottery he found at Patawomeke. Holmes did point out the distinctiveness of the sherds at Patawomeke, and he commented on the regional differences which he noted and described. It remained for later scholars to divide these wares into temporally defined wares.

The Accokeek Creek site at the mouth of Piscataway Creek in Prince Georges County, Maryland, across the river and upstream from Mount Vernon, provided the ceramic assemblage which could be so divided. Karl Schmitt had examined part of the Accokeek Creek assemblage and had commented on its resemblance to that at Patawomeke (Schmitt, 1965:21). During the 1950s, the collection excavated in the 1930s by Alice L.L. Ferguson was studied by Robert L. Stephenson. Despite the lack of stratigraphic evidence, he sorted the ceramics into sequential time periods, described the various wares, and assigned names where these seemed to be needed. He described in great detail the Potomac Creek Cord-impressed type, and also to a lesser extent the smoothed variety, which he named Potomac Creek Plain (Stephenson et al., 1963:115–120). His descriptions will not be repeated here, because we will use the data derived by Schmitt in his analysis of the Patawomeke collections. I have paraphrased the data deter-

TABLE 2.—Ceramics from Museum excavations, 1938–1940.

Type	Number	Percent
Potomac Creek Cord-impressed	3410	91.0
Potomac Creek Sand-tempered	184	4.9
Rappahannock Fabric-impressed	80	2.1
Keyser Cord-marked	20	0.5
Shepard Cord-marked	8	0.2
Popes Creek Net-marked	2	trace
Unclassified	43	1.1
TOTAL	3747	99.8

mined by Schmitt, but essentially the following descriptions follow those set forth in his 1942 M.A. thesis (Schmitt, 1965).

Table 2 shows the numerical representation of the six types of ceramics obtained by the Museum field parties. In addition to the 80 Rappahannock Fabric-impressed sherds recovered from the general refuse and listed in the table, 142 sherds of this ware, including 56 belonging to a restorable vessel (Figure 25c), were recovered from the large pit underlying the moat-like ditch in square 4L6 (see Diary, page 47).

Tables 3 and 4 present the analysis of sherds by surface treatment, decoration and temper. Because the two series, one recovered during the 1938–1939 seasons and the other during 1940, were of similar size and had a similar distribution of attributes, they would appear to represent true random samples and therefore have been pooled in making up the tables.

Potomac Creek Cord-impressed Ware

PASTE.—Temper ranges from a finely crushed quartz gravel with particles over 1 mm across and up to 7 mm in size. These are present in medium to excessive quantities. Occasionally a small amount of crushed shell is mixed with the other tempering materials, and a few sherds seem to be untempered. Texture of the paste is medium to medium coarse, and exterior hardness is from 2.0 to 3.0 on the Moh scale. Exterior colors range from buffs through browns to grayish black, with the latter predominating. Interiors show a similar variety of colors, and in addition, some sherds exhibit a lustrous dark gray color indicating intentional smudging. Blackening of exteriors through use over a fire is common.

METHOD OF FABRICATION.—"Coil-breaks" and cord-roughened surface finish indicate that vessels were made with coiled strips of clay malleated together by use of a cord-wrapped paddle.

SURFACE FINISH.—Apparently a cord-wrapped paddle was used to roughen the surface of most vessels. Some were left with the entire surface cord-roughened; the surface of others was partially smoothed over. Even on relatively carefully smoothed sherds, occasionally an isolated, unobliterated cord impression remains. The strokes of the wrapped paddle were usually applied in an overlapping manner, so that the linear

TABLE 3.—Rim sherds from Museum excavations, 1938-1940.

Surface treatment and decoration	Temper								Total	Percent
	Coarse gravel	Fine gravel	Sand	Micaceous sand	Leached shell	Shell	Shell and gravel	Steatite		
CORD-IMPRESSED										
Not decorated	169	3	9			4	1		186	36.5
Decorated with:										
Pseudocord elements:										
Short parallel	10	1					-	-	11	2.2
Simple	9	1	-	1				-	11	2.2
Twisted cords:										
Short parallel	64	1	-						65	12.8
Simple	78	3	-		-				81	15.9
Fingernail	2		-	-	-				2	0.4
Incised	-		-	1	-				1	0.2
SMOOTH										
Not decorated	32	2	39		2			1	76	14.9
Decorated with:										
Pseudocord elements:										
Short parallel	2		1		-				3	0.6
Simple	15	8	1		-				24	4.7
Twisted cords:										
Short parallel	7	1				-			8	1.6
Simple	20	4	4			-			28	5.5
Incised	5		1		3	-			9	1.8
Punctated	-		1			-			1	0.2
FABRIC-IMPRESSED	-				2	1			3	0.6
TOTAL	413	24	56	2	7	5	1	1	509	
PERCENT	81.1	4.7	11.0	0.4	1.4	1.0	0.2	0.2		

arrangement of impressions perpendicular to the lip was produced. The basal portion was often clumsily smoothed, whereas the rim area was frequently treated more carefully before application of decoration. Interiors were smoothed, and numerous striations from fingers or smoothing tools are evident. Bumpy exteriors are common because of protruding temper particles and indifferent smoothing.

DECORATION.—Impressions made by cords, cord-wrapped sticks, cord-wrapped edges, and cord-wrapped strings represent the major decorative techniques. The result produced by the latter two treatments has been called "pseudo-cord," following the terminology of Griffin (Manson, et al., 1944:407). Most pseudo-cord impressions seem to have been produced with a sharp edge, such as that of a fresh water mussel shell, about which a twisted cord or sinew had been wrapped. Pseudo-cord decorations are subdivided (following Schmitt) into three categories: (1) short parallel elements; (2) simple; and (3) complicated. The first category consists of impressions exhibiting five to twelve wrappings of the cord, placed parallel to one another and usually obliquely to the lip. The second category—simple pseudo-cord—has impressions overlapping and end to end and thus forming continuous lines so that the following designs are produced: horizontal bands parallel to the lip; hachuring between the lip and a line parallel to the lip; series of joined, hachured triangles; and angular, zoned patterns

producing rectangles and triangles in negative. The third category—complicated pseudo-cord—also has overlapping impressions forming continuous lines, but other impressions are superimposed on these to bring out triangular or rectangular designs by means of varying depths of the impressions. Rarely, complicated pseudo-cord is accompanied by punctations. Cord-impressed designs also occur in series of short, parallel elements and in simple designs (simulating those produced by simple pseudo-cord). The more complicated designs are associated with the finer gravel tempering (under 1 mm in size).

Less frequently used techniques of decoration were punctating, incising, fingernail incising, and impressing with knots.

Designs were largely confined to the rim area of vessels, except that, rarely, pseudo-cord impressions extend a short distance into the interior of the vessel perpendicular to the lip (Figures 27-30).

FORM.—Rims are straight to slightly flaring. Occasionally, added rim strips occur, producing a weak-collared effect, and this is most often associated with fine gravel temper and complicated pseudo-cord designs. Lips are rounded or flattened, with the latter predominating. Lips frequently carry cord and pseudo-cord impressions, and when the latter are deep, a scalloped effect is achieved. Vessel bodies are elongated and taper down to the base. Slightly constricted necks and weakly rounded shoulders are often present. Bases are subconoidal and

TABLE 4.—Body sherds from Museum excavations, 1938–1940.

Surface treatment and decoration	Temper								Total	Percent
	Coarse gravel	Fine gravel	Sand	Micaceous sand	Leached shell	Shell	Shell and gravel	Feldspar		
CORD-IMPRESSED										
Not decorated	1862	149	29	10	2	16	12	1	2081	64.7
Decorated with:										
Pseudocord elements:										
Short parallel	4			1			—	—	5	0.2
Simple	7		1	1			—	—	9	0.3
Complicated		1					—	—	1	trace
Twisted cords:										
Short parallel	3			1			—	—	4	0.1
Simple	23		1				—	—	24	0.7
Fingernail	1						—	—	1	trace
Incised	2						—	—	2	trace
Punctated	1						—	—	1	trace
SMOOTH										
Not decorated	662	159	91	1	8	23	5	—	949	29.5
Decorated with:										
Pseudocord elements:										
Short parallel			1	—				—	1	trace
Simple	16	16	2	—				—	34	1.1
Complicated	1	6	1	—				—	8	0.2
Twisted cords:										
Short parallel	2	—	—	—				—	2	trace
Simple	18	4	2	—				—	24	0.7
Fingernail		—	2	—					2	trace
Incised	1	—	—		10	—			11	0.3
FABRIC-IMPRESSED		—	1		51	2			53	1.7
NET-IMPRESSED		—	2			—			2	trace
TOTAL	2603	335	133	14	71	41	17	1	3215	
PERCENT	81.0	10.4	4.1	0.5	2.2	1.3	0.5	trace		

rarely flat. Thicknesses rang from one-eighth to eleven-sixteenths of an inch (3.0 to 18 mm), with greatest thickening occurring in basal sherds. Orifices are oval to round. No appendages were noted (Figures 25*a,b* and 26).

DISTRIBUTION.—Potomac Creek Cord-impressed (and Plain) wares appear to have a relatively localized distribution. Bushnell's illustrations (1935) indicate it at a site on the Rappahannock River just west of Fredericksburg, and also at the Forest Hall Site, Richards Ford Site, Jerry's Flats Site, and possibly the Skinkers Ford Site, all located above the Fall Line on the Rappahannock. Bushnell (1937) illustrated the ware as occurring below the falls at the mouth of Chingoteague Creek in King George County. Other types, of course, are figured in Bushnell's illustrations. Holmes (1903, pl. 140) illustrates Potomac Creek Cord-impressed pottery from the Anacostia area of Washington. The type occurs plentifully at the site of Moyaone (the Accokeek Creek Site) on the Maryland shore. Here the ware shows a higher incidence of fine gravel tempering, and a greater frequency of complicated pseudo-cord decorations (Stephenson et al., 1963:113–120 and plates 13–18). Six sherds from an ossuary on Piscataway Creek

(Ferguson, 1940) are closely related to the Potomac Creek Cord-impressed ware, and there are indications that they represent a variety that might date to later in the 17th Century. Besides the Piscataway Creek examples, Schmitt collected similar sherds from sites at Hedge Neck near Broad Creek in Prince George County, Bullocks Neck on Mattawoman Creek, and Cedar Point Neck near Nanjemoy Creek, all on the Maryland shore. Other sites producing at least occasional Potomac Creek pottery are recorded by W. Clark (1980).

Griffin (in Manson et al., 1944) describes Potomac Creek pottery as a minority ware at the Keyser Farm Site, Page County, Virginia. It has also been found at the Cabin Run Site near Front Royal in Warren County, Virginia (Gardner, 1986:82). Dorothy Cross (1941, vol. 1, plates 10*a* and 22*b*) pictures sherds remarkably close in design and decoration technique from the Indian Head and Salisbury sites in southern New Jersey.

As a distinct type, Potomac Creek Cord-impressed is most frequent in the upper tidewater region of the Potomac valley and would not be expected to occur south of the Rappahannock nor north of the Susquehanna. To the west it occurs as a

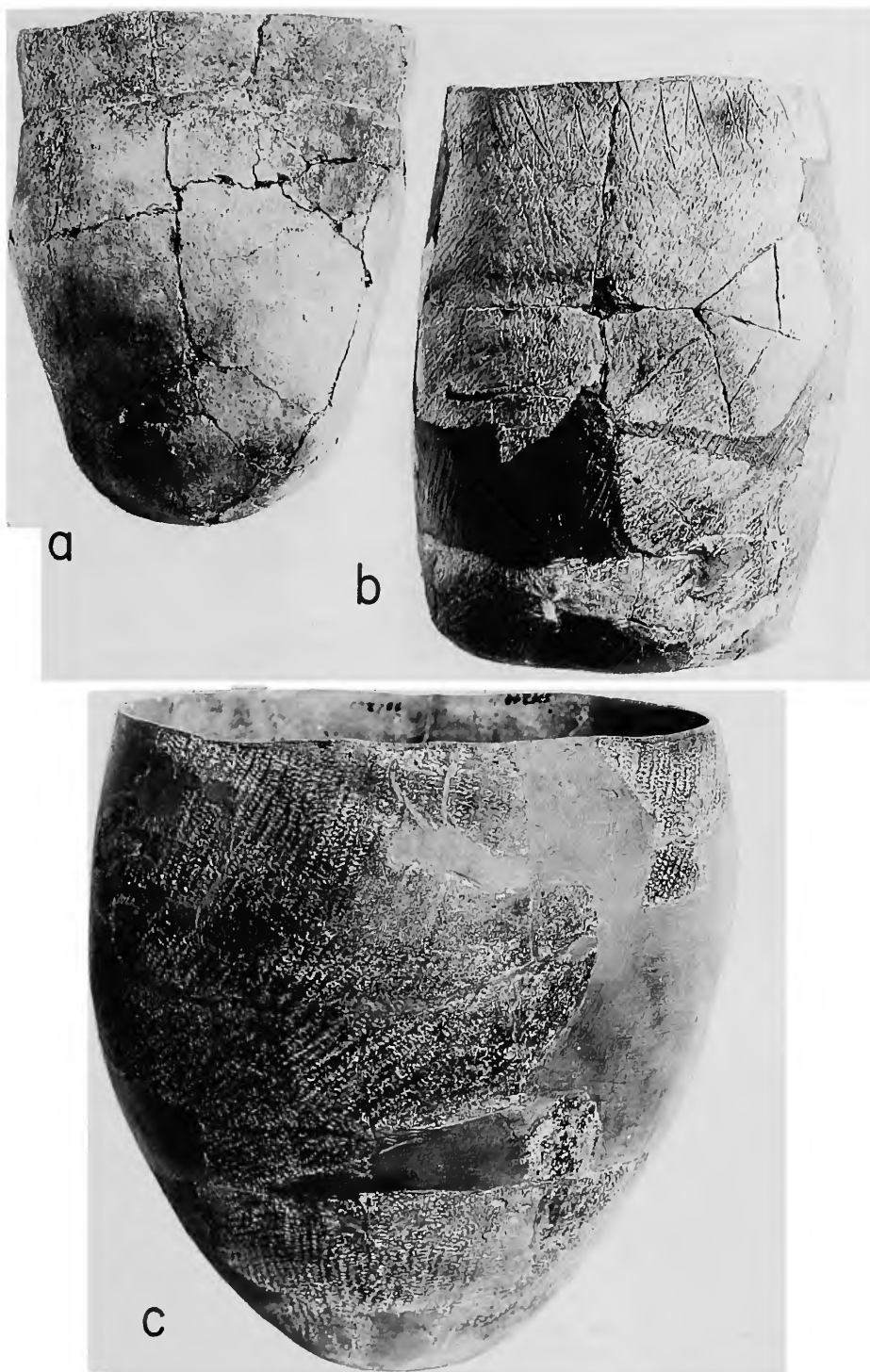


FIGURE 25.—The only restorable vessels from the Potomac Creek site: *a* and *b*, Potomac Creek Cord-impressed ware (USNM Nos. 385,240a and -234); *c*, Rappahannock Fabric-impressed ware (USNM No. 385,240).

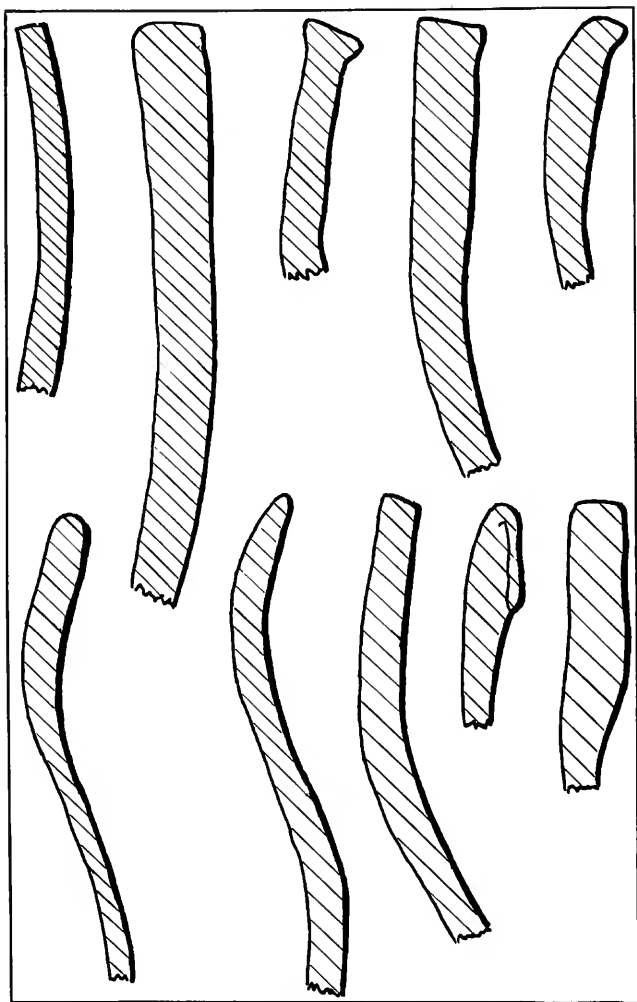


FIGURE 26.—Vertical sections of 10 rim sherds of Potomac Creek Cord-impressed type, oriented with exterior surfaces to right.

minority ware in the Piedmont area and in the lower half of the Shenandoah valley. Distribution to the east is not known, although it is uncommon along the Patuxent River, as well as in the valleys of the Severn and Patapsco rivers.

A closely related pottery type, Shepard Cord-marked, occurs at the Shepard site in Montgomery County, Maryland, and at other sites in the Piedmont area (Slattery and Woodward, 1992). Page Cord-marked, a type similar to Shepard Cord-marked but with a different temper (limestone) is a minority ware at the Keyser Site. Holmes (1903, pl. 134) illustrates sherds attributable to both these types from a site near Luray, Virginia. The cord roughening, pseudo-cord impressions, added rim strips producing collars, and bold-stroked elements and pseudo-cord impressions at the junction of the rim and collar are excellently shown. Holmes does not show a variation, occurring at the Shepard Site and represented by a few sherds

at Patawomeke, which has crude horizontal incised bands on the collar, as well as bold-stroked elements.

The broader relationships of Potomac Creek ware lie mainly to the north, where similar shapes and decoration techniques, but not actual designs, are found. The pottery of the Owasco Aspect of New York (Ritchie, 1944) and of the Lake Michigan Phase (McKern, 1931), the grit-tempered wares from Fort Ancient sites in the central Ohio Valley (Griffin, 1943), and of the Monongahela culture in southwestern Pennsylvania (Butler, 1939; Mayer-Oakes, 1955) are in the same tradition. A related ware, found at late (proto-historic) sites along the Rappahannock River, has been named Camden Plain (MacCord, 1969). The relationships apparent between the various wares will be discussed and evaluated in Part IV of this study.

Potomac Creek Sand-tempered Ware

FIGURE 31

PASTE.—Temper consists of a fine sand, which is more noticeable by touch than visually. It is possible, but not probable, that the sand was a natural inclusion in the potting clay. Tempering material is present in sparse to moderate amounts. Texture of the paste is medium to medium coarse. Exterior colors are buff to brown, with occasionally reddish and grayish black tones present. Hardness is between 2.0 and 3.0.

METHOD OF FABRICATION.—Sherds with coil breaks indicate that a coiling technique was used, though some of the miniature vessels appear to have been molded by hand from clay lumps. Some sherds with cord-roughened finish indicate that larger vessels were paddle-malleated.

SURFACE FINISH.—Smoothing predominates, although a minor number of sherds are cord-impressed.

DECORATIONS.—Decorated sherds are rare. Those present exhibit techniques of impressing with twisted cords, pseudo-cord, or fingernails and incising. Designs consist of short parallel elements and horizontal bands and triangles made by cord and pseudo-cord impressions and are confined to the rim area.

FORM.—Vessels of several shapes are observed, including small pots under six inches (15 cm) in height, with rounded or flattened bases and straight rims. Larger, wide-mouthed vessels are also present and indicate that this type overlaps with the Potomac Creek Cord-impressed type. The majority of the vessels are small, many being miniatures.

DISTRIBUTION.—This type is little known but would be expected to have a distribution similar to that of the Potomac Creek Cord-impressed type. Stephenson (1963:120) designated this as "Moyaone" ware, but this name has been challenged.

Minority Wares

FIGURES 32, 33

In the collections from Patawomeke there are at least four other named ceramic types, plus some unclassifiable speci-

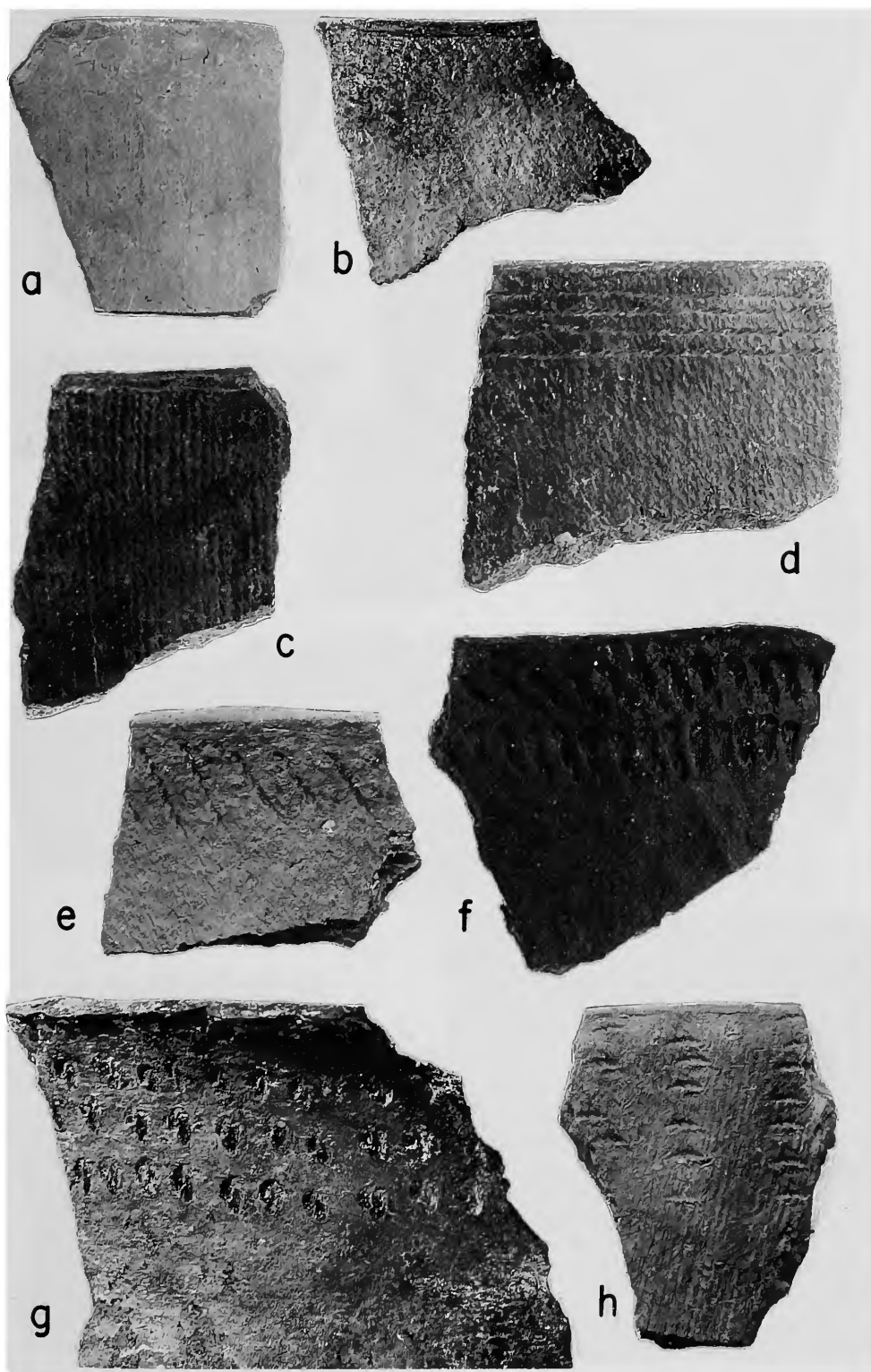


FIGURE 27.—Potsherds of Potomac Creek Cord-impressed ware. All but sherd *a* are of Potomac Creek Cord-impressed type; all but *c* are rim sherds; *a* is unclassified. USNM numbers represented are 378,892; 385,212; 385,241; and 385,192.

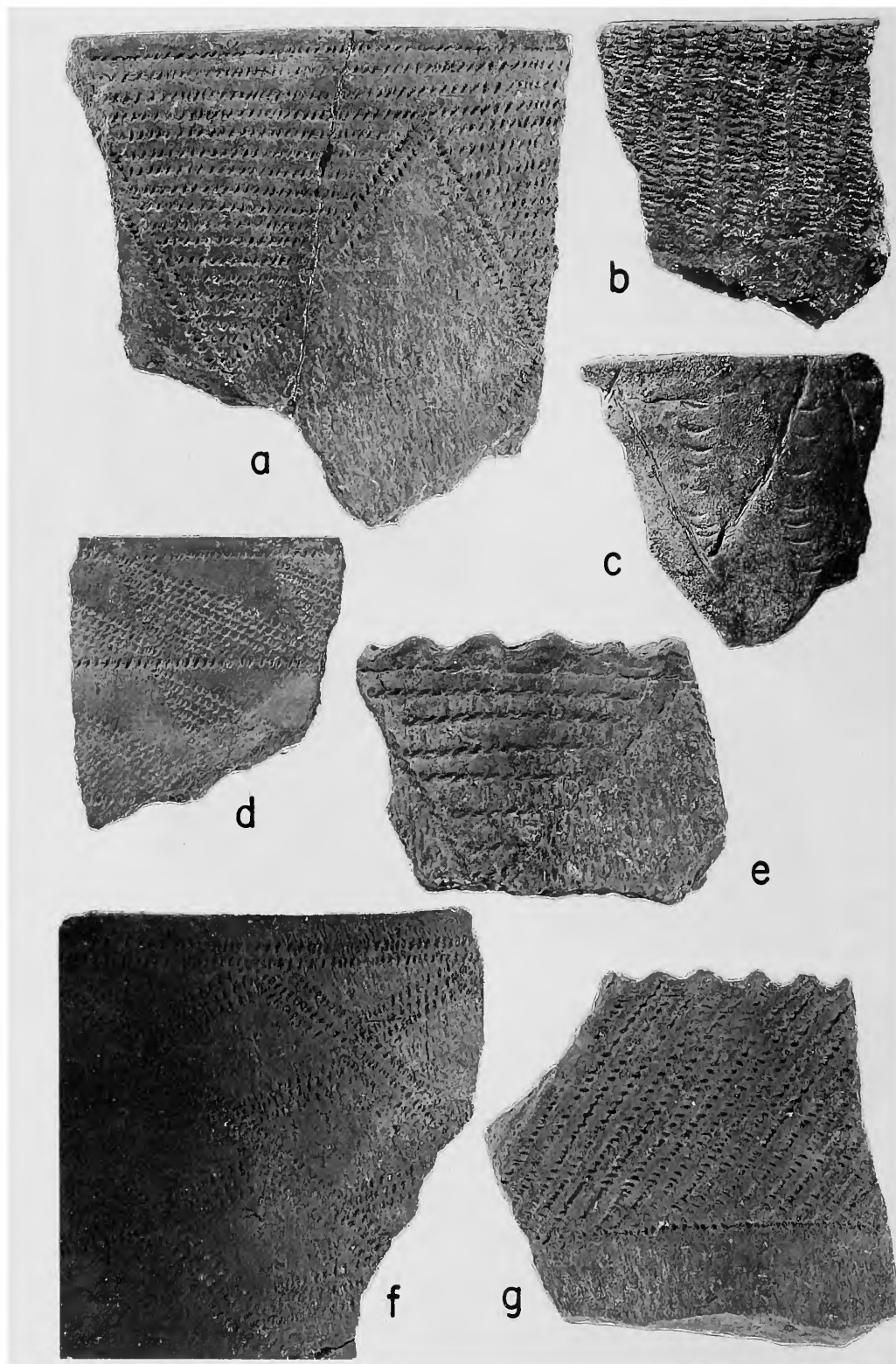


FIGURE 28.—Rim sherds of Potomac Creek Cord-impressed type (*a, d, e, f*, and *g* bear USNM No. 378,692; *b*, 385,241; *c*, 385,217).

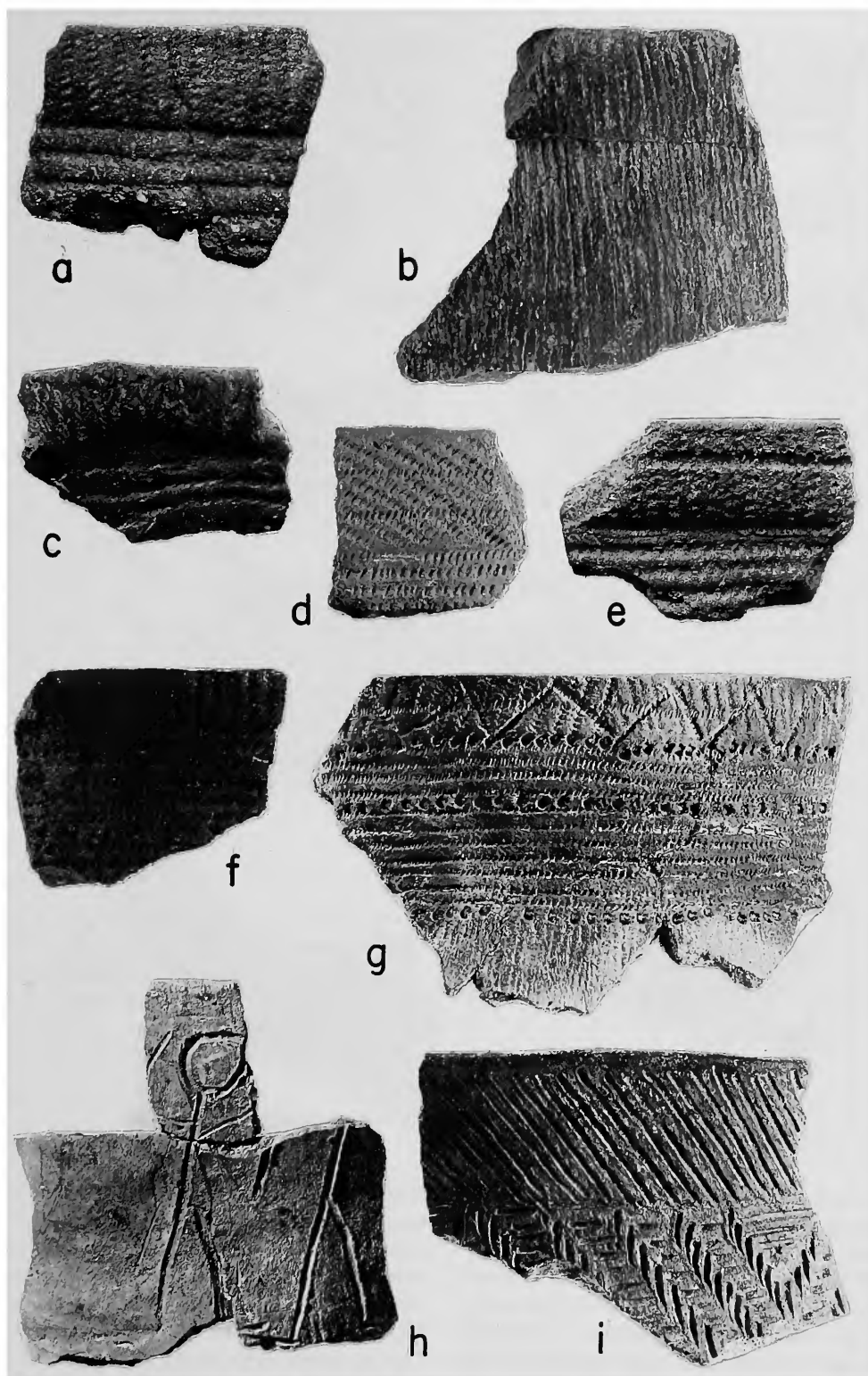


FIGURE 29.—Rim sherds of Potomac Creek Cord-impressed type (*a–g*); unclassified (*h*); and Rappahannock Fabric impressed type (*i*). All are covered by USNM numbers 378,678, -692, -725; 385,180, -235B, -241.

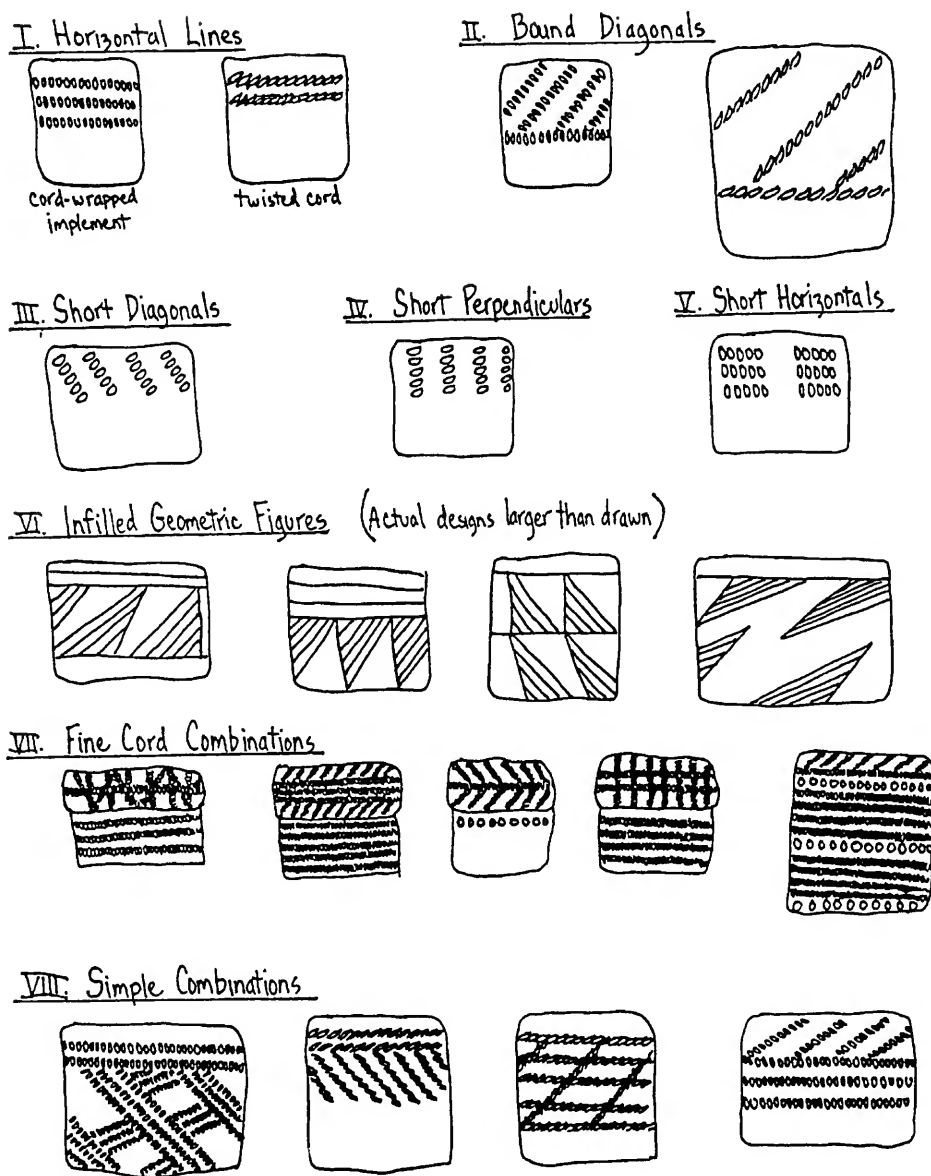


FIGURE 30.—Design motifs of rim sherds, Potomac Creek ware.

mens. None of these can be considered as part of the cultural complex represented by the major occupation of the Potomac Creek Site. All seem to be items lost or discarded by previous occupations of the site. Accordingly, these types will be mentioned only briefly, but the interested reader is referred to other sources of data for each type. Further, none of these minor pottery types was found in quantity. Amounts range from two sherds to a maximum of 152.

RAPPANNOCK FABRIC-IMPRESSED.—This type is well known through Blaker's (1950, 1963) studies of ceramics from the Townsend Site near Lewes, Delaware. In Evans (1955), the

shell-tempered wares of this type were assigned a new overall ware name—Chickahominy, although the Townsend ware name seems to have priority and is most commonly used in current studies. The ware is also described by Stephenson (1963) for the Accokeek Creek site. Examples of those found at Patawomeke are shown in Figure 32, also Figures 25c and 29i. The Patawomeke sample is 152 sherds.

KEYSER CORD-MARKED.—This shell-tempered ware differs from the foregoing in the type of shell used. Rappahannock is usually tempered with crushed oyster shells, whereas the Keyser type is tempered with mussel shell particles. The ware

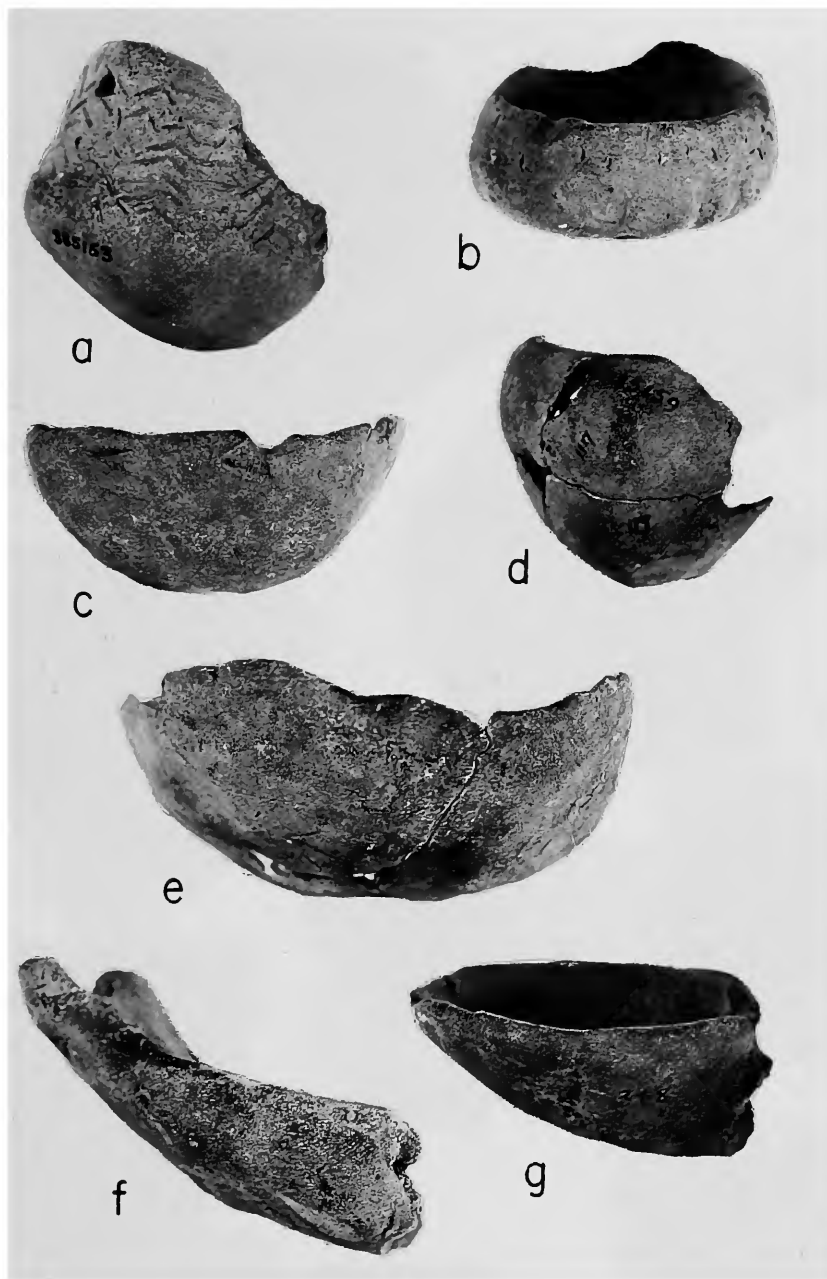


FIGURE 31.—Six miniature vessels (a-f) and a ladle (g) of Potomac Creek Sand-tempered ware. Near natural size. USNM Nos. 385,163 (a); -161 (b); -158 (c); -159 (d); -160 (e); -164 (f); -162 (g).

is named from a site in Page County, Virginia, where it was first identified (Manson et al., 1944). It also occurs at sites in the Potomac valley as far east as the Hughes Site (Stearns, 1940). It seems to be the latest ceramic type found in the Potomac River valley west of the Fall Line, and is deemed to be an eastern expression of the Monongahela Culture. A total of twenty sherds of this type was found at Patawomeke.

SHEPARD CORD-MARKED.—This type, of which only eight

sherds were noted at Patawomeke, is named for a site in Montgomery County, Maryland, and it occurs extensively in the Piedmont portion of the Potomac Valley and into the valleys of its tributaries, the Monocacy and Shenandoah. This ware and its distribution has been fully described by Slattery and Woodward ("The Montgomery Focus," 1992). The attributes of this type merge into those of the Potomac Creek types, and it is considered by MacCord (1985) to be ancestral to

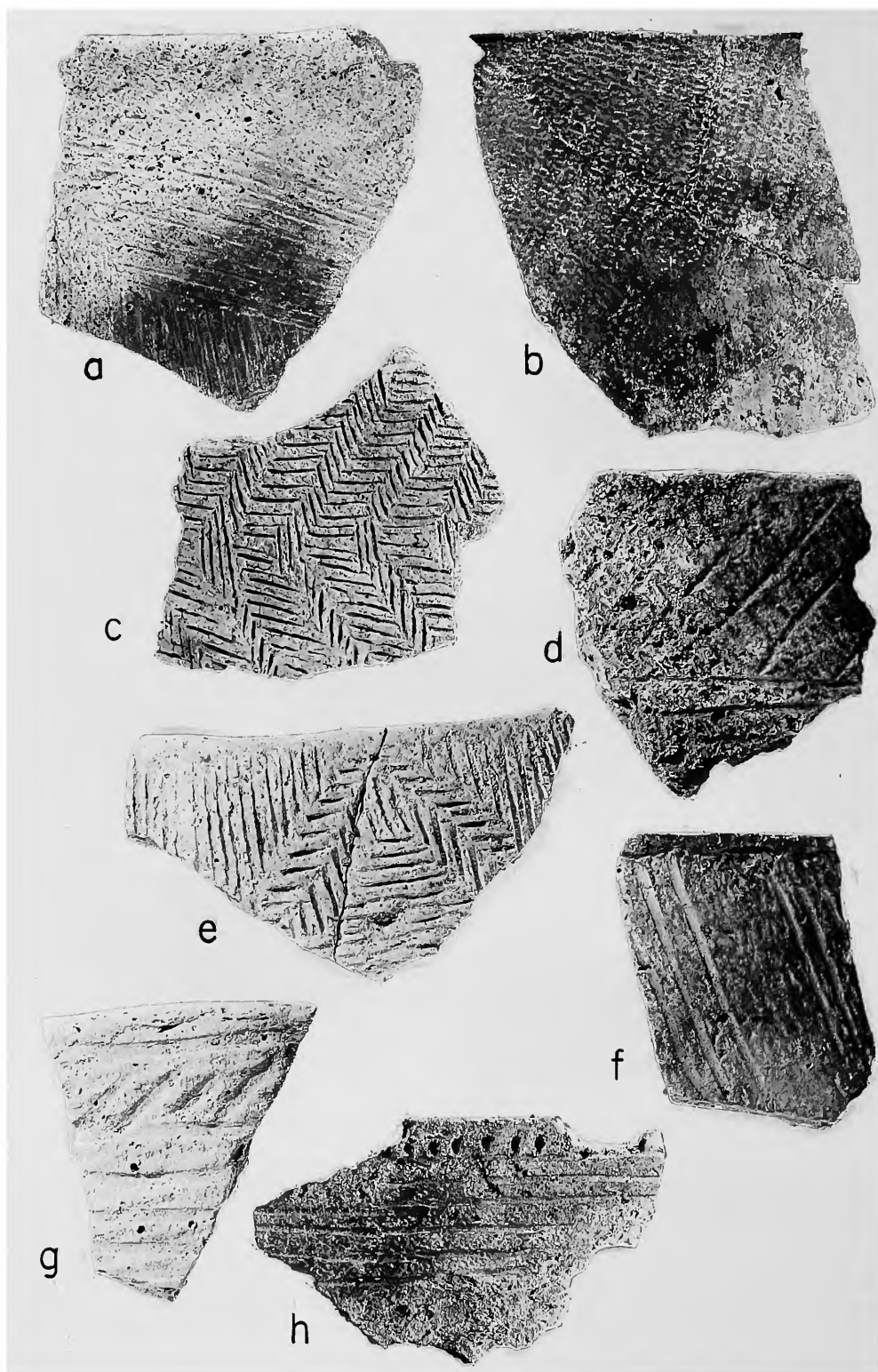


FIGURE 32.—Eight sherds of Rappanock Fabric-impressed ware. Only *c* not from a rim. All bear USNM No. 385,238, but *b* is now part of restored vessel 382,240 pictured as *c* in Figure 25.

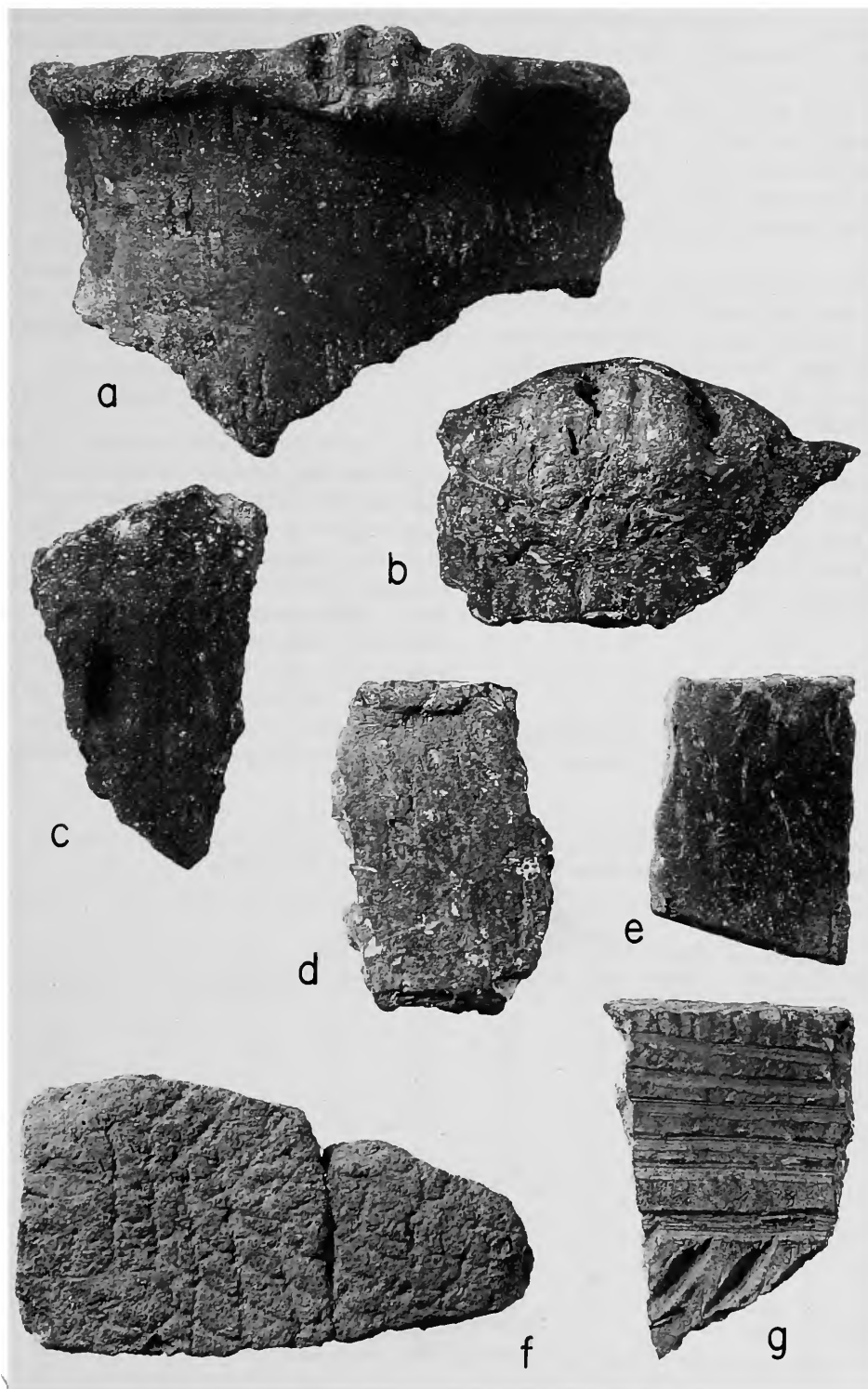


FIGURE 33.—Three types of introduced wares: (1) Keyser Cord-marked (*a-e*), (2) Shepard Cord-marked (*g*), and Pope's Creek Net-marked (*f*). All but *c* and *f* are rim sherds. USNM numbers are 378,692 (*a*); 385,236 (*b-g*).

the latter wares.

POPE'S CREEK NET-MARKED.—Two sherds of this type were found in the work done at Patowomeke during the period 1935–1940. They are thick, sandy sherds. The ware is named for the famous Pope's Creek shell midden site in Charles County, Maryland, although the ware is common in many shellheaps in coastal Maryland and Virginia. It has been dated to the Early Woodland Period and seems to be one of the earliest wares in the region (McNett, 1975, and Stephenson et al., 1963:94).

UNCLASSIFIED SHERDS.—Forty-three sherds were recovered in the current work, but were not classified by Schmitt. They varied in tempering and, in some instances, surface finish, from the foregoing classified types. Some tempered with a micaceous sand may relate to the type Potomac Creek Cord-impressed, although Schmitt had reservations about assigning them to this group. Others with cord-marked surfaces showed cavities from which crushed shell had been leached. These may belong with the Townsend Series sample, or they might be examples of an earlier type (Stephenson et al., 1963). A few sherds, tempered with crushed feldspar or steatite, were not distinctive enough to classify into the Marcey Creek type (Evans, 1955).

Summary

To summarize the data on ceramic vessels, two major types were defined by Schmitt in his 1942 analysis—Potomac Creek

Cord-impressed and Potomac Creek Sand-tempered. The smoothed variety of Potomac Creek Cord-impressed has been renamed Potomac Creek Plain. These three wares comprise the ceramic pots, dishes, and containers made and used by the occupants of the village, 44St2, at Potomac Neck. The analysis of the pottery by Schmitt is tabulated in Tables 2, 3, and 4. The later analysis by Jirikowic has been presented as Tables 5 through 9. The overall findings by Ms. Jirikowic confirm substantially those of Karl Schmitt, although her analysis provides greater detail on various aspects of the ceramics. For instance, she counted the shapes of 91 basal sherds and found them to vary as follows: Flat—14 (15.4%); Conoidal—42 (46.2%); Globular—1 (0.1.0%); and Unknown—34 (37.4%).

TOBACCO PIPES: CERAMIC AND LITHIC

The Graham collection contains 15 complete and 161 fragmentary clay pipes, two complete steatite pipes, and a bowl of another. The collection of the Museum field parties contains three whole and 103 fragmentary clay pipes and two fragmentary steatite pipes—a bowl and a stem. Most of the complete specimens measure between 2.5" and 6" (62 to 150 mm) in length, although larger forms may occur, judging from some of the fragments. Each fragment and complete pipe was inspected for the various attributes of form, paste, and decoration, and these are shown in Table 10. The results of the 1988 re-analysis by Ms. Jirikowic are shown in Table 11.

FORM.—Two basic shapes were differentiated: a tubular type

TABLE 5.—1988 Re-analysis of pottery temper and surface treatments (coarse gravel = particles over 1 mm; fine gravel = particles under 1 mm; sand/gravel = sandier than usual gravel-tempered sherds).

Surface treatment	Temper						Untempered	Total	Percent
	Coarse gravel	Fine gravel	Sand/gravel	Sand	Shell	Sand and shell			
RIM SHERDS:									
Smooth	196	4	13	126	6	4	26	375	47.8
Cord-impressed, fine	191	6	11	23	2	1	3	237	30.2
Cord-impressed, coarse	83	1	2	5			1	98	11.7
Fabric-impressed					15			15	1.9
Net-impressed	1			1		—		2	0.3
Indeterminate	34	1	1	19	7	1		63	8.0
TOTAL	505	12	27	174	30	6	30	784	
PERCENT	64.4	1.5	3.4	22.2	3.4	0.7	3.8		
BODY SHERDS:									
Smooth	288	3	35	144	3	6	7	486	33.5
Cord-impressed, fine	347	5	8	72	4	1	—	437	31.9
Cord-impressed, coarse	256			15	5	1	—	277	20.2
Fabric-impressed				15	132		—	147	10.7
Net-impressed				7	5	1	—	13	0.9
Indeterminate	3		1	1	3	1	—	9	0.7
TOTAL	894	8	44	254	152	10	7	1369	
PERCENT	65.3	0.7	3.2	18.6	1.1	0.8	0.6		

TABLE 6.—1988 re-analysis of ceramic decorative techniques.

Technique	Body sherds	Rim sherds
Cord-wrapped object	120	257
Twisted cord	66	233
Incised lines	32	31
Hollow punctate		3
Solid punctate	2	6
Cord-wrapped object and punctate	4	11
Combination	2	4
Fingernail impression	2	1
Single cord/knot impressed	1	18

TABLE 7.—1988 analysis of cordage shown on ceramics.

Ceramic element	Z-twist		S-twist		Indeterminate		Total
	No.	%	No.	%	No.	%	
Body sherds:							
Surfaces:							
Fine cord-impressed	219	89.0	13	5.3	14	5.7	246
Coarse cord-impressed	175	88.4	10	5.1	13	6.6	198
Decoration:							
Twisted cord	56	83.6	11	16.4			67
Rim sherds:							
Surfaces:							
Fine cord-impressed	191	79.6	12	5.0	37	15.4	240
Coarse cord-impressed	63	68.5	3	3.3	26	28.3	92
Decoration:							
Twisted cord	189	81.1	44	18.9			233
TOTAL	893	83.0	93	8.6	90	8.4	1076
% of identified		89.4		10.6			986

TABLE 8.—1988 analysis of rims and rim treatments.

A. Rim treatment						
Treatment	Self-rimmed, not thickened		Thickened, folded/added		Total	Percent
	No.	%	No.	%		
Flat, plain	277	40.6	47	50.5	324	41.8
Flat, cord-marked	93	13.6	19	20.4	112	14.4
Rounded	137	20.1	21	22.6	158	20.4
Scalloped	91	13.3	1	1.1	92	11.9
Lipped	85	12.4	5	5.4	90	11.6
TOTAL	683	88.0	93	12.0	776	

B. Rim profiles (all rimsherds)

Profile	No.	%
Vertical	466	60.4
Everted	287	37.2
Inverted	19	2.4
TOTAL	772	

C. Thickened rims: decorative techniques and motifs

Technique	Fine cord	Horiz. lines	Bound diag.	Short diag.	Comb	Other
Cord-wrapped object	39	3	3	0	5	0
Twisted	—	4		4	3	2
Incised	—	2				1
Cord-wrapped and punctate	5	1				
Combinations	2					

Total of thickened rims = 93 (out of 776 total rims)

Number of undecorated, thickened rims = 47 (50.5%)

TABLE 9.—1988 analysis of rim tempering vs. decoration and surface treatment.

Decorations and surfaces	Temper				No temper	Total	Percent
	Fine and coarse gravel	Sand/ gravel	Sand	Shell			
A. Smooth							
Plain	33	1	23	5	11	73	19.5
Twisted cord	58	4	44		9	115	30.7
Cord-wrapped object	95	5	51	1	1	153	40.8
Incised	4		3	3	5	15	5.8
Hollow punct.	2					2	0.5
Solid punct.		1	1			2	0.5
Cord/Punct.			4	—		4	1.0
Combination	1		—	—		1	0.2
Fingernail		1	—	—		1	0.2
Cord/knot	7	1	—	1		9	2.9
TOTAL	200	13	126	10	26	375	
PERCENT	53.3	3.5	33.6	2.7	6.9		
B. Fine Cords							
Plain	73	3	8	3	2	89	37.6
Twisted cord	70	2	11		1	84	35.4
Cord-wrapped object	41	1	2			44	18.6
Incised	2	—			—	2	0.8
Hollow punct.	1	—			—	1	0.4
Solid punct.	2	1			—	3	1.1
Cord/punct.	2	2	1		—	5	2.1
Combination	—	1			—	1	0.4
Cord/knot	6	1	1		—	8	3.4
TOTAL	197	11	23	3	3	237	
PERCENT	83.1	4.6	9.7	1.1	1.1		
C. Coarse Cords							
Plain	42		3	—	1	46	50.0
Twisted cord	31		2	—		33	35.9
Cord-wrapped object	9	2		—		11	11.9
Incised	1			—		1	1.1
Cord/knot	1			—		1	1.1
TOTAL	84	2	5	—	1	92	
PERCENT	91.3	2.2	5.4	—	1.1		

and one in which the bowl forms an obtuse angle with the stem. A unique specimen of steatite (Figure 34a) is conoidal or vase-shaped, with a side perforation for inserting a reed stem. The perforation is inclined upward from near the bottom, so bowl and stem form an obtuse angle like most of the other pipes.

The bowls taper gently to meet the stem. Rims of the bowls are flattened or rounded. Beveling occurs infrequently. One specimen (USNM Catalog No. 378,821) possesses a visible weld line between the bowl and the stem.

Stems are predominantly circular in cross section, although truncated circular, triangular, rectangular, and diamond-shaped forms also occur. Stem perforations usually were made by molding the clay around a smooth reed or stick; some

perforations suggest that twisted grasses were also used to mold the stem holes.

The bits vary greatly in conformation, as shown in Figure 35. The simplest exhibit a rounded or simple flattened lip forming a continuation of the cylindrical stem. Others possess a swelling just before the lip, which is most often flattened but occasionally is beveled. A few bits are expanded into triangular and rectangular forms and are associated with obtuse angle pipe forms. These are generally of better workmanship than are the tubular pipe forms. Bits on the tubular pipes are usually tapered to a clumsy, rounded end (Figure 34g).

PASTE.—A fine clay was used in the manufacture of most pipes. Temper, if present, is predominantly fine sand, which may have occurred naturally in the clay used. Occasional

TABLE 10.—Frequency of pipe traits by collection (by Karl Schmitt).

Pipe traits	Graham collection	Museum collection	Total	Percent
Material:				
Clay	176	106	282	98.3
Steatite	3	2	5	1.7
TOTAL	179	108	287	
Form:				
Obtuse	23	15	38	55.9
Tubular	14	9	23	33.8
Conoidal	1		1	1.5
Beveled lip	1	5	6	8.8
TOTAL	39	29	68	
Bit:				
Swollen, flattened	27	4	31	27.4
Cylindrical, flattened	24	7	31	27.4
Cylindrical, rounded	2	3	5	4.4
Swollen, beveled		3	3	2.7
Expanded, triangular	11	3	14	12.4
Expanded, rectangular	3	3	6	5.3
Tapered, rounded	17	6	23	20.4
TOTAL	84	29	113	
Stem cross-section:				
Round	71	64	135	83.9
Tuncated circular	3	3	6	3.7
Rectangular	14	4	18	11.2
Triangular	1		1	0.6
Diamond-shaped	1		1	0.6
TOTAL	90	71	161	
Decoration/motif:				
Hachured stamp	29	18	47	
Zoomorphic				
Snake	1	1	2	
Salamander	—	1	1	
Humanoid	—	1	1	
Negative design		1	1	
Incised design	6	1	7	
Twisted cord design	1		1	
Cord-wrapped paddle edge	1	1	2	
Pinched	1		1	
Reed punctate	1	2	3	
Raised motif	2	1	2	
Gravel temper	3	6	9	

specimens are tempered with quartz gravel.

The color range of the clay pipes is from tan through dark brown to grayish black. Many specimens have received a high polish, which completely obscures the paste texture. Because the polishing (burnishing) is subject to weathering, the polish is dulled or missing on a number of specimens, but with small spots of polishing remaining. In cases where the weathering has taken place, the texture is seen as sandy. Some pipes were smoothed without polishing, and others show many small facets such as would result from smoothing or scraping when the clay was almost dry.

DECORATION.—The major decoration technique resembles rouletting, but was more probably produced by a small, notched

stamp. (See Figure 36 for examples of this work.) The late ethnologist, Frank G. Speck, suggested that the edge of a fossil shark tooth could have been used as a stamp. Experiments with plasticene and a shark tooth produced a result very close to that shown on the pipes. Rarely, a delicate cord-wrapped edge was used to form the impressions. By one means or another, straight lines of small, delicate, regular indentations were arranged to form connected triangles, rectangles, and some life forms. These designs are usually hatched with other fine dentate lines. The life forms, basically geometric in their execution, are two humanoid figures; a salamander or lizard; and a snake. These are shown in Figures 37, 38. The eyes of two of these figures are represented by reed punctations (Figures 37a and 38c). One

TABLE 11.—1988 re-analysis of clay pipes.

Pipe traits	Pipe types						Total	
	Tubular		Obtuse		Unknown			
	No.	%	No.	%	No.	%	No.	%
Tempering:								
Sand	24	39.3	2	1.9	22	17.3	48	16.3
Gravel	3	4.9	–	81.7	3	2.4	6	2.0
None	34	55.7	105	98.1	102	80.3	241	81.7
TOTAL	61		107		127		295	
Stem Cross-section:								
Round	50	81.9	73	70.2	90	70.9	213	72.9
Flat	5	8.2	15	14.4	11	8.7	31	10.6
Square			8	7.7	5	3.9	13	4.5
Diamond			1	1.0			1	0.4
Indeterminate	6	9.9	7	6.7	21	16.5	34	11.6
TOTAL	61		104		127		292	
Bit (mouthpiece):								
Round	3	4.9	25	23.4	22	17.3	50	16.9
Flat	2	3.3	3	2.8	6	4.7	11	3.7
Swollen/flat	1	1.6	6	5.6	5	3.9	12	4.1
Swollen/beveled	–		7	6.5	5	3.9	12	4.1
Triangular	–		18	16.8	–		18	6.1
Rectangular	–		3	2.8	–		3	1.0
Tapered	27	44.3	1	0.9	15	11.8	43	14.6
Indeterminate	28	45.9	44	41.1	74	58.3	146	49.5
TOTAL	61	107		127		295		
Decorative Technique:								
Roulette-like	6	9.8	25	23.4	34	26.8	65	22.0
Incised	1	1.6			3	1.4	4	1.4
Punctate			1	0.9	2	1.6	3	1.0
Cord-wrapped	1	1.6					1	0.3
Pinched		–	1	0.9		–	1	0.3
Raised			1	0.9		–	1	0.3
Plain	53	86.9	80	74.8	87	68.5	220	74.6
TOTAL	61		107		127		295	
Decorative Motifs:								
Horizontals	2	25.0	4	14.8	10	25.0	16	21.3
Bound diagonals	2	25.0	8	29.6	5	12.5	15	20.0
Infilled triangles	1	12.5	5	18.5	7	17.5	13	17.3
Infilled, other	1	12.5	8	29.6	10	25.0	19	25.3
Line design	2	25.0	–	–	1	2.5	3	4.0
Other			2	7.4	7	17.5	9	12.0
TOTAL	8		27		40		75	
Burnished	16	8.9	93	51.7	71	39.4	180	

negative design, brought out on a background of roulette-like indentations was noted (Figure 39c).

Other techniques of decoration—incising, impressing with twisted cords, pinching, reed punctating, and modelling of raised motifs—were used but rarely. Two specimens showing the last technique were found (Figure 34l): one motif consists of a spiral ridge around a stem fragment; the other possibly represents a salamander with lines of dentate stamping on the legs.

One of the larger pipes (Figure 34k) bears a decoration of closely spaced, regular, square indentations that may have been made with a metal tool. Also, one of the steatite pipe bowls

(USNM Catalog No. 385,153) carries several regularly spaced scratches such as might result from the use of a coarse metal file. An obtuse-angle steatite pipe found by Judge Graham (Figure 34f) has the remnants of a cylindrical copper band around the stem near the bit. Aside from these few possibilities, the pipes seem to have been manufactured entirely with the tools and techniques available to the pre-Contact Indians. During the early 1950s, I experimented with techniques for duplicating the designs found on the clay pipes for Patowomeke and from other sites in coastal Virginia. Using a liquified latex, I was able to “lift off” the designs from pipe bowls and see more clearly the techniques used in creating the designs. The

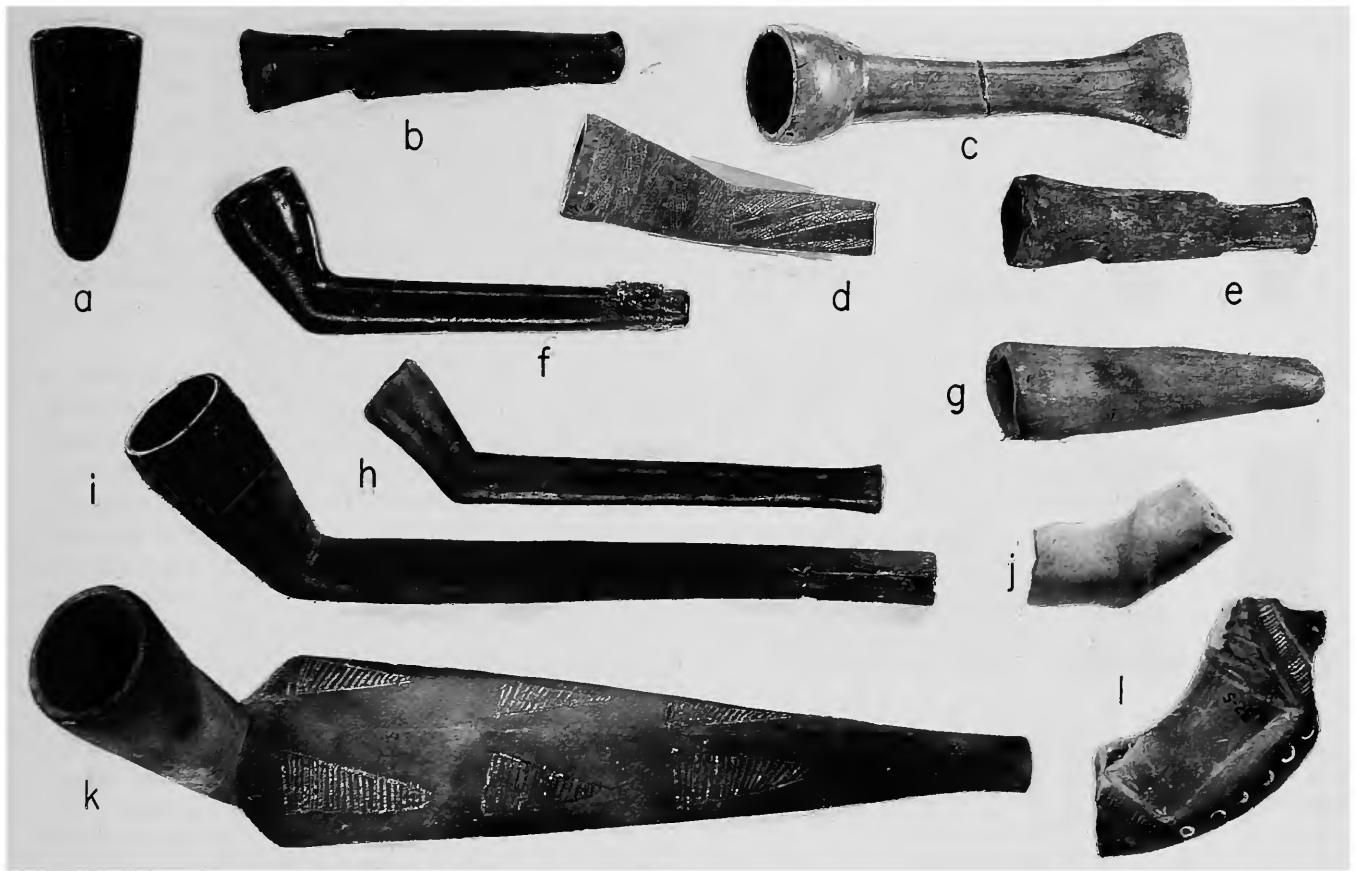


FIGURE 34.—Twelve pipes from the Judge Graham collection from Patawomeke: *a* and *f* are steatite, the others ceramic. For further details of *d* and *k* see Figures 39*a* and 38*d*. USNM numbers are 378,728 (*b*); -819 (*d*); -820 (*e*); -865 (*g*); -892 (*k*); -893 (*a*); -895 (*h*); -896 (*f*); -914 (*i*); -926 (*j*); -949 (*c*); -982 (*l*).

results of my studies on this topic were published in 1954 (Stewart, 1954).

DISTRIBUTION.—Holmes (1903:158) characterized the pipes of the Chesapeake region as “slightly bent tubes from 4 to 6 inches [10 to 15 cm] in length, having gently expanding bowls less than 2 inches [5 cm] long, and stems that taper slightly to a neat mouthpiece.” He also notes cases of flattening the bit to furnish a better grip for the lips or teeth, and rare cases of an indented technique of decoration, which he suggests was made by a delicately notched roulette. The pipes from Potomac Creek fall well within this description, with the exception that the roulette-like decoration could easily have been produced by a fine dentate stamp.

Pipes from ossuaries at Port Tobacco, Maryland (Graham, 1935), appear identical to those from Potomac Creek. Judge Graham illustrated two examples of obtuse-angle clay pipes, one with a bevelled bowl, and the other showing roulette-like decoration at the juncture of the stem and bowl. At the site of Moyaone (Stephenson et al., 1963), Ferguson found the same

types, including bevelled rims on a bowl and roulette-like techniques of decoration. Design elements are similar, with joined dentate-filled triangles predominant. A snake-like figure with reed-punctate eyes, like that from Patawomeke, also occurs at Moyaone. Speck (1928, fig. 119) pictures fragments of pipes from the Pamunkey Reservation in Virginia that show features similar to those from Patawomeke and Moyaone, especially the roulette-like decorative techniques. The few pipes from the Keyser Farm Site (Manson et al., 1944) are the same type as those from Patawomeke. The few specimens include one decorated with a design of joined, hachured triangles in fine dentate stamping, and several flared triangular bits.

One pipe from the Shepard Site exhibits a roulette-like technique of decoration (MacCord et al., 1957:7); another possesses a swollen, flattened bit like those at Patawomeke. However, the pipes of the Shepard Site deviate from the Patawomeke specimens in having bowls appearing larger relative to the stem. Moreover, other decorative techniques,



FIGURE 35.—Pipe bits showing the range of variation: *b* and *c* differ in being squarish. USNM numbers are 378,734 (*e*); -799 (*a*); -885 (*h*); -926 (*c* and *d*); -954 (*b*); 379,141 (*g*); 385,214 (*f*).

particularly incising and punctating, appear to be more frequent than dentate stamping. This statement also seems true for pipes from the Hughes Site, although one specimen from the excavation has joined, hachured triangles produced by a fine dentate stamp and would easily fit into the Patowomeke series (Stearns, 1940, pl. 3b).

Butler (1939) figured pipes from three sites in Somerset County, Pennsylvania, which are of the same general obtuse-angle type and which she described as bearing rouletted or incised decorations. Pipes with oval or square cross-sectional stems were noted, and one bit is said to be "similar to those found on mouthpieces of modern briar pipes." Probably the latter is like the expanded, flattened, triangular type found at Potomac Creek. Somerset County pipes again appear to have large bowls in proportion to their stems. The bowl does not merge gently into the stem and often possesses a large symmetrical bulge at the juncture. Cadzow (1936) illustrated both tubular and obtuse-angle pipes (one of which appears to bear a dentate-stamp decoration) from the late prehistoric site at Shenk's Ferry, not far above the mouth of the Susquehanna River in Pennsylvania.

A pipe from the Murray Site in central New Jersey (Cross, 1941, pl. 39b) is similar to one from Patowomeke, possessing the obtuse-angle form, a long stem, and a dentate-stamp decoration on the bowl. The pipes from the Owasco Aspect of

New York State again exhibit the general obtuse-angle shape and decoration by dentate stamping. Impressing by cord-wrapped edges and thread-wrapped objects also was used, producing a result quite similar to dentate stamping. Bowls are larger in proportion to the stem and often the bowls are swollen into bulges at the junction of the bowl and stem. These comparisons with pipes of the Owasco Aspect derive from various publications by Ritchie and A.C. Parker, plus the first-hand experience of Karl Schmitt, who participated in the excavations at the Castle Creek Site, Broome County, New York.

Some of the numerous pipes found in the excavations at Jamestown resemble those found at Patowomeke (Harrington, 1951). Many of these have shapes and decorations of apparent aboriginal origin or influence. Although the pipes do not appear to be of native manufacture, they may be a Colonial or European approach to an Indian ideal. The style of decoration appears to have been borrowed by the English along with pipe forms and the idea of smoking itself. In the execution of the design, a true roulette may sometimes have been used. As already stated, while rouletting was found on one pipe at Patowomeke, the pipe itself appears to be of native manufacture, and not English.

As with pottery vessels, the distributional evidence of the pipes indicates northern relationships. The general obtuse-angle shape is shared by the whole northeastern region, whereas the more graceful church-warden type is more typical of Virginia and nearby areas. The same decorative techniques, in the main dentate stamping but possibly also rouletting, were in use throughout the mid-Atlantic coastal region. In addition, the pipe fragments bearing modeled figures (Figure 34*l*) are similar to those in late sites in eastern Pennsylvania, New York, and in the Great Lakes region. The straight, well-made pipe shown in Figure 34*c* resembles several found at the protohistoric John Green Site (44Gv1) on Meherrin River near Emporia, Virginia (MacCord, 1970, fig. 4).

More recent excavations in Virginia at a variety of sites have produced pipes of similar shapes and general appearance to those found at Patowomeke. These sites are as follows:

Crab Orchard Site, Tazewell County	(MacCord and Buchanan, 1980)
Trigg Site, Radford	(Buchanan, 1984)
Shannon Site, Montgomery County	(Benthall, 1969)
Hercules Site, Alleghany County	(Johnson, 1980)
Miley Site, Shenandoah County	(MacCord and Rodgers, 1966)
Elm Hill Site, Mecklenburg County	(MacCord, 1968)
Hand Site, Southampton County	(Smith, 1984)
Hatch Site, Prince George's County	(Gregory, unpublished data)

Such a widespread distribution of similar pipe forms and design motifs hint that pipe smoking and its technologies are part of the generalized Woodland pattern and thus are of limited value as culturally diagnostic artifacts.

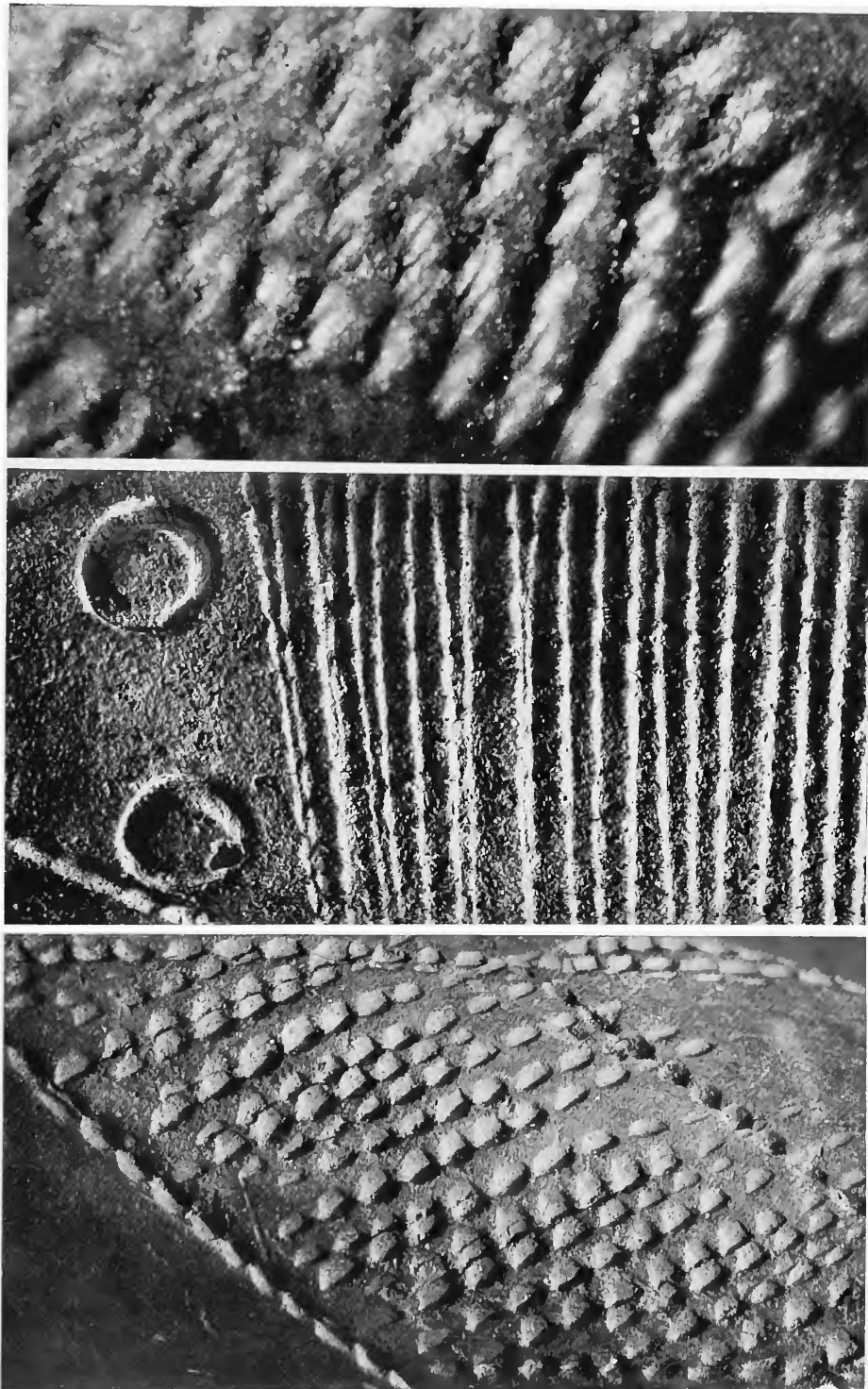


FIGURE 36.—Photomicrographs of latex casts of three pipe decorations taken in a low ranking light. *Top*, part of whole design in Figure 39b. *Center*, Part of whole design in Figure 38c. *Bottom*, part of whole design in Figure 37b.

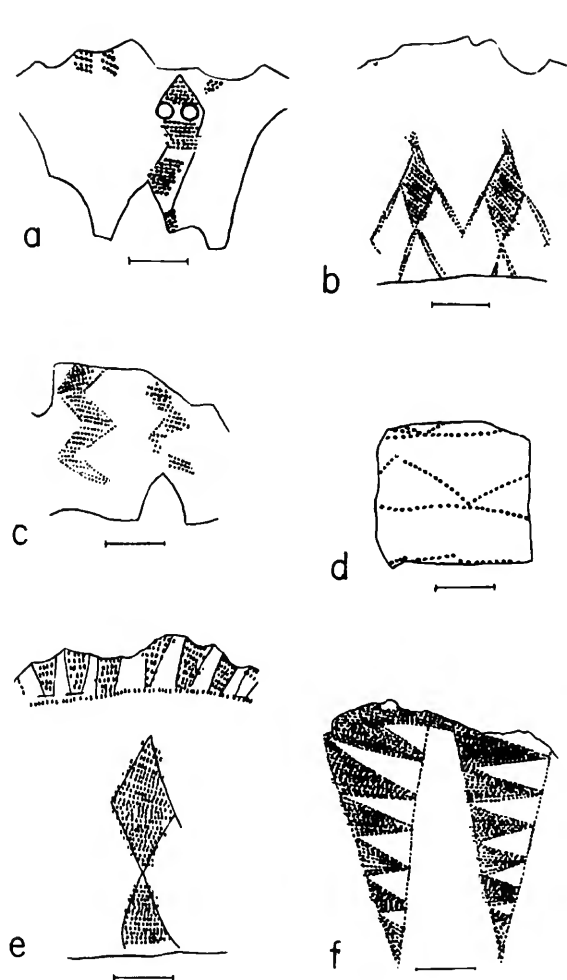


FIGURE 37.—Designs from 6 pipe fragments (after Stewart, 1954): *d* and *e* include base of bowls; otherwise all are stems and *d* is a tubular pipe. Figure 37*b* supplied the detail in Figure 36 (*bottom*). USNM numbers are 378,734 (*e*), -776 (*a*); -885 (*b*); 385,155 (*c, d*, and *f*). (Scale bars = 1 cm.)

The 1988 re-examination of the Patowomeke collection of pipes produced the tabulations shown in Table 11. Further, Ms. Jirikowic made comments, as follows:

The sample of 295 clay pipes and pipe fragments include a total of 259 specimens from the collections of Graham and Stewart, 33 specimens from Slaterry's Potomac Creek collection (USNM #417,373), two specimens from Holmes' collection (USNM #135,992 & 135,993), and one from other Smithsonian Institution collections (USNM #196,344).

The discrepancies between Schmitt's tabulation and

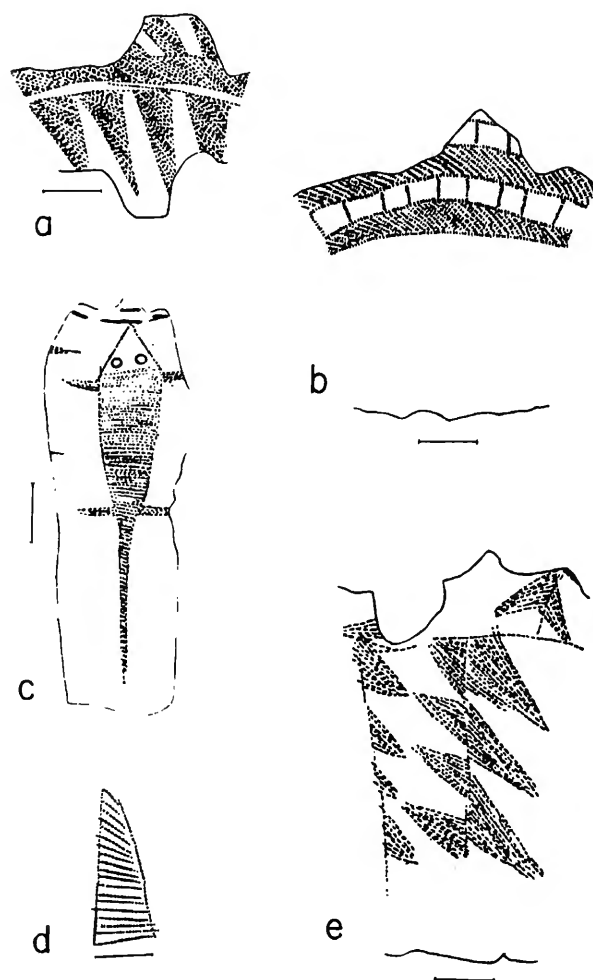


FIGURE 38.—Designs from 5 pipe fragments (after Stewart, 1954): *a* and *e* extend from bowls onto stems; *b* on bowl only; *c* and *d* on stems. A detail of *c* is in Figure 36 (*middle*). USNM numbers are 378,892 (*d*); 385,155 (all others). (Scale bars = 1 cm.)

my own are most likely due to my more liberal inference of type (tubular or obtuse) for fragments that Schmitt perhaps deemed too incomplete for accurate determination. My own judgements—perhaps unwarranted—were based on the clearly different characteristics of the more complete specimens of each type. The tubular pipes tend to be more crudely crafted of a perceptibly sandier paste, having a thicker construction and no surface finish such as decorations or burnishing. The obtuse pipes on the other hand, tend to be more finely crafted of untempered paste, most likely burnished and more likely to be decorated. The stems of the tubular pipes tend to taper to a

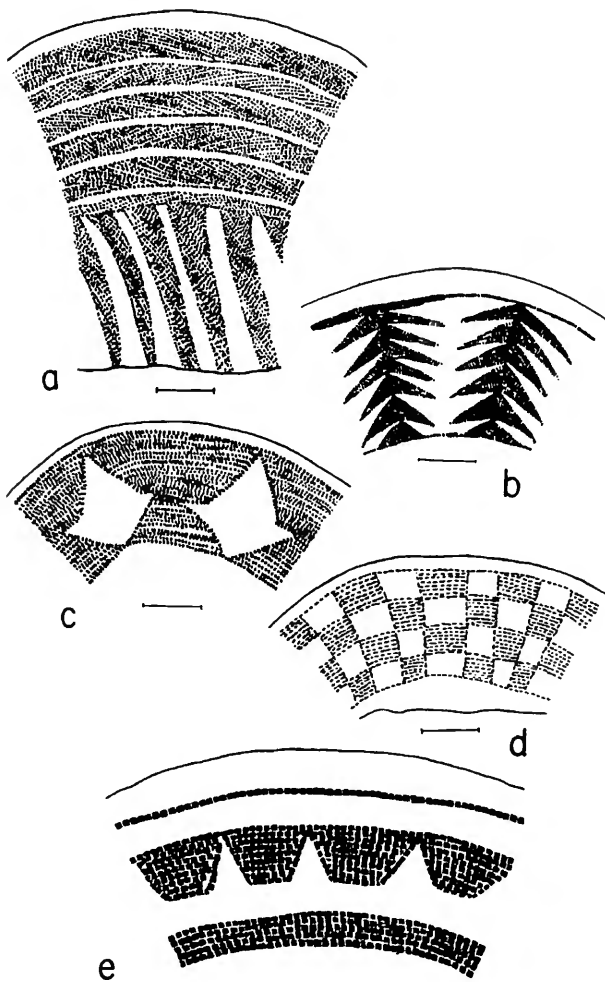


FIGURE 39.—Designs from 5 pipe stems (after Stewart, 1954): *a* extends onto stem; a detail of *b* is in Figure 36 (*top*). USNM numbers are 378,819 (*a*); -823 (*d*); -914 (*e*); 385,151 (*c*); -152 (*b*). (Scale bars = 1 cm.)

round bit with a diameter smaller than that of the stem closer to the bowl. Stems of the obtuse pipes are either undistinguished from the stem or noticeably swollen or enlarged.

By far, the most common technique used to decorate clay pipes was what Schmitt called a "roulette-like" technique. It is interesting to note that this technique has an effect similar to that of the cord-wrapped implements used to decorate pottery vessels. The decorative motifs used on the pipes also recall some of the more popular motifs of pottery decoration such as the simple encircling lines (horizontal lines), bound fields of diagonal lines,

and infilled geometric shapes (see illustrations of ceramic design motifs). Noticeably absent on the pipes are the thickened rims of much of the pottery. This could, of course, be due to the smaller scale and limited size of the field on pipes—although other designs apparently were adapted to these limitations. Another noteworthy difference between the decorative motifs of pipes and those of pottery is the use of representative figures on two (possibly three) pipes—the "salamander" and the "serpent." (See foregoing sections on pottery for more description of motif variables.)

OTHER CERAMIC ARTIFACTS

A variety of ceramic artifacts (other than pipe or container fragments or whole specimens) were found randomly in the midden and topsoil, with no concentration or reliable associations. Those found are as follows.

LADLES OR SPOONS.—Ladles or spoons with shallow bowls, two inches (50 mm) in diameter, with round handles two or three inches (50–75 mm) long and one-half inch (12.5 mm) in diameter. No whole specimen was found, but the fragments found indicate the overall shape and size. The paste in these artifacts is sandy, as a rule.

BEADS.—Spherical pottery beads were fairly common, 12 coming from the general refuse and several from ossuaries. Most are slightly over a half-inch (12.5 mm) in diameter, although larger specimens nearly an inch (25 mm) in diameter occur. Perforation was made by molding around a smooth reed or stick. One specimen possesses concave depressions a half-inch (12.5 mm) wide and an eighth of an inch (3 mm) deep at the perforated ends. One cylindrical pottery bead recovered is three-fourths of an inch (19 mm) long and a half-inch (12.5 mm) in diameter.

Two pipestem fragments had been smoothed at the ends, apparently intended for beads. These were in the collection made by Judge Graham. One was from a native-made pipe, the other from a fragment of a white English-made pipe. The exact provenience of these two items is unknown.

WORKED POTSDHERDS.—These are generally rectangular with the edges partially rounded by smoothing. Size ranges from two to three inches (50–75 mm). Fourteen were found in a small pile in the refuse filling the moat-like trench. Five others were recovered in the general digging; two of these were made on sherds of Rappahannock Incised ware. These worked sherds would have made excellent tools for scraping or smoothing pottery, and striations on much pottery indicate the use of such a tool.

HUMAN EFFIGY FIGURINES.—Most interesting are three small pottery figurine heads, which are an inch (25 mm) or an inch-and-a-half (37.5 mm) long. One of two complete specimens has crudely punched eyes and mouth and scratched lines on the face. The other complete specimen lacks facial

features, but was identified in shape and, like the first, possesses notches for ears. The third specimen is fragmentary and has notches for ears and a raised line on the back, possibly representing gathered hair. It also has a hole in the base (neck), probably to permit it to be fastened to a body by use of a small peg. Unfortunately, the face of this specimen is damaged, and so its features cannot be determined. A similar ceramic head, found at the Kiser Site in Colonial Heights, Virginia, is shown in an article on "Effigy Heads in Virginia" (MacCord, 1966:73). The latter head is made of shell-tempered clay, whereas those from Patawomeke are made of slightly sandy or tempered clay.

MINIATURE POTS.—Several small, fragmentary "toy" pots in the collection are made from slightly sandy paste. They are plain on exterior surfaces, and the interiors are roughly smooth. They seem to have been molded over the end of an adult's finger, possibly to make a toy for a child. Dimensions varied, but most are under two inches (50 mm) across and one inch (25 mm) high.

POTTER'S WASTE.—Several roughly cylindrical lengths of fired clay seem to have been parts of coils used in pottery making. Apparently, some of the coils had not been used, but had been thrown into a fire, where they became fired. They seem to have had no use or purpose.

The source (or sources) of the pot clay used in making pottery vessels, pipes, and the other ceramic artifacts has not been identified. At the site, clay forms part of the underlying geological formations, and usable clay could have been obtained from the eroding river bank. On the other hand, upland sources may have been sought and used. Thus far, no mineralogical studies have been conducted on the Patawomeke ceramics.

LITHIC ARTIFACTS

Artifacts of stone were numerous, both on the surface and in the excavations at Patawomeke. Because the site had long been known to local collectors, undoubtedly many hundreds of such artifacts had been taken away in years past. The stone tools are of two major categories, chipped and ground. Conforming to the customary descriptions and uses postulated for various artifacts, I will describe and discuss those found in the current work in the same fashion, chipped items first.

PROJECTILE POINTS.—Recognizable projectile points of stone were fairly common. Those which could be classified in accord with recent categorizations are listed in Table 12. They total 191, which could be typed, plus another 25 that were broken or otherwise unclassifiable. As seen in the tabulation, the points can be assigned to all cultural periods from the Early Archaic up to the Late Woodland, probably extending into the early Historic Period. Materials from which the artifacts had been made seem to locally obtained, with only few exceptions. Those are the few points made from rhyolite, chert, or Harper's Ferry quartzite. The latter stone outcrops near Harper's Ferry,

West Virginia, although pebbles of it occur in the lower Potomac Valley gravels, as do the other exotic stones. The Harper's Ferry quartzite was called "breccia" by Judge Graham, Karl Schmitt, and Carl Manson in the various notes they made on the collections. Most of the projectile points had been made of the locally plentiful quartz and quartzite, as follows:

<i>Point categories</i>	<i>Quartz</i>	<i>Quartzite</i>	<i>Other</i>	<i>Totals</i>
Stemmed types	37(25.8)	16(24.2)	13(19.7)	66
Levanna	8(42.1)	3(15.8)	8(42.1)	19
Madison	57(81.4)	4(5.7)	9(12.9)	70
Clarksville	44(97.8)		1(02.2)	45
Totals and percentages	146(73.0)	23(11.5)	31(15.5)	200

The triangular points, presumably used on arrows, are similar in shape, but vary in length and width dimensions. Measurements taken of those in the collection revealed the following median dimensions:

<i>Type</i>	<i>Average length</i>	<i>Average width</i>
Levanna	30 mm	27 mm
Madison	26 mm	20 mm
Clarksville	20 mm	16 mm

CHOPPERS.—Large, crudely, or hastily made, these are fragments of cobbles, usually with much of the cortex still present. A rough edge is flaked on one side, and the opposing side is usually the rounded surface of the cobble, thereby providing a comfortable gripping area. Such tools probably saw use in shredding fibers, macerating foods, or as crude scrapers for initial work in hide-scraping.

DRILLS.—Four specimens that seem to have been drill-perforators are in the Patawomeke collection. One is made of quartz, one of jasper, one of Harper's Ferry quartzite, and one (triangular) is of black chert.

QUARTZ PEBBLE SCRAPERS.—The Patawomeke collections contain a total of 87 quartz scrapers, manufactured from quartz pebbles, ranging in size from 22 to 54 mm in diameter, split roughly in half. The sharp edges were then retouched, usually not entirely around the tool, but varying between 25% to 80% of the periphery. The resulting tool ranges from 7 to 22 mm thick and has a working edge with angles averaging 76° (range 56° to 92°). The steep angle indicates use under conditions where heavy pressure would be needed, as in woodworking, bone-working, shredding, or in scraping and softening a hide. Although this tool seems to have been much used at Patawomeke, it has not been reported in such numbers at other sites in the region.

The absence of such chipped tools as end and side scrapers, burins, and knives is noteworthy. If these were not part of the Patawomeke tool kit, then other tools must have been made to serve those functions. It seems more likely that they were not seen or collected in the work done.

Ground and/or polished tools and ornaments of stone were not plentiful, but they did show a wide range of types and purposes. The specimens collected in the 1935-1940 work,

TABLE 12.—Projectile point types, Stewart and Graham collections.

Type name	Number	Group percent	Comment
Palmer	1		Early Archaic
Kirk	2		"
LeCroy	3		"
St. Albans	2		"
Kanawha	3		"
		5.8	
Stanley	1		Middle Archaic
Morrow Mountain	2		"
		1.6	
Halifax	2		Late Archaic
Lamoka	9		"
Brewerton	1		"
Orient Fishtail	2		"
Bare Island	9		"
Lackawaxen	1		"
Savannah River	1		"
Susquehanna Broad	1		"
Holmes	1		"
		14.1	
Claggett	3		Early Woodland
Calvert	2		"
Poplar Island	2		"
Piscataway	6		"
		6.8	
Fox Creek-Selby Bay	4		Middle Woodland
Levana	19		"
		12.0	
Madison	70		Late Woodland
Clarksville	45		"
		60.2	
TOTAL	191		

Broken and unclassifiable points (not counted in above): 25.

Names are from MacCord and Hranicky, 1979, which refer the reader to original sources of the names.

plus those already in the USNM collection, were examined by Ms. Jirikowic, who provided the following comments to augment those of Schmitt.

CELTS.—According to Schmitt, no whole celt was found. Judge Graham recovered four fragments, and the Museum parties found one that was nearly complete. All were made of a greenish igneous stone. The nearly complete specimen is five inches [12.5 cm] long, two inches [50 mm] wide, and an inch and a quarter [31 mm] thick. It is triangular in shape, with curved sides and an oval cross-section. This form seems typical of the axe-like tool or weapon used by the Patowomekes. A complete celt and four additional fragments already in the USNM collection seem to be identical with those found in the excavations. The whole celt measured 100 mm in length, 556 mm in maximum width, and 29 mm in thickness.

HAMMERSTONES.—Although almost any hand-held

stone could have served as a hammer, some were recognizable as deliberately made or altered. In the excavated collection, plus four others in older USNM collections, the following observations were made. Of the 24, two are unpitted; 10 have a shallow pit on one side only; and 12 had a pit on each flat face. Seventeen have been pecked to form an oval, biscuit-like shape. Several show battering marks on the flattish surfaces, as if the stone had also seen use as an anvil, perhaps in bipolar flaking of lithics.

ABRADERS.—These are small, flat sections of sandstone that exhibit wear by slight concave depressions and scratches. A total of six was noted in the excavated collection, plus two previously collected by the USNM from other sources. Usually these stones had not been altered or shaped, but were used as found.

PESTLES.—One elongate pebble of a hard sandstone was found in the Graham collection, plus a fragment was in the older USNM collection from Patowomeke. These are generally unmodified stones, except the one or both ends have been through pounding or grinding, as with a pestle and mortar combination. The specimen from the Graham collection shows pitting on opposing faces of the stone, probably to permit a firmer grasp of the tool in use. No mortar was found in the collection.

GROOVED AXE.—One fragment of polished greenstone showing part of a groove was a surface find at the site. Axes of this type are usually assigned to the tool kit typical of the Late Archaic Period and Early Woodland Period, and hence were not part of the Patowomeke tool kit.

GORGETS.—Stone gorgets or pendant ornaments were made from thin pieces of mica schist and were generally crude. Two are irregular in outline and have a single, central perforation. One has notches, or "tally marks" on one edge. Also, related to these, although not perforated, are two mica schist objects. One with a concave side is roughly rectangular. The other is also roughly rectangular with rounded corners, but has two sets of five notches on opposing sides. [Ms. Jirikowic noted an additional specimen in the older USNM collection (Catalog No. 196,335). This is of a cherty material, was centrally perforated, and has notches on one side.]

WORKED SOAPSTONE (Steatite).—In addition to four pipes or fragments, several other artifacts made from this stone were found. One is a fragment of what appears to have been a bead, probably made from a small segment of a pipestem. It carries USNM Accession No. 379025. Another item is a cone-shaped object, possibly a paint pot. This object measures 34 mm in diameter and is 15 mm deep. Its Accession number is 378977. One small fragment of a steatite pot found probably represents an occupation of the site during the Late Archaic Period or Early Woodland Period.

BONE AND ANTLER ARTIFACTS

Bones, antlers, and their fragments were plentiful in the refuse found in the midden pits and ditches. Among the bones and antlers were many artifacts and worked pieces of each. Obviously, the bone industry of the Patawomeke Indians was an important component of their tool kit. The recognizable tools and other artifacts of bone or antler are listed and described below. These items had been studied by Karl Schmitt, and most of the following are from his M.A. thesis (Schmitt, 1965:16-20). Findings and observations of Ms. Jirikowic will follow.

BEADS.—Many small cylindrical bird bone beads were found. Usually these were not polished, the cut ends not even being smoothed, but occasionally care had been taken in their manufacture, and finely finished forms did occur.

COMB.—One comb made of bone was found in the Multiple Burial pit, and this will be detailed below in conjunction with European-made items.

ARROW POINTS.—Antler arrow points one-and-one-fourth inches (31 mm) to two inches (50 mm) in length were made from cut tines that were scraped down to a sharp point and hollowed out for insertion of a shaft. Eight were recovered, seven being simple conical, socketed points, the other having a perforation meeting the hollowed portion, possibly for insertion of a pin to help secure the point to the arrow shaft. Representing refuse from the manufacture of this type of point are the numerous antler sections from which the tines had been cut or broken.

Another type of arrow point was made from the terminal phalanges of the deer. These had had the proximal end cut off, exposing the natural cavity of the bone, which served for insertion of the shaft, and were sharpened to a point. Three finished specimens were found, and two with only the end removed, probably representing points discarded in the process of manufacture.

TURKEY CALLER.—An interesting hunting implement identical to those reported by Speck (1928:357) was found at Patawomeke. These callers were made from the wing bone of the wild turkey, cut and polished. One complete specimen, three inches (75 mm) in length, and two broken ones, two inches (50 mm) long, were found. Speck says that they were used to lure wild turkeys close to the hunter: The hunter emitted "yelps" or "calls" by blowing into one end and holding the other cupped in his hands.

FISH HOOKS.—Three broken blanks and two broken hooks are in the combined collection. The blanks were made from a flat section of bone, roughly rectangular in shape, by cutting out the center portion. From this blank, by cutting opposite sides, two barbless hooks could be made. The broken blanks are between an inch-and-a-half (37.5 mm) and two inches (50 mm) long and would have been about double that when whole. The hooks are both one inch (25 mm) long. Possibly the spatulate implement found (described below) represents a part of the process of hook making, a step before the center portion was

removed.

Another implement, a double-pointed "awl," very possibly was a gorget or part of a compound fish hook. The specimen is two-and-a-quarter inches (56 mm) long and was polished all over.

AWLS.—These were made from many types of bone. Most common were simple splinters, usually worked only at one end but occasionally polished over the entire surface. Ninety-two specimens of this type are present in the combined collections; six of these are narrowed and rounded at the butt end, and one possesses rude notches, excellent features if the awls were hafted in antler handles. One large awl made from the metapodal bone of deer was recovered. Two awls are made from deer ulnas and two from the splint bone of the same animal. Eight are made from the tibio-tarsus of the wild turkey. All these types preserve a joint, possibly for facility in use.

BEAMERS.—These were fairly common, 15 broken examples being present, and were made from the metapodal bone of the deer. Apparently, the bone was cut, and not broken at random, because the finished tool was invariably quite symmetrical.

ANTLER HANDLES.—These were made from sections of antler from which the tines had been removed. None had been finished at both ends but all had a portion of the cancellous bone worked out to form a hollowed end. This furnished an excellent haft for some such implement as a bone awl. Six specimens are between one inch (25 mm) and four-and-a-half inches (11 cm) in length, with a hollow between three-sixteenths of an inch (5 mm) and three-eighths of an inch (9 mm) in diameter. A more finished specimen is two-and-one-half inches (72 mm) by seven-eighths of an inch (22 mm) with a hollow large enough to haft a small celt.

ANTLER PUNCHES.—These are large tines up to six inches (15 cm) in length, which have been smoothed and polished. Seven specimens that might have fulfilled the use of a punch were found. One had been worked to an efficient point by flattening opposite sides.

ANTLER CYLINDERS.—Antler cylinders measure between one-half inch (12.5 mm) and three-and-one-fourth inches (81 mm) in length, the longest specimen having a knob-like swelling at the largest end. These objects are smoothed all over and apparently were made with great care. A tool undoubtedly serving the same purpose is triangular in cross-section and made of what appears to be the jaw of a large fish, possibly a gar. This implement is two-and-a-quarter inches (56 mm) long, and the sides measure one-half inch (12.5 mm) and three-eighths of an inch (9 mm). Much care was taken in the working and polishing of this object. These cylinders are usually called flakers, though quite possibly they served some other purpose. Cadzow illustrates a number of antler cylinders, some exhibiting enlarged, rounded ends, and suggests that they were used for weaving or as counters in games (Cadzow, 1936: 182-183).

SPATULATE IMPLEMENT.—This is a flat, polished section of bone, three inches (75 mm) in length, with rude notches at one end. This possibly represents a step in the manufacture of fish

hooks.

BEAVER TOOTH CHISEL.—One specimen was found in which the tooth had been split longitudinally and some of the rough edges partially smoothed. The original, natural cutting edge was the working portion used by the Indians.

NEEDLES.—No complete examples were found, but 10 fragments of various sizes were recovered. The largest of these was four-and-a-half inches (112 mm) in length and was incomplete at both ends. These implements were long, flat, curved, pointed at one end, and possibly had perforations at both ends. They seem to have been made from deer ribs.

TURTLE-SHELL CUPS.—Turtle-shell cups were frequently made by smoothing down the sides and backbone of the common land tortoise (*Terrapene carolina*). One whole specimen and seven large fragments were recovered.

PERFORATED DEER PHALANGES.—Deer phalanges were perforated in a peculiar manner, apparently by holding a pointed tool on the bone and striking it. This produced a jagged, transverse perforation. Three specimens were found.

NOTCHED CANINE TEETH.—Two canine teeth of a small canine animal, possibly a raccoon, were found. These have shallow notches around the root end, possibly for use as pendants.

In her examination of the collection in 1988, Ms. Jirikowic "concur[s] with Schmitt in his description of artifact types and materials." Her count of the various types "varies slightly" as follows:

Splinter awls	99	Beamers	18
Needles	7	Antler points	14
Spatulate tools	4	Bone points	2
Beads	6	Antler punches	8
Fish hooks	5	Antler cylinders	5
Pendants/teeth	4	Worked antler tines	83
Other worked bone	3		

"The collection includes two notched teeth; three shark teeth; two highly polished pieces of turtle shell and a third with two perforations; and ten additional pieces of worked turtle shell." The turtle shell with two perforations had been collected by Slattery and bears the USNM Accession number 417379.

SHELL ARTIFACTS AND FOSSIL SHELLS

Refuse shell occurred throughout the midden at Patawo-meke, with fair preservation. Shells of oyster, mussel, and two types of snails were recognized. The snails were both aquatic and terrestrial, the latter probably present because they scavenged on the Indian organic refuse. Artifacts made from these shelled animals were rare, with only the riverine mussel used as tools. The tools usually involved only one valve of the paired shell, and this served as a scraper or as a spoon. In a few instances, the working edge of the shell was serrated, thus providing an excellent cutting edge. No evidence was noted that such shell had been fitted with a handle. The serrations were spaced too widely to have been a tool for impressing the so called "rouletting" designs on ceramics.

BEADS.—Quoting from Schmitt (1965):

Thousands of shell beads were recovered from the ossuaries, and occasional specimens were found in village refuse. Disk beads made up the greater portion of the collection. The smaller disk beads averaged an eighth of an inch [3 mm] in diameter and a thirty-second of an inch [0.8 mm] in thickness, whereas larger forms measured one-half inch [12.5 mm] by one-sixteenth inch [1.5 mm]; the former were particularly numerous. Marginella beads, made by rubbing a hole in one side of the shell, were nearly as numerous as the small disk type. Cylindrical forms approximately five-sixteenths of an inch [8 mm] in length and an eighth of an inch [3 mm] in diameter were common; this is the type often called wampum. Spherical forms with flattened poles, averaging a half-inch [12 mm] in diameter, and larger curved cylindrical shapes an inch-and-a-half [37 mm] by a half-inch [12.5 mm] also occurred. The larger cylindrical specimens occasionally exhibited multiple perforations; in these, the regular longitudinal perforations were met by others from the side, resulting in four holes. Large, flattened, roughly rectangular forms with rounded edges and concave ends were also present. A peculiar hemispherical type with a concave depression on the flat side was found. A necklace consisting of beads of this form was found in situ (in Ossuary No. 2). The hemispherical forms were grouped by twos, back to back, with the couples separated by small disk roundelles. Spherical forms were also discovered in situ, separated by alternating disk-shaped roundelles.

GORGETS.—From Schmitt (1965):

Gorgetts of both shell and stone were found. The Graham collection includes two complete shell gorgets and two fragments; the U.S. National Museum collection has one complete specimen. All were circular in form, two possessing a double perforation with a connecting groove, and one a double perforation with no groove. Two have a single perforation. Designs were present on three and consisted of triangles arranged around the periphery with apices pointing toward a central star or geometrical figure.

FOSSILS.—Although not manufactured or otherwise altered, the many fossil shells found in the midden can be classed as artifacts, because they had been collected and brought to the site by the villagers. Specimens of *Turritella mortoni*, a spiral shelled animal, number over 100. On the eastern side of Marlborough Point, a mile from the village site, ledges of fossil bearing marl outcrop. Many of the shells have eroded from the marl and cover the beach. As most of the shells found in the excavations seem to have been waterworn, they probably came from that beach. Other fossil shells found were those of *Ostrea compressirostra*, an extinct form of oyster, also found in the marl. These shells are large and flat and may have been used as plates. From the same marl source, the site's inhabitants also collected fossil shark teeth.

CORDAGE AND TEXTILES

An important and useful element in the inventory of artifacts made and used by Indians is the usually missing category of cordage, textiles, and basketry. Only under exceptional circumstances are these materials preserved, and their contact with copper is one such circumstance. As the copper corrodes, the by-products (copper sulfate and/or carbonate) penetrate the otherwise perishable materials and protect them against decay bacteria and scavengers. In many of the copper beads found in the Multiple Burial and in Ossuary 1, numerous instances of such cordage preservation were noted by Judge Graham.

In one instance, Judge Graham observed "what appeared to

be cross-woven bark cloth" on a sheet of copper. Because he did not have the cloth analyzed, the identification as "bark cloth" is questionable. In any event, the weaving seems to have been a simple "over and under" weave, and the material may have been a split cane. In another burial, he found part of a string, made from two strands twisted together counter-clockwise upwardly, providing a "Z-twist" cord element. Each strand had been twisted clockwise, producing an "S-twist" for the finer cord. In another bead of copper, he found a section of cord about one millimeter in thickness, made up of six threads twisted together from left to right (clockwise) producing an "S-twist." The individual filaments are a plant fiber and are twisted from right to left (counter-clockwise), producing a "Z-twist." See also a study by Carole P. Falk (1983).

Additional information on cordage can be obtained from the cord impressions found as surface treatment or as designs on ceramic vessels and tobacco pipes. Many of the pottery sherds recovered in the excavations show corded surfaces, and many of the design elements consist of cord or knot impressions made into various patterns. Ms. Jirikowic examined many potsherds during her work with the collections during the summer of 1988. She was able to define the twist pattern of cordage on about 986 sherds out of 1076 examined. Her findings as to distributions of the two twist modes and their correlations with other ceramic attributes are shown in Table 7. Of the 986 sherds, 89.4% showed the Z-twist, and 10.6% had an S-twist. This preference for Z-twist cords was confirmed in an examination of potsherds from the 1983 excavations done by MacCord (1985). The sherds were examined by Dr. William C. Johnson of the University of Pittsburgh, whose report (n.d.) states (in part):

To seek evidence of possible change in cordage twist patterns through time, 258 sherds of Potomac Creek Cord-impressed ware from nine levels excavated in Square D (Manson and MacCord, 1985) were examined, using latex impressions.

As shown in the following, no change is apparent:

Levels	Z-twist		S-twist		Totals
	No.	%	No.	%	
1	48	87.3	7	12.7	55
2	26	92.9	2	07.1	28
3	24	88.9	3	11.1	27
4	22	100.0			22
5	37	94.8	2	05.1	39
6	21	100.0			21
7	17	94.4	1	05.6	18
8	22	91.7	2	08.3	24
9	22	91.7	2	08.3	24
Totals	239	92.6	19	07.4	258

To compare the above with the possibly antecedent ceramics of the Montgomery Focus, potsherds from three Piedmont Potomac sites were similarly examined, yielding the following data:

Site	Z-twist		S-twist		Totals
	No.	%	No.	%	
Winslow (18Mo9)	26	86.7	4	13.3	30
Gore (18Mo20)	9	81.8	2	18.2	11
Frye (44Ld4)	11	84.6	2	15.4	13

The similarities noted (despite the small samples from the Piedmont sites) support and do not refute or preclude a temporal tie between the tested ceramic types. More detailed comparisons and comment will appear in a forthcoming article.

European Artifacts: Multiple Burial

When Karl Schmitt became a member of the 1940 field party, the last to work at the Potomac Creek site, all of the European artifacts had already been found by Manson and Judge Graham. This may account for Schmitt's selection of the more numerous Indian artifacts as his thesis subject at the University of Chicago. This is not to say that he did not examine many of the European artifacts. As he had not been present as these items were excavated, he was therefore less familiar with them than he was with the artifacts of Indian origin. For this reason, I devoted much time and effort to this major category of artifacts from the work at Patowomeke. In the following pages, I will describe them, and, to the best of my ability, I will try to compare them with other finds in the region and to place the artifacts into their proper relationships.

Because there were no European settlements within 100 miles of the Patowomeke village from which European-made artifacts could have come, it appears that all had come to the site via visits by explorers and traders during the early seventeenth century. Some items could have reached the villagers from sixteenth century visits to the Chesapeake Bay area by ships from Spain, France, or England, but there is no sound evidence to support such a provenience. After the 1607 settlement of Jamestown, explorers came to the Potomac River repeatedly, especially to barter trinkets for corn and skins. Most of the trade items found are ornamental, as opposed to utilitarian, items. Exceptions to this are scissors, nails, clay pipes, and glazed tiles. The lack of such items as knives, axes, guns, kettles, fish hooks, hoes, and chisels indicates an origin early in the Contact Period, roughly pre-A.D. 1620

A. FINDS BY CARL MANSON

According to the Graham diary (page 11), the European objects found by Manson in Square 5R1 on 30 November 1935 consisted of a "small silver dish" and a brass "star-shaped ornament."

Silver dish: This object, actually a dram cup or wine taster (Figure 40), was not acquired by Judge Graham and hence is not part of his collection that came to the National Museum.

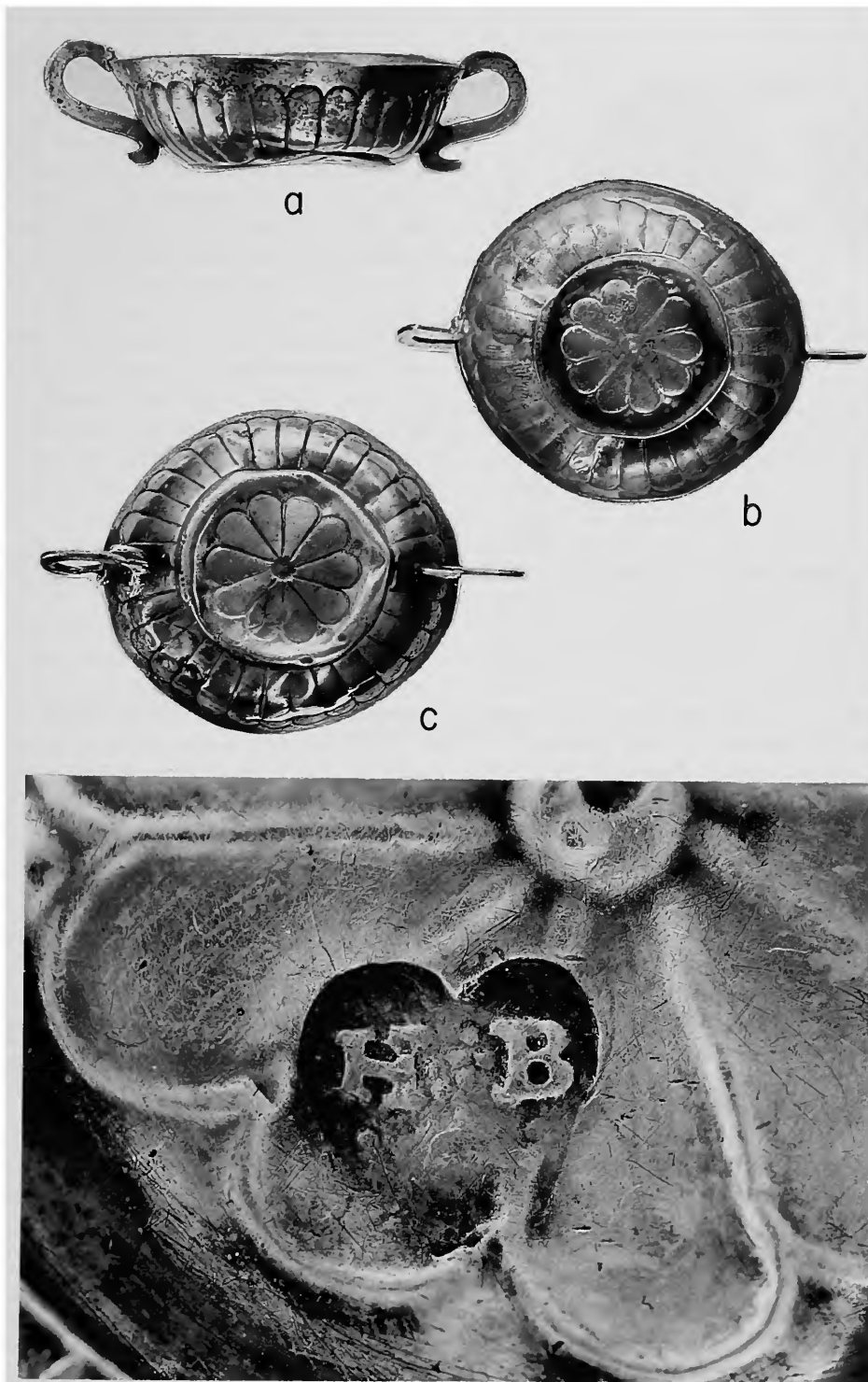


FIGURE 40.—Silver dram cup or wine taster recovered by Hanson from multiple burial in 1935: *a*, view from side; *b*, from below; *c*, from above. *Bottom*, enlargement of maker's mark barely visible in *b*. (Courtesy Carl Manson.)

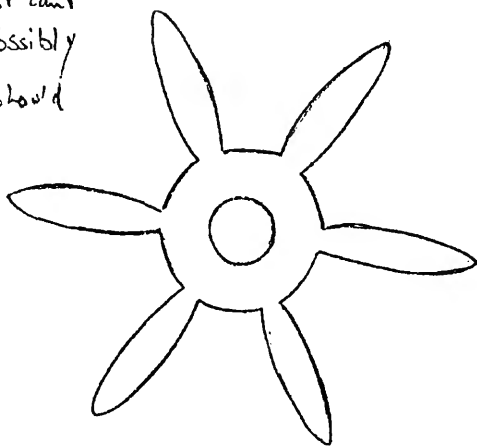
When photographed in the late 1930s, the bowl was deformed somewhat, the diameter of the rim varying from $1\frac{15}{16}$ to $2\frac{1}{6}$ inches (48 to 54 mm). The outside depth of the bowl is $\frac{5}{8}$ inch (16 mm); the maximum spread across the handles is $2\frac{7}{8}$ inches

(72 mm).

Because the maker's mark (hallmark) impressed on the underside of the bowl (Figure 40, *bottom*) is clearly defined, the possibility of identifying the maker and hence the date of

There is something wrong
with this that I just can't
put my finger on. Possibly
the star arms should
not be so wide.

KS



Approximate outline of "star-shaped" ornament from
Potomac Creek.

FIGURE 41.—Schmitt's memory sketch of the "star-shaped ornament" recovery by Manson from the multiple burial in 1935 and stolen from the Museum in 1940. (USNM No. 378,990.)

manufacture seemed good. To this end, Manson sent copies of photographs to the Metropolitan Museum in New York and to the British Museum in London in 1939. The replies from both institutions pointed out that the maker's mark did not match any of those pictured in Jackson's *English Goldsmiths and Their Marks* (1901).

In a further effort in 1979 to identify the maker of this piece, I enlisted the help of Ivor Noel Hume of Colonial Williamsburg. Working through his curator, John Davis, he got opinions from three silver specialists in England. Although none of them had seen exactly the same mark, all of them felt that the piece is English and probably dates to around 1640. The most interesting response came from A.G. Grimwade, consultant to Christies, who had indexed a rather similar mark of an unidentified maker with a date of 1659. His comment follows: "It is obviously not the same mark exactly, but from the fact that it is from similar flowerlike bowl, even 1659 makes me feel there might be some connection. I would have thought your example was rather earlier one of about 1640, but perhaps this is the same maker who struck another mark later" (personal communication from Ivor Noel Hume, dated 13 November 1979).

Star-shaped Ornament: This object is now missing. On the catalog card (USNM Accession No. 378,990) is a note stating that it may have been a rowel from a spur. This note may have been added by Karl Schmitt because in his thesis (1942 and 1965), he referred to a copper ornament in the shape of a six-pointed star (very much like a Mexican spur rowel). The

only other information about this specimen is contained in a letter to me from Schmitt, dated 13 November 1946, in which he says:

I am sure (it) is the same one that was stolen in 1940...the Potomac Creek material was laid out in the hall... (and this object disappeared) one noon while I was out to lunch.... From my memory I have made a drawing which is enclosed [Figure 41]. It was approximately 2½ inches [62.5 mm] in diameter and about ⅜ of an inch [5 mm] thick. The metal was obscured by a greenish patina. The conformation of the six points is fairly certain in my mind, but the exact shape of the center portion of the artifact is not clear.

Seeking in 1979 for confirmation of the possible Mexican origin of this object, I turned to James A. Hanson, Jr., an authority on metal ornaments worn by Indians (Hanson, 1975). After viewing Schmitt's drawing, Hanson (pers. comm., 23 October 1979) kindly provided me with the following statement:

I believe that the specimen is a spur rowel.... It is unlike any English or French rowel of that period with which I am acquainted, and differs only slightly from the seventeenth century Spanish-Mexican spur rowels I have seen. Most Mexican rowels do not exhibit the elliptical shape to the arms, and usually the arms form an acute angle where they join rather than being separated by arcs. There are at least three mitigating factors to consider: 1) This drawing was made from memory; 2) the specimen may be of Spanish rather than Mexican origin, and while there are many similarities between their material objects, there are also subtle differences; and 3) this specimen falls in the time frame of the rapid design changes in Spanish colonial horse gear, from the small rowelled sixteenth century spur to the "Espuelas Grandes" of the eighteenth century which often have rowels four or five inches [10 or 12.5 mm] in diameter.

In view of the likelihood that a seventeenth century-type rowel cannot be closely dated within that century, I have not pursued this matter further. In my opinion, however, anything associated with horses that somehow found its way to Potomac Creek in the seventeenth century is more likely to have been buried there in the later half than before. Further, in Indian hands, absent horses and equitation, such a brass or copper item would probably see use as a pendant rather than as a spur rowel.

In this connection, it should be noted that Judge Graham's designation of the metal from which numerous European objects from Potomac Creek were made was carried over into the catalog at the National Museum. In using the word "copper" to describe this star-shaped ornament, all Schmitt knew was that the surface corrosion products had given the object a green color. Unalloyed copper would be too soft for use as rowel, so in this case, at least, the metal is safely assumed to have been brass.

B. FINDS BY JUDGE GRAHAM

The Judge continued the exploration of the multiple burial in Square 5R1 during three visits to the site between 1 December and 10 December 1935. According to his diary for those dates, given in full earlier (Diary, pages 5–6), he recovered glass beads, brass trade bells, at least three types of buttons, a counter or jeton, a comb, a strand of "copper" chain, a badly corroded iron object, and the stem of a trade pipe. Of the European objects from these three days' work, only the counter and pipestem offer possibilities, in the form of makers' marks, for determining the approximate date of manufacture. I shall deal with these two objects first.

COUNTER.—On 15 December 1936, just over a year after Judge Graham found the counter, he wrote to John Allen, Keeper, Department of Coins and Medals, British Museum, about getting it identified. Upon being asked to forward the specimen for examination, the Judge did so, and on 23 February 1937, received from Allen the following description of the counter, based on Bernard (1916:212):

This is a counter used with the abacus or counting-board and was made by Hans Krauwinckel of Nurnberg, who worked between 1588 and 1612. It is one of a series with mythological types: (Obverse) Figure of Honor placing a wreath in honor of Apollo; HONOS ALIT ARTES (from Cicero *Tusc* I, 11, 4) and below H.K. (Hans Krauwinckel). (Reverse) Minerva standing holding spear and shield: SEV (i.e., seu) PACEN SEV BELLA GERAS (adapted from Virgil's *Aeneid*, IX:279).

The present counter (USNM Accession No. 378,987) has a diameter of 27 mm and a thickness of 0.6 mm. The edges still show milling. Enough of the surface decoration is visible to confirm its identity with that in Bernard's illustration (Figure 42). In addition, a hole for suspension, 2 mm in diameter, has been punched through from the reverse side at a point between Minerva's head and the letter "S" in the second SEV of the inscription.

Because this counter could have been in mint condition when it reached Patawomeke, possibly as early as 1608, and



FIGURE 42.—Bernard's (1916) illustrations of an unworn example of Krauwinckel counter or jeton. Judge Graham recovered a worn example (USNM 378,987) from the multiple burial in 1935.

from then on worn by an Indian, probably suspended around the neck, the loss of surface detail might well reflect the passage of considerable time before burial. That this time could amount to several decades does not seem unreasonable.

PIPESTEM.—Turning next to the fragment of trade pipestem (USNM Accession No. 378,984), it is necessary first to consider its position within the range of catalog numbers covering the Graham collection. The two other European specimens dealt with thus far are listed in the early part of this range (USNM Nos. 378,987 to 379,007), where the collector's numbers run from 2001 to 2049. Also, the provenience of each specimen here is given as a numbered burial (I, II, VI, or VIII). On the other hand, the pipestem is one of three European specimens for which neither collector's number nor provenience is given. Because the catalog numbers of these three specimens (USNM Nos. 378,984–086) immediately precede those of the specimens related to Burial I and because no other trade pipestem is listed in this part of the range of numbers, I feel justified in concluding that the three anomalous specimens are from the Multiple Burial in Square 5R1 and that the pipestem is indeed the one recovered by Judge Graham on 10 December 1935.

However, it is one thing to say that the pipestem (USNM No. 378,984) is the one recovered by the Judge on that date, and quite another say that it accompanied one of the interred individuals rather than being part of the earth fill of the burial pit. All that the Judge wrote in his diary on this matter is that the stem was one of a number of objects found in cleaning out the pit. Although the incompleteness of the record in this instance reduces the trustworthiness of this pipestem as an indicator of age, the scarcity of trade pipe elements elsewhere in the site argues strongly for this stem having been intimately connected with the burials rather than a fortuitous inclusion.

When this pipestem is viewed from the smoker's end (Figure 43), the maker's mark is seen to consist of the letters "IS" (I = J) in a row of diamond-shaped impressions of the same height, bordered on the near and far sides by one or two parallel lines of small squares. Some of the diamonds can be seen to have a small circle at the center. Judging from the signs of an overlap of the components, this pattern was created in two rouletting operations, the initials and diamonds being applied separately from the lines of small squares.

Cross (1941, pl. 25) illustrates two pipestems from the

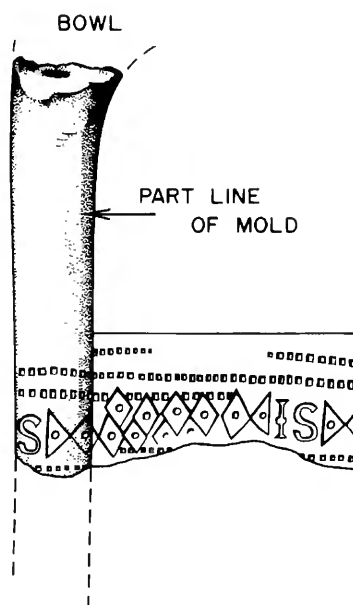


FIGURE 43.—Rolled-out drawing of maker's mark on trade pipestem presumably recovered from multiple burial by Judge Graham in 1935. (USNM No. 378,984.)

Salisbury Site on the Delaware River in Gloucester County, New Jersey, in which the maker's mark IP and LE appear in an almost-identical arrangement of diamonds and lines of small squares. This suggests that the makers of the Cross pipestems were contemporary with the maker of the Potomac Creek IS pipestem. On this point, Cross (1941:62) says only that

The presence of European material in the old humus definitely places (the Salisbury Site) in the Contact Period which, for this part of the state, was well under way by the middle of the 17th Century.

Until near the time of his death in 1968, H. Geiger Omwake maintained a record of makers' marks on all pipe bowls and stems he had seen. This record, which is not with Omwake's pipe collection in the Natural Museum of Natural History (Accession No. 359,782, cataloged in 1984), includes an opinion on the Potomac Creek pipestem. I quote therefrom:

It seems most probable that John Sinderling of Bristol was the maker of IS marked pipes which reached America in trade. He began work at the time when heel marking was in vogue and continued in business during the period in which stem marking became popular. The terminal date of his activity is unknown. His last apprentice, however, Nathaniel Chilton, received his freedom in 1703, having been turned over to Joseph Stanford, which probably indicates that Sinderling had died prior to 1703...

Of all the Bristol pipemakers whose initials were IS (six before 1715, according to Oswald, 1957), the name of John Sinderling alone is mentioned in the literature. Pritchard (1923, p. 177), speaking of the apprentices taken by the most famous of the Bristol pipe-making families, the Hunts, list him as receiving his freedom in 1668. It is probable that Edmund Sinderling, the date of whose freedom is not known but who probably died before 1713... was a brother of John....

For all these reasons it appears reasonable to assign to (John Sinderling) pipes bearing the mark IS, which are found on sites known to have been

occupied or suspected of having been in existence during the last quarter of the 17th Century and, conversely, when IS pipes appear on a site of unknown date, it seems logical to assign such sites a date from ca. 1670 to ca. 1703.

Omwake's argument hinges on the inadequately supported opinion that John Sinderling is the maker in question. In fact, so far as available information goes, the maker of the Potomac Creek IS pipestem could just as well have been one of the other seventeenth century makers with initials IS listed by Oswald (1975). Noel Hume supports this opinion (pers. comm., 30 October 1979). On the other hand, Ian Walker (1977:608) states that John Sinderling began pipemaking as early as 1653. There is also the possibility that a currently unknown pipemaker using the IS mark made the pipe during the seventeenth century elsewhere in England.

Among the IS pipestems that Omwake had seen when he wrote the opinion quoted above were several from the Angelica Knoll (tavern?) site overlooking Chesapeake Bay in Calvert County, Maryland, excavated by Robert Elder of the National Museum of Natural History in the 1950s (collection still being accessioned and studied in the 1980s). These stems exhibit impressions of the maker's mark which, besides being faint, appear to include frames around the initials (I) (S). Also, the holes in the stem are only about 1 mm in diameter, whereas the hole in the stem of the Potomac Creek specimen is 3 mm in diameter. According to Harrington (1954), this difference in stem-hole diameter means a difference in the time of manufacture; the larger the hole on the average, the earlier the date of manufacture. On the basis that the hole in the Potomac Creek specimen is just under $\frac{3}{16}$ ths of an inch (3 mm) by Harrington's scale, the date of manufacture seems most likely to have been before 1680 and even more likely before 1650.

The remainder of the European objects from the Multiple Burial, although not useful in narrowing down the age of that burial, with three exceptions are unlike any found in the first ossuary—as is true of the objects already described. The exceptions are the beads, bells, and the corroded iron object. It will be convenient, therefore, to describe next the remaining objects unique to the Multiple Burial—comb, buttons, and chain—and to defer the descriptions of the beads, bells, and iron object until their counterparts from the first ossuary are considered.

COMB.—Because Judge Graham raised the possibility in his diary (page 3) that the comb (USNM No. 379,023) was made of horn or tortoise shell, he may have assumed it was of European manufacture. Schmitt (1942, 1965), on the other hand, included it in his list of native traits under bone and antler work, and pictured it in his plate 2, along with a variety of other native objects made of these materials. Schmitt's opinion was shared by others in the National Museum of Natural History, because on the catalog card the comb is simply called a "bone comb," without any indication that it is a trade object. Also, when the modernized second-floor exhibit hall of North American Archeology was opened in 1963, the comb was part of a display of objects from the Potomac Creek site in an arrangement implying manufacture.

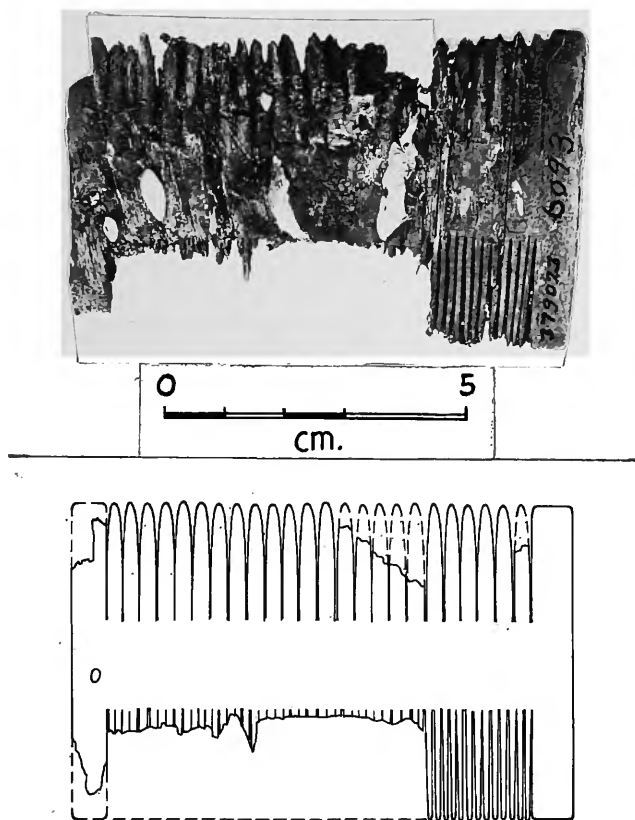


FIGURE 44.—Bone double-tooth comb recovered by Judge Graham from multiple burial in 1935: *Top*, as it appeared about 1940. *Bottom*, later artist's restoration. (USNM No. 379,023.)

Close examination of the comb (Figure 44) shows that it was made with more precision than the Virginia Indians of the seventeenth century were capable of, and by means of finer instruments, probably metal, than they possessed. Moreover, Noel Hume might just as well have been referring to this specimen when he wrote (1970:174):

Most of the examples found in excavations are common hair combs of a type that persisted throughout the seventeenth and eighteenth centuries, being rectangular in shape with teeth of different sizes along two opposite sides. They were known as head combs, double-tooth combs, or close and narrow combs, and were made from (wood), horn, ivory, bone, or tortoise shell.

No references are given to the excavations referred to in this statement, and the only specimen from the United States that I have located is eighteenth century (Stone, 1974, fig. 72). The present specimen, it should be noted, has a length of $3\frac{1}{4}$ inches (81 mm) and a breadth of two inches (50 mm). The coarse teeth number 24 and the fine teeth 52, thus giving a ratio of 13 fine to 6 coarse. The presence of a hole for suspension near the midpoint of one end suggests usage by an Indian. Probably the loss of most of the fine teeth occurred before burial.

BUTTONS.—Judge Graham recorded in his diary the finding

of one or more metal buttons on each of three of the four days he spent in 1935 excavating the Multiple Burial: December 1—"two disked copper buttons" (Diary, page 2); December 7—"four copper buttons, round" (Diary, page 2), subsequently corrected as follows: "four buttons recovered were of iron, with iron shanks—round, front convex" (Diary, page 4); December 10—"one metal, covered button, white" (Diary, 5).

Of the seven buttons thus described, only five are listed in the catalog of the Graham collection, as follows:

No. 378,985	"copper" button (Figure 45c) no collector's number or provenience given.
378,989	"iron" button (Figure 45b) collector's number 2002; burial No. I.
379,000	"iron" button (Figure 45a) collector's number 2022; burial No. VIII.
379,005	"copper" button (Figure 45d) collector's number 2022; burial No. VIII.
379,024	metal button—collector's number 6080; grave of child.

Of the five cataloged buttons, I have failed to locate one (USNM No. 379,024). Just what this missing button looked like is anyone's guess, beyond the likelihood that the metal was "copper." The latter determination is based on Schmitt's reference in his thesis (1965:30) to the existence of three "copper" and two "lead" buttons in the Graham collection (there is no evidence that Schmitt had read the Judge's diary and therefore knew how many had been collected).

Spectroscopic examination of one specimen (USNM No. 378,989) by the Federal Bureau of Investigation (FBI) (report dated 1 February 1980) showed that Schmitt was nearly right about the metal of which this button was made; it consists of essentially lead and zinc, which make it pewter instead of iron. The FBI's analysis of USNM No. 378,985, on the other hand, indicates that it (and presumably also USNM No. 379,005) consists essentially of copper and tin and therefore is brass.

It is unfortunate that the little that Judge Graham said in his diary about the buttons is ambiguous to the point of making it next to impossible in some instances to tell which particular statement applies to which existing button. For example, he reported finding two disked copper buttons on his first visit to the site. As defined in Webster's *New World Dictionary*, a disk is a "thin, flat, circular thing of any material." Neither of the existing "copper" buttons conforms to this definition, but rather has a convex crown and a concave back (Figure 45a,d).

Nearly as frustrating is the Judge's report of finding on his second visit to the site "four ("lead") buttons, round." Does round in this instance mean that the crown is convex? This appears to be so, especially in view of his expanded description "with ("lead") shanks round - front convex." Both of the existing "lead" buttons have convex crowns, but only USNM No. 379,000 still has a shank and that too might be considered "round" (Figure 45a).

If this identification is accepted, then the button found by the Judge on his third visit to the site and described by him as "metal-covered..., white" should be the one now bearing the USNM No. 378,989. This specimen does have a white

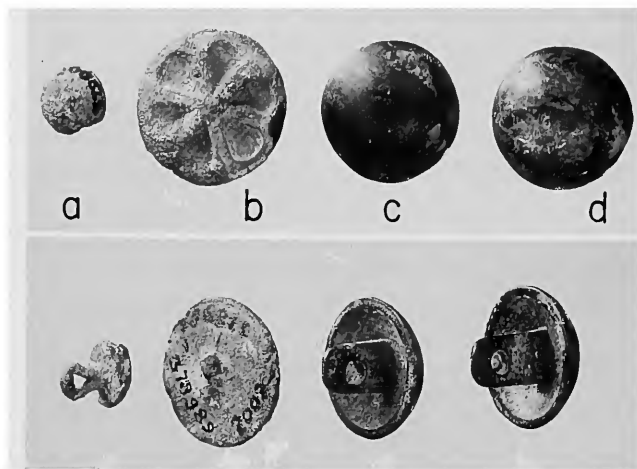


FIGURE 45.—Two views each of four metal buttons recovered from multiple burial by Judge Graham in 1935: *a* (pewter), bears USNM No. 379,000; *b* (pewter), No. 378,989; *c* (brass), No. 378,985; *d* (brass), No. 379,055. Natural size.

appearance. However, it was not like the Judge to fail to mention a design as prominent as the one on this button (Figure 45*b*).

Although the Judge did not provide descriptions of the buttons that allow us now to clearly distinguish those in his collection, any doubts regarding the provenience of the buttons, namely the Multiple Burial, are dispelled by the fact that the information in the catalog on this point was derived independently of the diary. Also, the surviving buttons are made of two kinds of metal, just as the Judge said.

I have not been able to find records of comparable specimens firmly dated in the seventeenth century. When asked to comment on sketches of USNM No. 378,989 and USNM No. 379,005, Noel Hume replied "the two buttons are unusual, and particularly the concavo-convex example with the flat shank (USNM No. 379,005)" (pers. comm., 17 August 1979). By their nature, buttons are highly variable, thus reducing the value of stylistic differences for dating purposes. Therefore, all I can say at this time about the present lot of buttons is that they were made by a simple method of casting, which of itself suggests an early date, but whether early or late in the seventeenth century is uncertain.

"COPPER" CHAIN.—On the same day that Judge Graham found the comb (7 Dec 1935), he found "a copper chain in four parts, fastened together and evidently worn as a necklace" (Diary, page 3). He failed to explain how the chain could be in four parts and still be fastened together (could the copper salts have preserved some organic ties now missing?). He found the chain near the feet of a child, but he failed to explain why it was so evidently worn as necklace. When made into a circle, would it have been large enough to go over a child's head?

There are four pieces of chain of different lengths ($3\frac{3}{4}$ ",

$4\frac{1}{2}$ ", $2\frac{3}{4}$ ", and $1\frac{1}{2}$ ") (94 mm, 112.5 mm, 69 mm, and 37.5 mm) bearing the USNM No. 379,002 in the Graham collection (Figure 46*d*). The combined pieces have a length of approximately $15\frac{1}{2}$ " (39 cm); arranged in a circle, they would have a diameter of under five inches (12.5 cm). Close examination of the individual links shows that two slightly different types alternate. One type is flattened in the plane of the link to give a cross-section approximately 0.5 mm thick and approximately 1.5 mm wide. The length of a link of this type is between 7 and 8 mm; the width is generally 5 mm. The second type is not flattened and retains what was probably the original diameter of a piece of wire from which it was fashioned, namely, approximately 1 mm. The length of this type of link is from 6 to 7 mm; the width generally 4 mm. Many links of both types show a defect at one end suggesting that the method of manufacture was to bend a piece of wire into a loop and braze or solder the ends together. Perhaps half of the resulting links were flattened and the other half left in their original state. I have not had the metal in this chain analyzed, but its strength suggests that it is better described as brass than as copper.

Because of its simple design and simple method of construction, this type of chain probably was being made long before the seventeenth century. There is no reason to expect the present specimen to help in dating the burial in which it was found.

FINDS IN THE FIRST OSSUARY

Of the 39 entries in Judge Graham's diary between 14 March 1936 and 13 April 1937, 24 refer to European artifacts (or artifacts made from European materials) with the skeletal remains exposed in the first ossuary. This record could be misleading as regards the number of individuals in this ossuary with European accompaniments, because the Judge was not always certain when he came to the end of one find and began on another. Nevertheless, the frequency of European artifacts is impressive, especially in view of the complete absence of such artifacts in the four other Potomac Creek ossuaries.

The 24 entries relating the finds of European artifacts in the first ossuary describe six kinds of objects, of which only two—glazed tile and hand-wrought nails—were not matched in the Multiple Burial. The other four kinds of objects—native-made ornaments of European copper, glass beads, brass bells, and scissors—occurred in both the ossuary and the Multiple Burial. Because of these differences in provenience, I shall deal next with the tile and nails unique to the ossuary and then, as promised above, take up the others in a section dealing with artifacts common to both Ossuary 1 and the Multiple Burial.

GLAZED TILE.—On 31 May 1936, Judge Graham recorded in his diary (p. 17) that he "took out piece of glazed tile... from dirt over bodies... tile is from filled in earth." Then, nearly six months later, he added at the end of his diary entry for 21 October 1936, the following note (Diary, page 62):

On October 18 in excavating dirt in Sq. (7R3), found piece of enameled (sic)

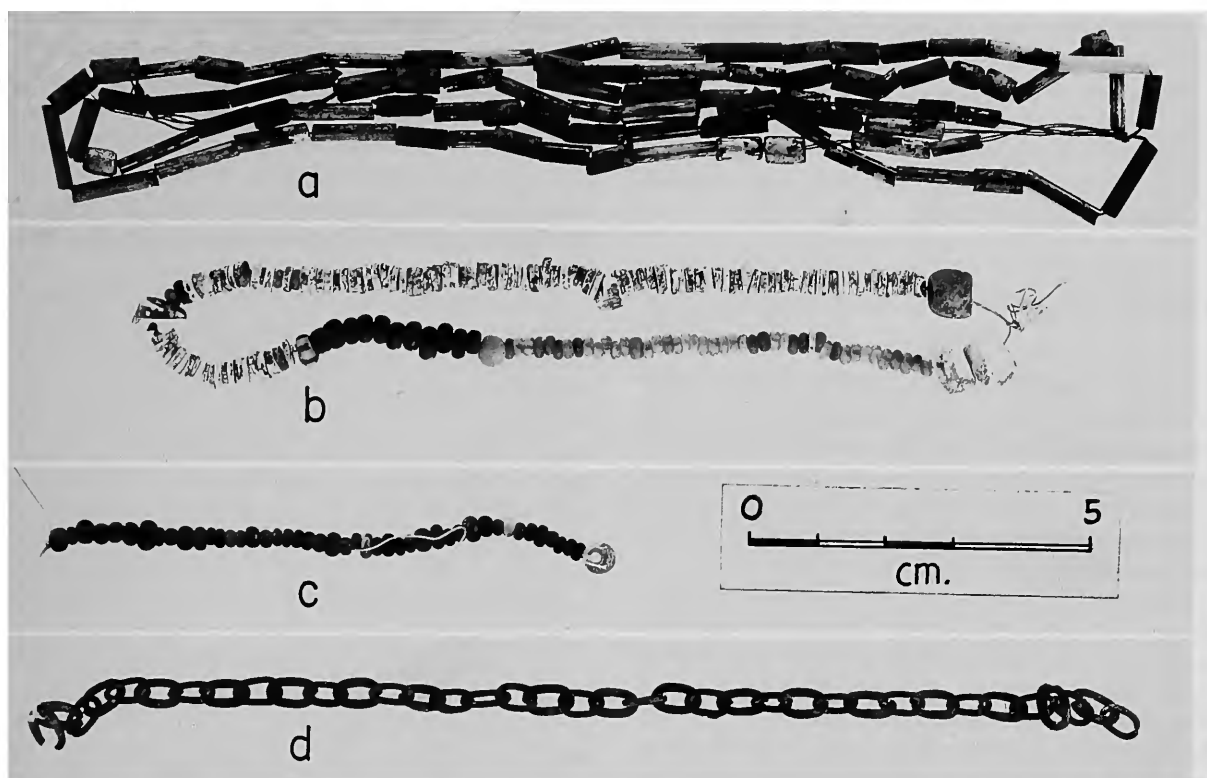


FIGURE 46.—Beads of glass and/or shell (a, c) and section of copper chain (d) from multiple burial. Strand of shell and glass beads (b) from Ossuary 1. USNM numbers are 378,898 (a); -998 (b); 379,001 (c) -002 (d).

tile, red, with yellow enamel, about three feet in depth. This would indicate that pit was filled with dirt in which were broken fragments left from buildings of whites—in other words that burials were after white occupation.

In the Graham collection are two pieces of tile that fit together. Each piece has a different collector's number (6436 and 7123), but the same USNM catalog number (378,907). None of the breaks look fresh. Assuming the original tile to be of the usual square shape, the two joined pieces show that the square was $5\frac{1}{2}$ inches (14 cm) on a side. Thickness is one inch (25 mm). The color of the fired clay making up the body of the specimen is reddish (5YR 6/8 by my reading of the Munsell Soil Color Chart; Anonymous, 1973); that of the glaze is yellowish (10YR 7/6). The lack of decoration and the large size describe a floor tile.

I have been unable to find anything comparable in the literature by which to judge the place of manufacture and the age of the specimen. That the finding of part of a single glazed floor tile at a depth of three feet (1 m) in an Indian ossuary at Potomac Creek means, as the Judge concluded, that a white man's house had existed in the vicinity before the ossuary was created appears unlikely. So far as known, the first and nearest home likely to have had tiling was that built by Giles Brent on the north side of Aquia Creek about 1645 (Brent, 1946). If this date for the beginning of house construction in the area is

correct, it seems improbable that the piece of tile in question could have been included in the ossuary any earlier than the middle of the seventeenth century and then probably only because one of the Indians interred there had treasured it for its foreign and exotic nature. Alternatively, a shiny tile could have been obtained from a ship, on which tiles were used in various ways in the galley. Ships came to Patowomeke repeatedly between 1612 and 1635, and a sailor aboard could easily have traded a tile for a tanned hide or other trade item.

HAND-WROUGHT NAILS.—When Judge Graham recovered the first piece of glazed tile from the earth over the bodies in the first ossuary, he also recovered a hand-wrought nail of iron. He thought that it, like the piece of tile, might have fallen into the pit from the surface. Nearly five months later (20 September 1936) he found another hand-wrought nail in the pit fill. Again, he expressed the opinion (Diary, page 49) that it had not been buried with the human remains.

The Graham collection contains three iron nails of which only two are hand-wrought, with spatulate points and rose heads. One of these (USNM No. 378,767) is said to have come from Square 3; the other (USNM No. 378,707) from Square 1. Neither of these squares is, of course, near Square 7R3 where the first ossuary was located. So, either these nails have nothing to do with the ossuary, or the proveniences given on the catalog

cards are in error. In any case, the making of iron nails by hand began before the seventeenth century and continued until around 1790–1830 when machine-cut nails came into general use (Nelson, 1968). The third nail mentioned is a cut nail. Thus, even if the two hand-wrought nails in question could be proved to have come from the first ossuary, their presence there would not help in dating the time of burial.

FINDS COMMON TO THE FIRST OSSUARY AND THE MULTIPLE BURIAL

NATIVE-MADE ORNAMENTS OF EUROPEAN COPPER.—The frequent occurrence of this class of European artifacts in the first ossuary is quite different from that in the Multiple Burial. No other class of European artifacts is mentioned more often in Judge Graham's diary during the time he worked in the first ossuary, whereas only two such mentions appear in the account of his brief period of work in the Multiple Burial.

One of the two latter mentions reads: "Small flat ring with a child skeleton—probably a finger ring. Evidently of copper—lines surrounding ring longitudinally. About $\frac{1}{4}$ inch wide [6 mm]—thin" (Diary, page 4). A specimen in the Graham collection matching this description (USNM No. 379-066) bears the provenience of "Burial VIII." In this case, obviously a narrow band of thin sheet brass was bent into a circle with the ends either left un-united, or the union made so delicately as to lead to a later separation. The diameter of the circle is 1.5 cm (just over $\frac{1}{2}$ inch). One edge of the band is smooth, the other ragged. Two impressed lines course around the band parallel to the smooth border in a manner suspiciously like those on the brass trade bells (see below). Although I cannot be sure, this band may represent a secondary Indian adaptation of European sheet brass. The only similar find in the first ossuary is the "copper" band found encircling the stem of a native steatite pipe (USNM No. 378,896) (Figure 34f).

The second mention of copper ornaments from the Multiple Burial in the Judge's diary is "some beads taken from other skeletons are copper of a new type, 14 to the inch. These are rounded like glass beads made of small pieces of cut copper, twisted into round shape. Small copper beads are 1.5 mm long and the same in diameter" (Diary, pages 6–7). Because the Judge had not encountered any kind of copper beads in the Multiple Burial prior to the date of this record (14 December 1935), his expression "new type" probably is based on the finds at his ossuaries at Port Tobacco, Maryland (Graham, 1935).

Finds of comparable small copper beads in Ossuary 1 are recorded in the Judge's diary three times:

Found what looked to be threads of material with some small copper beads which had discolored skull somewhat. [Diary, page 15]

...Skull had green discolorations and a few (about five) small copper beads.... [Diary, page 16]

Found copper stains and then beads. These (included)...a small number of smaller rounded, solid beads...strung, and...separated by small disk shell beads about 1 mm in thickness. [Diary, page 46]

Aside from small beads, most of the copper ornaments found in the first ossuary are in the form of sheet copper (brass?), cut and rolled into cylinders for stringing, or simply left in the form of small squares (a measurable side of one was 2.7 cm long), with one corner perforated for suspension. Exceptions are four solid spherical beads 3.5 mm in diameter and a solid barrel-shaped bead, 7 mm in diameter and 7 mm long. Most of the ornaments made from sheet copper were too corroded to save.

In 11 instances where the Judge recorded the lengths and widths of cylindrical copper beads (three finds numbered up to 14 beads each), the figures vary widely, as follows (in millimeters): 50×4 ; 32×7 ; 31×3.5 ; 22×6 ; 14×5.5 ; 11×2 ; 8×5 ; 8×4 ; 6×5 ; 6×3 ; 5×2 . This variability suggests that the Indians made this type of bead from whatever odd pieces of sheet copper or brass happened to be available. The Judge noted also that in bending or rolling the sheet metal into cylinders the long edges usually were left overlapping; in only one instance did he note abutting edges. Whether by intention or by accident, one small set of copper (brass?) ornaments were cone-shaped. Unfortunately, they were too fragmentary to save.

The Indians' use of European sheet copper or brass for making ornaments dates, of course, from the time they began receiving copper or brass vessels in trade. The earliest date for trade in the Potomac Tidewater region was 1608, although some copper may have reached the Patawomekes indirectly from other European visits to the Chesapeake Bay area during the sixteenth century. The finding of large quantities of copper or brass ornaments in Indian ossuaries along the Potomac must indicate dates of burial well into the seventeenth century. Because similar sorts of copper or brass objects were found by Judge Graham (1935) in the ossuaries on Port Tobacco River, a tributary of the Potomac, and by Mrs. Ferguson (1940) near Piscataway Creek, another tributary of the Potomac, at least general contemporaneity of these three burial sites is indicated.

GLASS BEADS.—Next to copper or brass ornaments in numbers of finds come glass beads. Two types are represented: spheroids and cylinders (see Figure 46). The spheroids outnumber the cylinders, by my count, 280 to 200. The glass beads in the Graham collection are cataloged in the USNM collections under the following Accession numbers: 378,898 (Figure 46a); 378,915; 378,924; 378,998 (Figure 46b); 378,001 (Figure 46c); 379,022; and 379,029.

According to Judge Graham's notes, the spheroids vary in diameter from 2 to 4.5 mm. The figures that I get are 2 to 5 mm, and Schmitt gives an average of one-eighth inch or 3 mm. I found the lengths to vary from 1 to 3 mm. The majority of these in the collection are near opaque and blue-black in color. The next most common are slightly opaque and light green in color. A few are opaque and brick-red in color with black centers. A lone spheroid, 4.5 mm in diameter, has three red and three blue alternating stripes aligned parallel to the perforation on a white background. In a diary entry for 9 September 1936, the Judge reported finding the unique striped bead and the red beads with

black centers in the first ossuary. The same provenience appears on the catalog card (USNM No. 378,898).

The cylindrical beads vary in length from 4 to 13 mm and in diameter from 2 to 4 mm. In general, the longer the cylinder, the thinner, the most common sizes being 8–10 × 2–3 mm. The predominant color is brick red. However, this color is only on the surface and in many instances has flaked off, revealing an underbody of white. A few other cylinders are either white or blue-black. The only mentions of cylindrical beads in the Judge's diary are in connection with his excavation of the Multiple Burial on 1, 7, and 10 December 1935 (Diary, pages 1, 2, and 7). The likelihood that all of the cylindrical beads in the collection were found in the Multiple Burial is supported by the catalog information pertaining to three lots, as follows: 378,998—with Burial VI; 379,001—with Burial VIII; and 379,022—with "grave of child." My reason for assigning the latter to the Multiple Burial is that it is grouped in the catalog with the bone comb and a metal button, both of which undoubtedly were found with a child's remains in the Multiple Burial.

In the summer of 1988, Ms. Jirikowic examined the USNM collection of beads from Patowomeke and classified them according to the system developed in Canada for seventeenth century glass beads (Kidd and Kidd, 1970). Her classifications are shown in Table 13. In her comments on the beads, she says,

The most common beads in the collections are small and medium sized circular beads of various shades of blue—total 123; small circular black beads—total 89; and small red tubular beads—total 93.

The only other Indian ossuaries in the Potomac Tidewater area known to include European artifacts have been those excavated by Judge Graham at Port Tobacco, Maryland (1935); one excavated at Piscataway, Maryland, by Mrs. A.L.L. Ferguson (1940); and an older reference to an ossuary close to Piscataway, excavated by Elmer R. Reynolds about 1880 (Reynolds, 1881). The ossuary opened by Mrs. Ferguson yielded some of the same sorts of beads described above and in even more profusion than the first one at Potomac Creek. Speaking of his finds at Port Tobacco, Judge Graham says that with one skull were "a large number of small, flattened, round dark blue glass beads, each about 2 mm in diameter...there were several hundred of these" (Graham, 1935:31). Similarly, Mrs. Ferguson reported finding "little glass beads of a turquoise blue color. Over three pints of these were recovered" (1940:11). Beads indistinguishable from those found in the Potomac River ossuaries probably were being made in Venice before 1492 (van der Sleen, 1973:113), and in Amsterdam by the beginning of the seventeenth century (van der Sleen, 1973:108). It is not to be expected, therefore, that such common glass beads will provide a close dating within the seventeenth century for any Indian burials.

BRASS BELLS.—After glass beads, the little bells that falconers attach to the legs of their hawks ranked next in frequency among the manufactured objects that the Potomac

TABLE 13.—Types of glass beads (Kidd and Kidd, 1970) (small = 2–4 mm; medium = 4–6 mm).

Shape	Kidds' type	Size	Color
Tubular	Ia1	small	red
	Ia2	small	black
	Ia5	small	white
	Ia19	small	blue
	IIa1	medium	red w/black core
Round (spherical)	IIa25	medium	green
	IIa31	medium	blue
	IIa35	medium	blue
	IIa46	medium	blue
	IIa52	medium	blue
	IIb43	medium	lt blue w/red and navy stripes
	IIa2	small	red
	IIa2	medium	red
	IIa7	small	black
	IIa7	medium	black
Circular	IIa14	small	white
	IIa27	small	green
	IIa34	small	blue
	IIa45	small	blue
	IIa47	small	blue
	IIa47	medium	blue
	IIa56	small	blue
	IIa59	small	rose
	IIa20	small	white w/6 red stripes
	IIa20	small	white w/6 red stripes

Indians received from the early Europeans as gifts or in trade. One cannot but help marvel that so many of the bells in the Graham collection, in spite of seeming to be of delicate construction, still seem complete and attractive in appearance. This would attest to the resistance of alloyed copper in globular form to the subsoil environment in northern Virginia.

Of some 55 examples that Judge Graham reported finding, around 50 came from the Multiple Burial and the rest from the first ossuary. It is difficult to account for all of them now because they are distributed under six USNM catalog numbers: 378,916; 378,986; 378,995; 378,997; 379,007; and 379,623. However, according to Ian Brown's (1979) classification, they are all of the flushloop variety (Figure 47). In producing this variety, the sheet brass was worked into two bowl-like hemispheres. At the pole of the one intended to be the top hemisphere a small hole was made in preparation for the attachment of a handle. For the latter, a narrow strip of brass was bent into a loop, the ends inserted through the hole, separated, and secured in place by soldering or brazing. In the bottom hemisphere a larger round hole was made on each side of the pole and connected by a narrow slit. The two hemispheres were then placed together flush (with a pellet inclosed to serve as a clapper) and joined by soldering or brazing. Often, the resulting sphere is seen to be slightly flattened top to bottom.

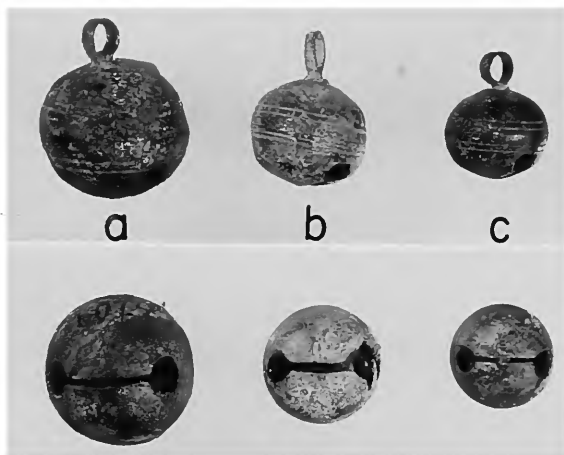


FIGURE 47.—*Top*, side and bottom views of three brass trade bells of flushloop variety (Brown, 1979) recovered in early 1930s by Judge Graham from Ossuary 1 (b) and from multiple burial (others). USNM numbers are 397,623 (a), 378,916 (b), -995 (c). *Bottom*, close-up of b above.

The bells in the Graham collection range in size (using the maximum diameter as a gauge) from 13 to 21 mm, with the sizes tending to cluster just within the extremes of this range. The size of the holes and slit in the bottom hemisphere tends to be proportional to the overall size of the bell (Figure 47). Thus, in the smallest bell the holes are 3 mm in diameter and the slit (approx. 0.5 mm wide) is 8 mm long. In the largest bell the holes are 5 mm in diameter and the slit (1 mm wide) is 12 mm long.

I arranged to have one of the damaged bells from the lot numbered USNM 379,007 analyzed spectroscopically by the FBI. The report, dated 1 February 1980, states that the hemispheric portion consists essentially of copper and zinc, and the clapper of iron. At the points on the hemisphere and clapper where the surface corrosion was removed by polishing for the analysis, the metal has a bright golden shine. The clapper in this case otherwise is rough in appearance. Roughly square in

shape, it measures 8.5 mm in length and 5 mm in thickness.

The following quotation from Brown (1979:201) describes exactly a feature (Figure 47b) visible on most of the bells from Patawomeke:

On many (flushloop) bells are four encircling grooves, two on each side of the equatorial seam. These incisions seem to have been formed in the manufacturing process, although they are sometimes executed quite well and appear to be decorations.

The only place along the Potomac River besides the site at Potomac Creek where brass hawk bells have been found is the ossuary at Piscataway (Ferguson, 1940, pl. V). Of the seven pictured, only one appears to be of the flushloop variety, four are certainly of the Saturn variety (so named because of the equatorial flange), and the remaining two are of uncertain classification simply because their details are not clear in the illustration. Brown's survey of reported specimens of the flushloop variety from the United States indicates that most have come from eighteenth century sites. He cites, besides Patawomeke, only two other seventeenth century sites that have yielded such bells: the Albert Ibaugh Site in Pennsylvania, dating about 1600–1625, and the Burr's Hill Site in Rhode Island. He favors France as the place of manufacture of the bells, although this is uncertain. In a 1619 treatise on falconry by Edmund Bert, a bell of the flushloop type is illustrated. In a survey of sixteenth century Spanish trade goods in the southeastern part of the United States, Jeffrey Brain (1979) identifies hawk bells as a major trade item. He calls them the "Clarksdale" variety, named for Clarksdale, Mississippi. One other site in Virginia—the Trigg Site at Radford (Buchanan, 1984)—yielded the loop half of a flushloop bell as part of the grave accompaniments of a child burial.

SCISSORS.—Judge Graham's mention of finding an iron object that he could not identify appears at the end of his diary item for 7 December 1935. The item came from the child's burial in the Multiple Burial pit. He called it an "ornament," saying only that it was "about one inch [25 mm] long. So corroded that could not further describe" (Diary, page 4). The only iron object in the Graham collection to which this description can possibly refer (Figure 48) bears the USNM catalog number 378,991 and is said to be a fragment of a compass; that is, the kind of compass used to draw a circle and not the kind of compass used to determine direction. However, this object is 1½ inches (37.5 mm) long, rather than one inch (25 mm), as the Judge stated. Otherwise the accompanying information on the catalog card corresponds to that given in the diary.

Before I studied the pair of scissors next to be described, I had accepted the identification of the iron object from Grave 1 in the Multiple Burial pit as a compass. When Figure 48 is examined upside down, such an identification seems plausible. Afterwards, I was surprised to find that instead of a compass, it was another pair of scissors, albeit smaller. Although the shafts of the handle end of the smaller scissors appear to be parallel,

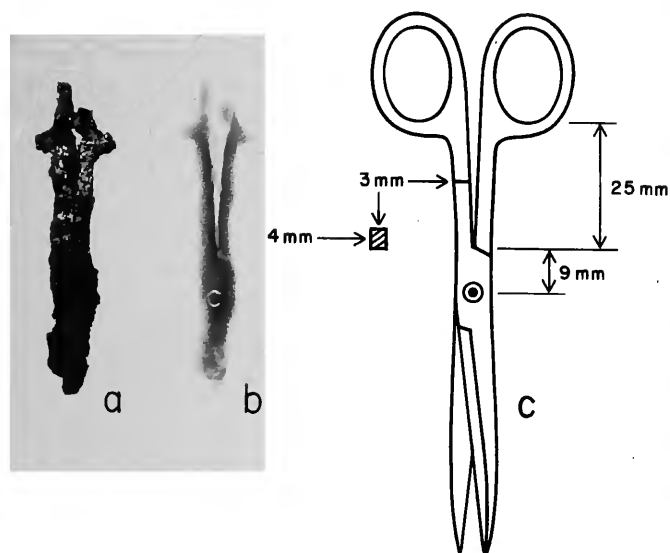


FIGURE 48.—A pair of scissors recovered from multiple burial by Judge Graham in the middle 1930s: *a*, as found; *b*, X-ray of same; *c*, artist's reconstruction. (USNM No. 378,991.)

the X-ray (Figure 48*b*) shows them slightly separated. Accordingly, the reconstruction (Figure 48*c*) shows the points of the blades also slightly separated.

On the next-to-last day spent by Judge Graham in cleaning out the first ossuary (10 April 1937), he encountered a badly rusted but undoubted pair of scissors (Figure 49), which, he noted in his diary (page 98), "were in contact with human remains and had evidently been buried with them, or lost at the same time." This second pair of scissors now bears the USNM number 378,908, with the provenience given as "Square 7R3."

The main thing to note about both pairs of scissors is that the loops or "eyes" for the thumb and first finger are out-curving from the rather long shafts of the handle ends, thus providing space on closing the blades for the shafts to reach the parallel position. Unlike the shafts of the smaller pair, those of the larger pair are now parallel, which means that the blades of the latter were closed when this instrument was included in the ossuary. However, the ends of blades in this case give the appearance of separation on account of the loss of metal at the blade ends. To show the seeming separation of the blades as an illusion, the reconstructed scissors are shown in Figure 49*c*. This figure supports my belief that, in this case, the missing points of the blades did indeed meet in the usual fashion of the closed instrument. Comparison of this reconstruction with that of the smaller pair (both based on X-rays) shows their longitudinal measurements to be proportional, excepting the length of the blades, which is problematical.

Noel Hume (1970, fig. 87-5), Smith (1984:174), and Gregory (1980, fig. 11) each picture an example of this type of scissors recovered from seventeenth century sites in Virginia. Another pair of this type was found at the site of St. Marie I, a

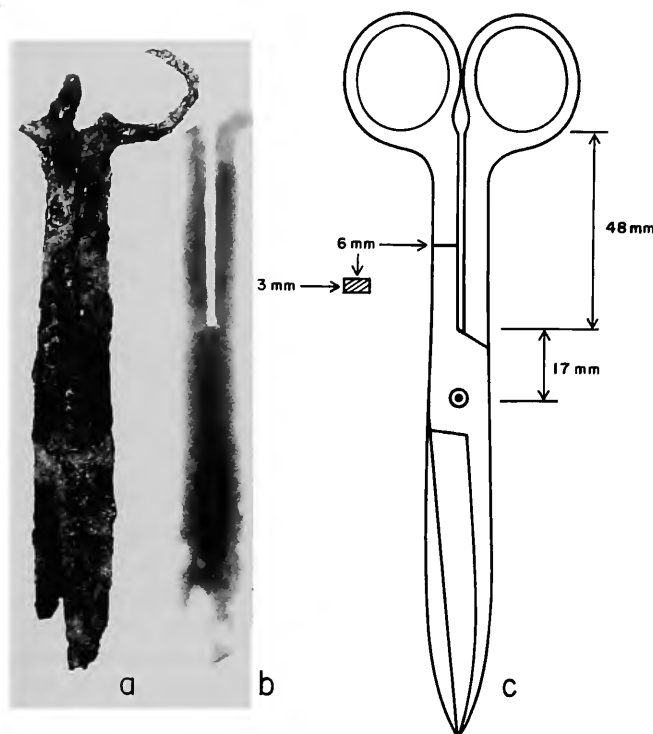


FIGURE 49.—Pair of scissors recovered from Ossuary 1 by Judge Graham in middle 1930s. *a*, as found; *b*, X-ray of same; *c*, artist's reconstruction. (USNM No. 378,908.)

Huron-Jesuit mission site in Ontario, Canada (Kidd, 1949, pl. 47a-d). However, along with them was a somewhat different type as regards the handle (Kidd's fig. 20-E). The same is true of Kelso's (1966) find of two scissors in a late seventeenth century domestic refuse pit in James City County, Virginia. One (his figure E-4) is like the Potomac Creek specimen, and the other (his figure E-50) has a different arrangement of the handle. Interestingly, a pair of scissors of the second type was found in a Huron ossuary near St. Marie I, Ontario (Kidd, 1953, fig. 128). Kidd identifies the ossuary as the one which was filled in the presence of the Jesuit priest, Jean de Brebeuf, in 1636.

The variant handle arrangements that characterize the second type of scissors noted above as occurring with seemingly equal frequency with the first type in seventeenth century American sites has the shafts of the handle attached to the loops in such a way that the shafts diverge rather than reach a parallel position when the instrument is closed. Noel Hume (1970, fig. 87-3) illustrates the type but is silent on whether or not it is based on the specimen reported for Jamestown (Cotter and Hudson, 1957, pl. 3).

At present, the significance of these type differences in seventeenth century scissors is unknown and hence the presence of one or the other type in a site offers no help in narrowing down the age of the site within the century.

Part III: Mortuary Complex and Anthropometrics

How a population group disposes of its deceased members is important to anthropological archeology. Death and burial are usually emotionally charged, strongly conservative, and deeply religious situations. With the number of human burials found at Patawomeke, it should be possible to reconstruct some of the villagers' mortuary customs and possibly deduce aspects of their beliefs surrounding death and burial.

Examination and study of the bones can also reveal facts about the Patawomekes' health, demographics, and possible affinities with neighboring groups of similar or differing cultures. In this part, I will attempt to treat these two important aspects of physical anthropology.

In several respects, we are frustrated by the nature of many of the archeological recovery techniques applied in the work at this important site. Except for Ossuary 5, little care was taken to identify, keep together, and study the bones of individual burials, whether primary or secondary. Little effort was made to collect post-cranial bones, and only a small percentage of the crania were preserved for study. For most of the ossuaries, the record is incomplete as to the number of individuals found, and field identifications of age and sex were seldom recorded. Complicating the excavation and subsequent study of the bones was the generally poor condition of many bones. Many long bones and crania were broken or crushed, either by the Indians' trampling or by the weight of the soil overburden and the repeated passage of farm equipment over the years.

Despite these limitations in the records and collections, some reliable data can be presented. The data are derived from Judge Graham's 1935–1937 diaries, from field notes kept by the Museum work parties (1938–1940), and from laboratory examination of the bones that came to and were preserved in the National Museum of Natural History. These data will be presented sequentially, as excavated, along with relevant tabulations. Following this, the data will be summarized to reveal (or suggest) Patawomeke burial customs and beliefs, and perhaps permit comparisons with other sites in the Virginia-Maryland area.

THE MULTIPLE BURIAL.—Ten individuals had been buried singly in a pit measuring roughly 8' × 6' × 2.2' (2.4 × 1.8 × 0.6 m) deep. All had been buried in the flesh, in a flexed position, except one buried as a bundle of cleaned bones (a secondary burial). The presence of numerous objects of European manufacture indicate that this grave had been dug and filled late in the life of the village, and possibly after its abandonment, when the Patawomekes lived at another, nearby, site. Zones of soil separated most individuals, indicating that all had not been buried at the same time. The only bone saved from this group of burials was the skull of an adult male, probably Burial III, the bundle burial (Figure 50). This adult cranium warrants more than the usual description, because Dr. Ales Hrdlicka regarded it as that of a "White" man. Hrdlicka's impression was that the



FIGURE 50.—Four views of a large adult male cranium from the multiple burial (USNM No. 378,138).

cranium was round, the cranial index was about 90, and the frontal bone rises steeply. So far as can be judged, the individual had a broad face, with a bizygomatic breadth of 101 mm. Because the cranium lacked its base, Dr. Hrdlicka suggested to an assistant, Marcus Goldstein, that he try to determine the volume by filling the endocranium with mustard seeds. Doing this produced a measurement of brain case capacity of "near 2000 cc" (Hrdlicka, 1939).

OSSUARY 1.—This pit was large and irregular in shape. It measured 37.5' (11.2 m) long, 15' (4.5 m) wide, and 5.0' (1.5 m) deep. The count of individuals in the grave came to 181, by a count of crania. The burials were bundled, as a rule, although several were articulated, either flexed or extended, and a few were cremations. Many groups of bundles were separated by layers or lenses of soil, indicating that the pit had been filled in increments, although there is no indication of the time lapse between interments. Historic trade items found throughout the pit indicate that it, too, had been dug and filled late in the site's occupational life. Many bones from this ossuary were taken to

the National Museum, accessioned there, and subsequently measured. However, due to uncertainties concerning the accession numbers for this feature, the measurements are not presented here. Figures 51 through 53 depict 10 crania from this ossuary. The drawings were made with a (then) new technique—stereography—recently introduced in the United States from Europe.

OSSUARY 2.—This mass grave was likewise large, measuring 38' (11.4 m) long, 11' (3.3 m) wide, and 4.0' (1.2 m) deep. A count of skulls shows 287 individuals. Most had been buried as bundles of bones, although some were articulated. Because no historical objects were found in the pit, this ossuary is deemed to have been dug and filled during prehistoric times. Of the crania saved, 84 were measured (29.4%), and the measurements and indices are shown in Tables 14 and 15. Bones from this pit were better preserved than those from Ossuary 1.

INDIVIDUAL GRAVE.—This grave was that of a young adult male, buried in a small pit, accompanied by a dog. The human skeleton was incomplete, and some bones were charred. As no bones were saved, there are no measurements to cite for this individual.

OSSUARY 3.—This grave pit measured 18' (5.4 m) long, 11' (3.3 m) wide, and 3.5' (1 m) deep. It contained 67 individuals. Most bodies had been placed (in the flesh) in a flexed position on the base of the pit. A few individuals had been buried as bundled bones, and few were cremations. No historic items occurred in this pit, indicating that it too dates from pre-Contact times. Six crania from the pit were measured, with the results shown in Table 16.

OSSUARY 4.—Working at Potomac Creek on 30 October 1937, the Washington, D.C., avocational archeologist Carl P. Manson found another ossuary about 105 feet (31.5 m) north of Ossuary 2. Manson's notes indicate that the pit, which he did not completely excavate, measured roughly 23'×13'×3.0' (6.9×3.9×0.9 m). He found a total of 41 individuals, mostly bundled, with a few cremations and several articulated. None of the bones came to the National Museum. Of the few artifacts found, no historic items were reported.

OSSUARY 5.—This mass grave was found and excavated during the work of the National Museum, partly in 1939 and the remainder in 1940. A total of 135 individuals was recognized, and 68 crania and a few post-cranial bones were accessioned into the collections of the National Museum. The pit for this ossuary measured 20'×10'×3.0' (6×3×0.9 m) deep. Most individuals had been buried as bundles of bones, although some were articulated, and a few were cremations. Table 1 shows the data on each burial found. Laboratory measurements on selected crania and a few facial bones are shown in Tables 17, 18, and 19. Table 20 shows the age and sex distributions identified, and Table 21 lists the pathological conditions or traumas noted on the bones as they were excavated. Most artifacts found in this ossuary were of native origin and manufacture, with the possible exception of two small copper

pendants, which may indicate a proto-historic age for this grave.

POST-CRANIAL BONES.—Almost none of the skeletal bones below the cranium and mandible were saved from any ossuary. As Judge Graham noted, many long bones were broken and lacked solid joint ends. Without such termini, no reliable measurements could be obtained. Unfortunately, most bones had been reburied without having been examined for signs of disease or injury, with few exceptions. One group of leg bones from the 5th ossuary, examined by me in 1978, showed cutting marks in the knee area. One method of burying articulated bodies was to place them on their backs and fold the lower legs forward to the waist area of the body. This unnatural folding required that tendons behind the knees be cut, sometimes resulting in cut marks on the bones. Some burials of this type were placed in a face-down position, too. Reasons for this placement are unknown.

I had noted several examples of such body placement in the ossuaries that I assisted Judge Graham in excavating. In Ossuary 5, I found a total of eight sets of remains in this folded position. Because most burials encountered at Patowomeke had been buried as a bundle of cleaned bones, it is likely that many individual bones had been at least partly separated mechanically, after most flesh had decayed. This would have been especially necessary to separate bones of the feet and individual vertebrae, which are normally held together with extra-strong ligaments and tendons. Figure 54 illustrates five bones from Ossuary 5 that show marks of cutting, probably resulting from dismemberment.

One observation made while handling many lower limb bones was that they seemed more rugged than is usually found in modern populations, especially the male skeletons. This ruggedness, along with well-defined muscle attachment scars, probably resulted from the extensive walking, running, and load-carrying that an individual hunter-warrior was required to do. To a lesser extent, a similar sturdiness was noted in the females, who also did much physical labor, such as gardening and foraging for food and other materials, including the never-ending chore of collecting firewood. The few diseases noted on the bones from the 5th Ossuary typify many Late Woodland burials in the Virginia-Maryland area I have seen over the past half-century. Figure 55 shows three pathological bones from Ossuary 1.

The Patowomeke cranial indices, shown in Table 22, indicate that most of the population was long-headed (dolichocranic). Table 23 compares this population with two sites: (1) the Piscatway ossuary (Stewart in Ferguson, 1940), which dated to the mid-seventeenth century and shared many cultural traits with Patowomeke; and (2) the Shepard Site in the Piedmont portion of the Potomac Valley in Montgomery County, Maryland. The latter village may be culturally ancestral to the population of the Potomac Creek Focus (MacCord et al., 1957).

MORTUARY CUSTOMS.—According to Captain John Smith (Smith, 1624), when a chief or other important person died, the

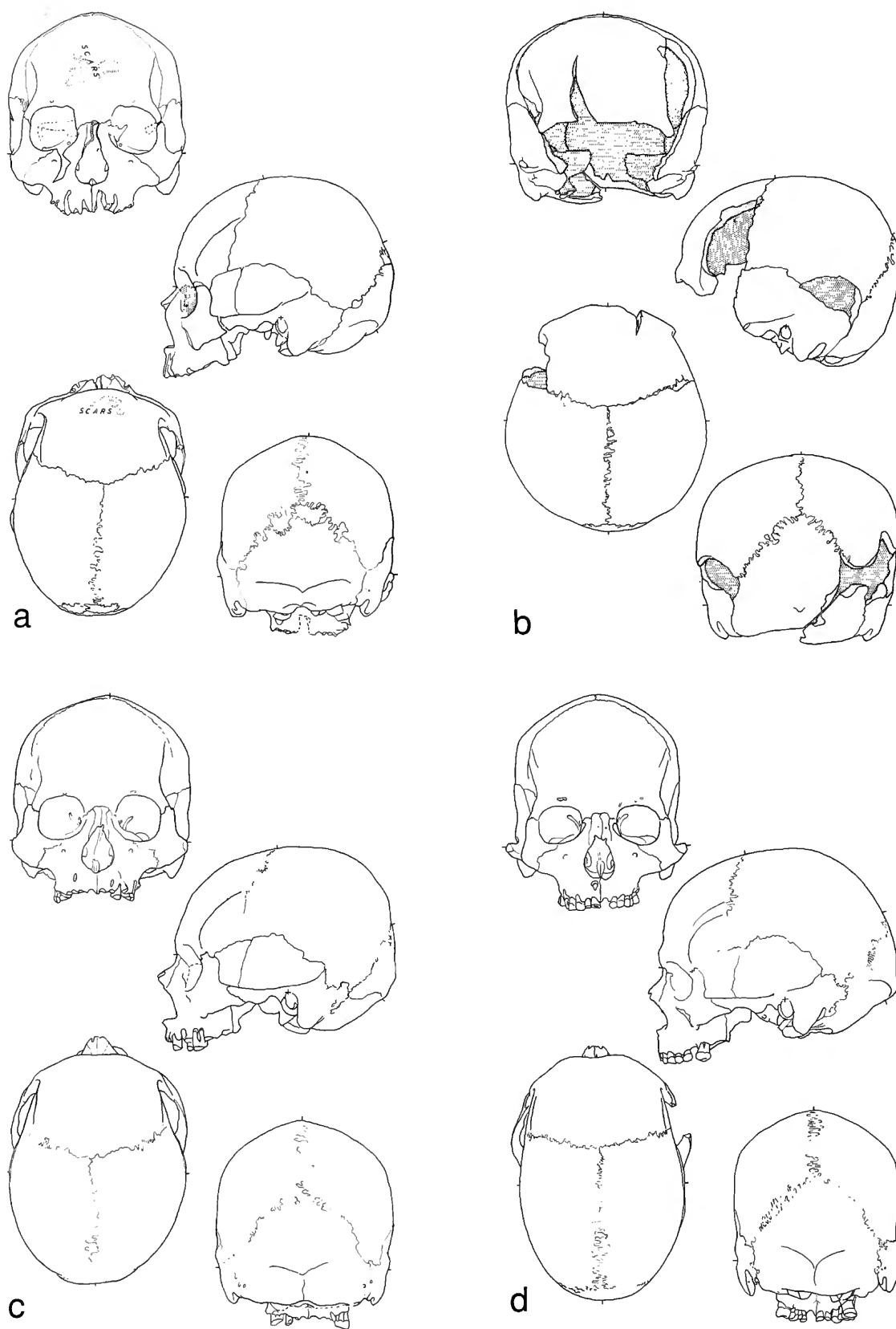


FIGURE 51.—Drawings of four adult male crania from Ossuary 1, Patawomeke Site: *a*, USNM No. 378,086; *b*, USNM No. 378,001; *c*, USNM No. 378,104; *d*, USNM No. 378,142.

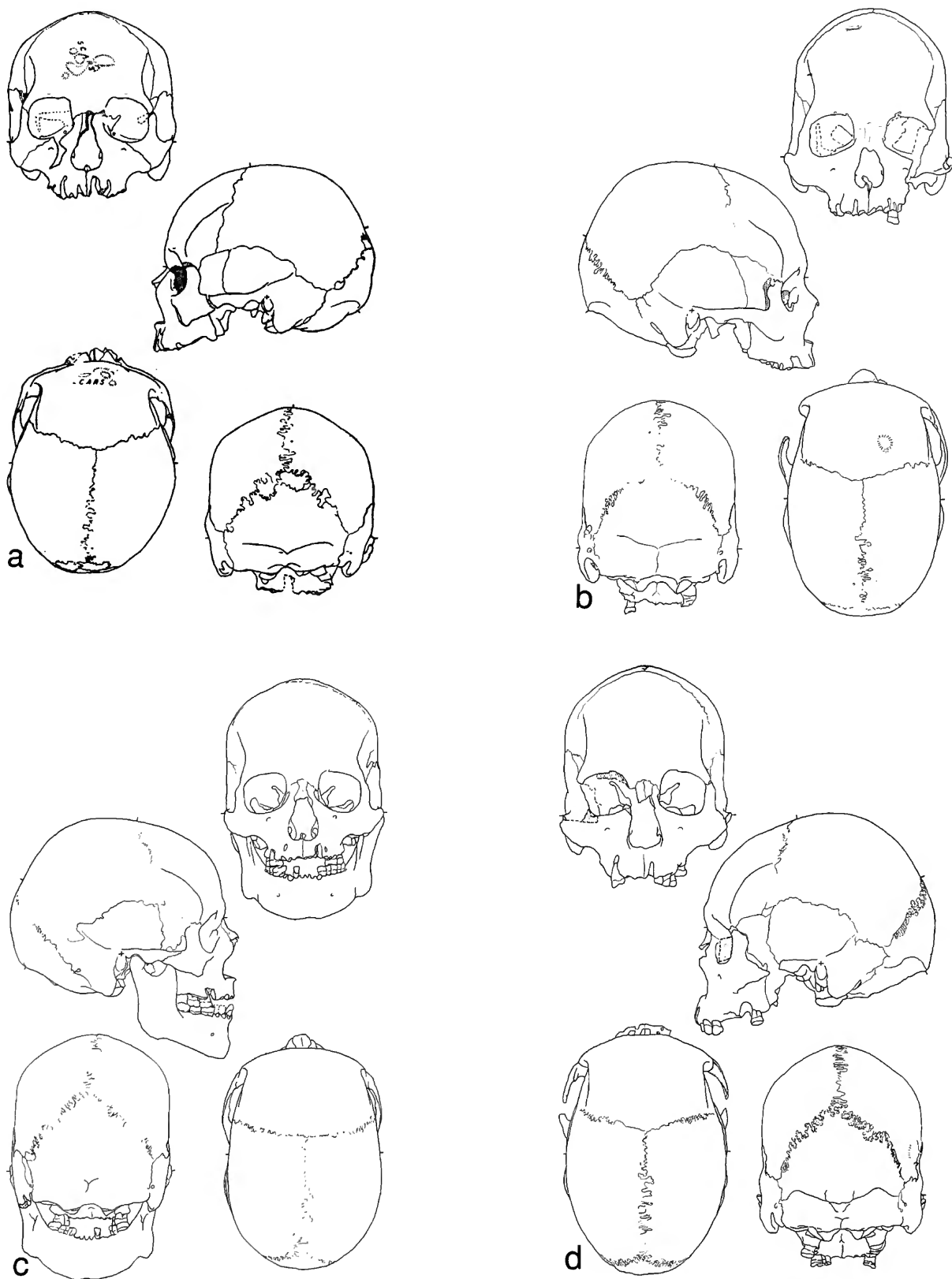


FIGURE 52.—Drawings of four adult male crania from Ossuary 1, Patawomeke Site: *a*, USNM No. 378,086; *b*, USNM No. 378,088; *c*, USNM No. 378,104; *d*, USNM No. 378,142.

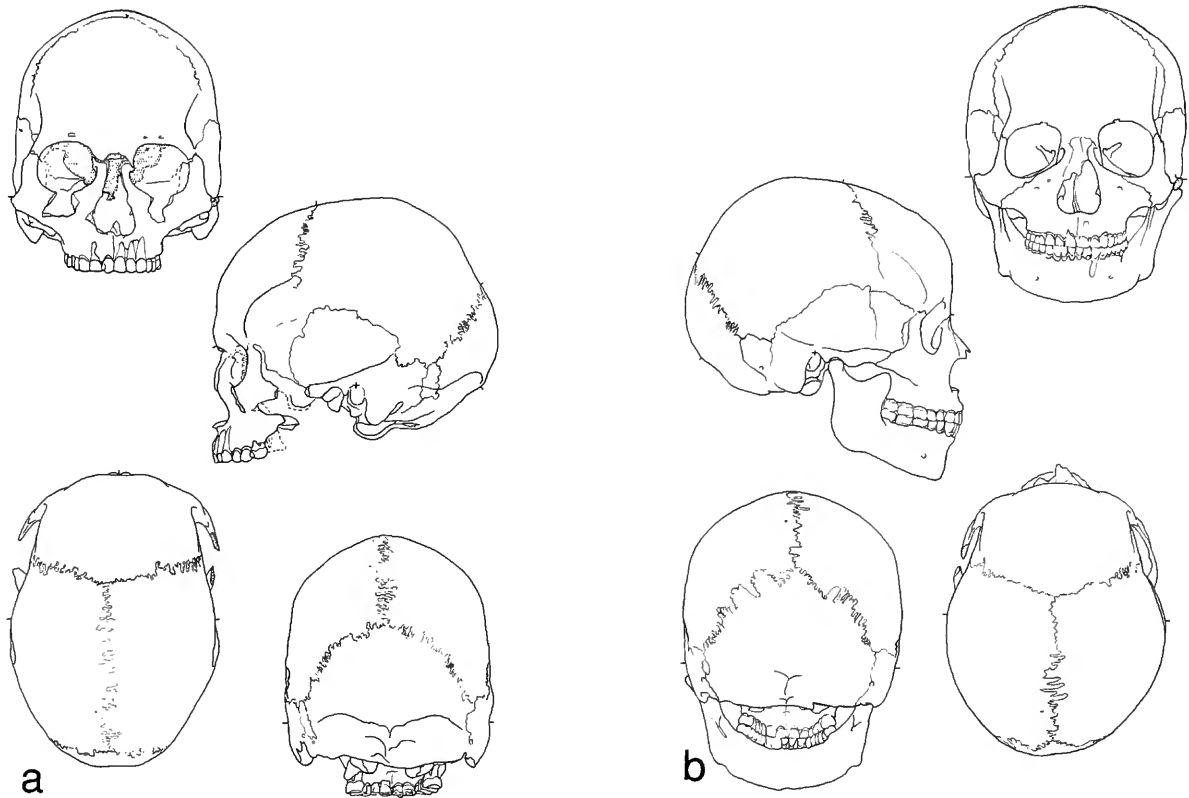


FIGURE 53.—Drawings of two adult female crania from Ossuary 1, Patawomeke Site: *a*, USNM No. 378,094; *b*, USNM No. 378,099.

body was disemboweled, dried, and placed in a “death house” (*quiocassin*), wrapped in skins and mats, with worldly wealth placed with body or in baskets nearby. Common people were buried in the flesh in deep holes, without special treatment. While these practices may have been followed elsewhere in Tidewater Virginia, the archeological evidence disclosed at Patawomeke indicates many differences.

In the extensive excavations done over the five-year period, only one single interment was found. Although it is likely that others will be found in future work, obviously single interments were the exception rather than the rule. The burials in the Multiple Burial pit may have been individual interments as well, but placed in a pit already dug and possibly reopened as needed. Such a pit may have been dug exclusively for members of one family, and if this were a common custom, there should be other family graves in the village area. An answer to this question must await further examination of the site.

Most of the deceased obviously had been buried in mass graves, or ossuaries. These varied in size and in the number of individuals each held. Whether these variations represent differing intervals between burial ceremonies or reflect differing rates of death in a fixed, periodic digging and filling of a communal grave are currently not known. Logically, the intervals between ossuary construction would have been

fixed, possibly to co-occur with some other event, not now known. Ossuary 3 held mostly articulated, flexed burials, and this fact sets this ossuary apart from the others, which held predominantly bundled (secondary) burials, with only a few articulated or cremated individuals. All elements of the population seem to be represented in each ossuary, both males and females and all age groups. Whereas many burials were accompanied by beads or other artifacts, no single individual was so especially endowed that one might conceive him/her to have been a chief, shaman, or other important personage. The mortuary evidence found indicates an egalitarian society, with individual differences in burial treatment and adornment being merely idiosyncratic behavior on the part of the next-of-kin involved in disposing of their deceased relative.

In any event, three forms of burial occurred at Patawomeke. These were burial in the flesh; cremation; and burial as a bundle of bones. Presumably, when an individual died and could be buried immediately in the ossuary, this was done. When immediate burial was not possible, for whatever reason, the body was cremated, placed in a temporary grave until the flesh had decayed, or exposed, possibly on a platform in a tree or on a scaffold, until the bones were clean. When clean, the bones were bundled, wrapped in skins or mats, and kept at or in the wigwam awaiting final burial. How long the bundles were kept,

TABLE 14.—Measurements (in mm) and indices of 46 male crania from Ossuary 2 (* = approximately correct).

Catalog number	Age (approx.)	Maximum length	Maximum width	Cranial index	Basion-bregma height	Mean height index	Porion-bregma height	Porion height index	Minimum frontal diameter
378,021	30+	198	134	67.7	128	—		77.1	96
022	40+	192	134*	69.8*	123	—		75.5*	95
023	25-30	185	141	76.2	116	—		71.2	100
024	40+	176	132*	75.0*	113	—		73.4*	100
025	35-40	193	136*	70.5	129			78.4	97
026	30-35	192*	130*	67.7*	122		—	75.8*	87
027	40+	204*	135*	66.2	120			70.8*	97
030	35-40	196	134*	68.4*	122*	86.1	142	73.9*	76
032	40*	198	128	64.6	117	88.3	144*	71.8	91
034	40	194	141	72.7	129	88.4*	148	77.0	102
036	25-35	190	130	68.4*	113*	83.8*	134*	70.6*	93
039	35-40	184	144	78.3	117	87.8	144	71.3	97
040	20-25	179	154	86.0	118	82.9	138	70.9	107
042	35-40	193	134	69.4	113	80.7	132	69.1	100
043	40*	195	134	68.7	121	86.3	142	73.6	101
044	40*	198*	134	67.7	118		—	71.1	91
047	40*	190	134	70.5	122	90.7*	147*	75.3	95
048	35-40	188	142	75.5	118	87.3	144	71.5	92
049	35-40	194	140	72.2	121	—	—	72.4	103
051	40*	186*	135*	72.6*	124	—	—	77.2*	—
052	20-25	193	136	70.5	115	—		69.9	97
053	35*	190*	146	76.8*	115*	93.3*	140	68.4*	104
056	20-25	191	152	79.6	120	—		70.0	100
059	35*	178*	143*	80.3*	112*	—		69.8*	92
060	40+	189	135	79.4	121	87.6*	142*	74.7	100
064	30-35	202*	128*	63.4*	123*	—		74.5*	102
065	35*	180	148	82.2	118	—		72.0	96
066	40*	203	143	70.4	122	82.1*	142*	70.5	94
070	35*	180	133*	73.9*	115		142	73.5*	95
074	40+	178	130	73.0	113	89.6	138	73.4	93
075	25-30		141		120		141	—	
076	25-30	182*	131*	72.0*	118			75.4*	95
078	40+	194	135	69.6	127			77.2	
079	40+	192	132*	68.8*	116			71.6*	89
082	35-40	191	142*	74.3*	118	82.9*	138*	70.9*	101
086	30-35	184	143	77.7	114	82.0*	134*	69.7	94
087	25-30	192*	138	71.9*	118*	83.6*	138*	71.5*	96
088	40*	196	130	66.3	122	92.0	150	74.8	96
090	25-30	190	126*	66.3*	—		—		93
100	30-35	186	150	81.7	115		—	68.0	99
104	35-40	186	132	71.0	114	88.0	140	71.7	98
113	40+	186	146*	78.5*	116		—	69.9	96
114	25-30	199	136	68.3	—		—		101
141	40+	190	128	67.4	112		—	70.4	96
142	25-30	199	137	68.8	122	88.1	148	72.6	99
143	35-40	182*	136*	74.7*	110		—	69.2*	93
TOTAL		8298	6303	3254.9	5240	1731.5	3209	3117.5	4139
NUMBER		45	46	45	44	20	22	43	43
AVERAGE		184.4	137.0	72.3	119.1	86.6	145.9	72.5	96.3

or what, if any, homage or worshipping was done the bundle, are facts we do not know. Among the Nanticokes of the Eastern Shore of the Chesapeake Bay, secondary burial was also a custom (Davidson, 1935, and Weslager, 1983). During the 1750s, when the Nanticokes moved north to live among the Iroquois, they took with them the bundled bones of their

recently deceased relatives (Heckewelder, 1819). Seemingly, these were bundles still kept in the homes or in a death-house and not yet put into a final grave. (For further discussion on this topic, see Weslager, 1983:173-176). Obviously, the people wished to keep those individuals among the living until a new home was established and a proper mass grave could be

TABLE 15.—Measurements (in mm) and indices of 38 female crania from Ossuary 2 (* = approximately correct).

Catalog number	Age (approx.)	Maximum length	Maximum width	Cranial index	Basion-bregma height	Mean height index	Porion-bregma height	Porion height index	Minimum frontal diameter
378,019	25-30	178	136	76.4	108			68.8	93
020	25	176	130	73.9	113		-	73.8	82
028	20*	174	140	80.4	-		-		97
029	30-35	186	138	74.2	119	86.4*	140*	73.4	95
031	40*	182	132	72.5	114	87.9	138	72.6	95
035	25	182	134	73.6	112*	78.5	124	70.9*	97
037	30	187	126	67.4	111	85.0	133	70.8	90
038	40*	184	120	65.2	111	85.0	-	73.0	
041	30-35	186	136	73.1	115		-	71.4	93
045	35-40	185	138	74.6	119	79.2	128	73.7	90
050	25-30	182	133	73.1	120	-	-	76.2	93
054	35-40	192	133	69.3	115*	-		70.8	98
055	40+	174	135	77.6	114	82.8	128	73.8	87
057	20-25	177	133	75.1	107*	-		69.0*	96
062	40+	184	142*	77.2	116	84.0*	137	71.2*	92
068	25-30	174	132	75.9	110	85.0	130	71.9	-
069	20-25	180	140*	77.8*	113*	-		70.6	94
071	25-30	176	132	75.0	111	85.7	132	72.1	91
072	20-25	175	135	75.8	106*	81.8*	128*	67.7*	94
073	25-30	189	129	68.2	114	84.9*	135*	71.7*	92
077	25-30	184	135	73.4	117	-		73.4	92
080	35-40	183	130	71.0	112	85.0	133	71.6	93
081	25-30	178	134	75.3	114	84.6	132	73.1	86
083	40*	179	134	74.9	114	85.6	134	72.8	97
084	40*	168	136	81.0	113	84.9	129	74.3	86
085	25*	186	129*	69.4*	110*	85.1*	134*	69.8	94
089	25*	183*	134*	73.2*		-			89
091	25*	180	131	72.8	112	85.5*	133*	72.0	99
092	25*	173	133	76.9	117	-		76.5	95
093	25*	190*	129*	67.9*	114*	-		71.5	96
094	40*	186	134	72.0	117	88.1	141	73.1	93
098	40+	186	132	71.0	112	84.3*	134*	70.4	90*
099	25*	173	142	82.1	111	81.9	129	70.5	92
103	25*	180	129	71.7	115*			74.4	91
105	30-35	180*	140*	77.8*	123		-	76.9	97
107	25*	177	134	76.8		86.9	136	-	93
111	25*	174	137	78.7	115		-	74.2	85
140	25*	194*	130*	67.0*	116*		-	71.6	93
TOTAL		6877	5077	2799.2	3980	1859.1	2786	2519.5	3327
NUMBER		38	38	38	35	22	21	35	36
AVERAGE		181.0	133.6	73.7	113.7	84.5	132.7	72.0	92.4

prepared. Among the Hurons in Ontario, Canada, ossuary burial of bundled bones was also a custom, with interment and attendant ceremonies being carried out every 10 years or so (Heidenreich, 1971). Whether such an interval held for the Patowomekes is, of course, not known.

Presumably, each bundle held all bones of a single individual, but occasionally there was some loss of bones during handling, especially the smaller bones. Also, in some instances, a part of the body, such as an arm or a foot, was still held together with ligaments, resulting in a limited articulation of a body part in the bundle.

The evidence indicating retention of the cleaned bones above

ground for some period of time is conclusive for the Patowomekes. In at least five instances in Ossuary 5, a mud-dauber had built a cocoon inside a skull or in open spaces amid bundled long bones. This could only occur during summer months, indicating that burial in ossuaries may have been fall events. Also, it indicates that bundles were not repackaged before interment, or the mud-dauber cocoons attached to long bones would probably have been seen and removed. In a few instances, beads of glass or shell had been inserted into hollow crania, and this could only be done through the foramen magnum at the base of the skull, after the brain had decayed or been removed. Rarely, small bones, such as

TABLE 16.—Measurements (in mm) and indices of six crania from Ossuary 3 (* = approximately correct).

Catalog number	Age (approx.)	Maximum length	Maximum width	Cranial index	Basion-bregma height	Porion-bregma height	Porion height index	Minimum frontal diameter
Males								
378,739	25*	203*						100
740	30-35	189*						-
741	40*	182	136	74.7	121	138.3	76.0	98
Females								
378,735	25*	184						93
743	25*	184			114*			91*
745	25*	188	137	72.2				94
AVERAGES								
Males		191.3	136	74.7	121	138.3	76.0	99
Females		185.3	137	72.2	114			92.7

TABLE 17.—Measurements (in mm) and indices of 15 male crania from Ossuary 5 (* = measurements are approximately correct).

Catalog number	Collector's number	Approx. age assigned in field	Approx. age assigned in lab	Maximum length	Cranial width	Maximum index	Porion-bregma height	Minimum bregma height	Basion-frontal diameter
384,616	2	40*	35-45	187	127	67.9	124	148	
617	3	30	40-50	174	129	74.1	113		91
625	8	40+	35-45	190	133	70.0	120		101
627	10	30-40	25-35	182	117	64.3	-		85
629	12	25	20-35	194	121	62.4	-		98
634	16	?	25-35						104
635	17	25	17-25	195	130	66.7		117	93
642	20	40*	45*	188	133	70.7	116	-	94
643	27	30*	30-40					-	94
652	28	30*	35-45	200	127*	63.5		121	94
654	29	30*	25-35	186	134	72.0	113		92
669	39	30*	25-35	170	142	83.5	115	140	101
685	49	25	20-30	182	140*	76.9	114*		91
690	52	30-35	35-45	188	136	72.3	115		93
706	60	25	35-45	182	140	76.9	113		101
TOTAL				2418	1709	1043	526	1332	921.2
NO. OF CASES				13	13	13	9	4	14
AVERAGE				186.0	131.5	70.9	115	131.5	95.1

TABLE 18.—Indices of 10 female crania from Ossuary 5 (* = measurements are approximately correct).

Catalog number	Collector's number	Approximate age assigned in field	Approximate age assigned in lab	Cranial index	Mean height index	Porion height index
384,615	1	40*	35-45			86
620	5	25	20-30	65.6	74.2	94
630	13	25-30	17-25	75.0	72.9	92
632	15	40*	35-45			96
644	22	25	17-25	69.5		87
647	25	40*	25-35	74.2	76.3	87
648	26	25-30	20-30	71.9	72.5	91
701	57	40*	45+	70.3	77.1	98
709	62	25	30-40	79.2	-	98
725	73	30-40	25-35	69.8	69.2	88
TOTAL				575.5	442.2	917
NO. OF CASES				8	6	10
AVERAGE				71.9	73.8	91.7

TABLE 19.—Measurements (in mm) of faces of four crania from Ossuary 5 (* = measurements are approximately correct).

Catalog number	Collector's number	Approx. age assigned in field	Approx. age assigned in lab	Menton-nas. height (a)	Alveo. pt. height (b)	Endob.-nas. hgt.	Endob.-subnas. pt.	Endob.-pre-alveo. pt.	Sex
384,616	2	40*	35-45	-		11.7			M
655	?	?	25-35	-	6.9*	10.1*	8.8	9.1*	M
690	52	25	35-45	11.5*	7.1				M
725	73	30-40	25-35			10.5	9.1	10.2*	F
TOTAL				11.5	14.0	32.3	17.9	19.3	
NO. OF CASES				1	2	3	2	2	
AVERAGE				11.5	7.0	10.7	8.95	9.65	

TABLE 20.—Age and sex distributions, Ossuary 5 (taken from Table 1).

Age group	Male		Female		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
Fetal					4		4	03.0
Neo-natal					38		38	28.1
0-3 years					17		17	12.6
4-5 years					3		3	2.2
6-10 years					3		3	2.2
11-15 years	2				5		7	5.2
16-20 years	6	60.0	4	44.0			10	6.7
ADULTS	29	55.8	23	44.2	2		54	40.0
(not by ages)								
TOTAL	37	27.2	27	19.9	72	53.3	136	100.0

TABLE 23.—Patawomeke cranial indices compared.

Sites and features	No. of cases	Index groups						
		60.0-64.9	65.0-69.9	70.0-74.9	75.0-79.9	80.0-84.9	85.0-89.9	90.0-94.9
Piscataway Ossuary (MacCord et al., 1957)	56		14.2	30.4	28.6	25.0	-	1.8
Shepard Site (MacCord et al., 1957)	10			20.0	40.0	20.0	20.0	
Patawomeke: Consolidated (3 ossuaries)	106	5	28	38	27	7	1	
%		4.7	26.4	35.8	25.5	6.6	0.9	
Ossuary 2								
Males	45	2	16	16	7	3	1	
%		4.4	35.6	35.6	15.6	6.7	2.2	
Females	38		7	15	13	3	-	
%			18.4	39.5	34.2	7.9	-	
Ossuary 3								
Male	1		-	1			-	
%			-	100			-	
Female	1		-	1			-	
%			-	100			-	
Ossuary 5								
Males	13	3	2	5	2	1	-	
%		23.1	15.4	38.5	15.4	7.7	-	
Females	8		3	3	2		-	
%			37.5	37.5	25.0		-	

phalanges, were found inside a skull of a bundle individual.

Evidence of initial burial in temporary graves was seen in the sand or marl of various colors and textures found in several crania. It is likely that these had been buried in a low area, possibly on a beach near the village. It should be possible to trace the sand or marl to its source, and this step should be taken for any future finds of this nature.

In a small percentage of cases, the individual deceased had been cremated. Cremation was often only partial, resulting in calcined bones among which occurred some teeth or identifiable bone elements. Sometimes, these bone elements permit a tenuous identification as to age group or sex of the individual. Following cremation, the ashes and bones were kept, possibly in a box, bag, or basket, until they could be placed in or scattered over an ossuary being filled. In several ossuaries at Patawomeke, the placement of cremated remains seems to have been patterned, as shown in Figure 22.

Ossuary burial (or reburials) were common in several areas of eastern North America during Late Woodland and early Historic times. In addition to the Hurons, other Indians to the north of Chesapeake Bay who used ossuaries were the Neutrals in the Niagara Frontier area of western New York state (White, 1961). Eastward on the DelMarVa peninsula, the Choptank and Nanticoke Indians buried some of their dead in ossuaries (Davidson, 1935). In southern Virginia and adjoining areas of eastern North Carolina, ossuary burials have been found at a possible Quiyoughcohannock site at Claremont on the south side of James River in Surry County (Gregory, n.d.); at several

sites along the Chickahominy River in Charles City and New Kent Counties (Barka, n.d.); at sites attributable to the Nottoway (Smith, 1984) and Meherrin (Phelps, n.d.) (Iroquoian) tribes along the rivers of those names in Southampton County, Va.; and at several sites on streams flowing into Albemarle Sound in North Carolina (Phelps, 1983). Closely related, and probably analogous, massed bundle burials were recorded for several accretional mounds of the Lewis Creek Mound Culture (MacCord, 1986).

Closer to Potomac Creek and the main Patawomeke village site, several sites in Maryland and Virginia have produced ossuary burials. Four small ossuaries were excavated at Port Tobacco, Maryland, by Judge Graham before he began work at Patawomeke (Graham, 1935). At the probable site of the village of Moyaone, just south of the mouth of Piscataway Creek in Prince George County, Maryland, Mrs. A.L.L. Ferguson found and excavated four ossuaries, one of which contained over 600 individuals, (Stephenson et al., 1963). Later Mrs. Ferguson excavated an ossuary on Piscataway Creek, near the later, mid-seventeenth century, town of the Piscataway (Convoy) tribe. Near this site, too, an ossuary had been dug about 1880 by Elmer R. Reynolds (1881). The latter two ossuaries contained extensive amounts of European trade goods. Still later, Dr. Waldo R. Wedel and I examined two ossuaries discovered in construction near Giesboro Point, the probable location of the village of Nacotchtank in the early seventeenth century. The lack of European goods in these ossuaries indicates a pre-1607 date for them (Stewart and

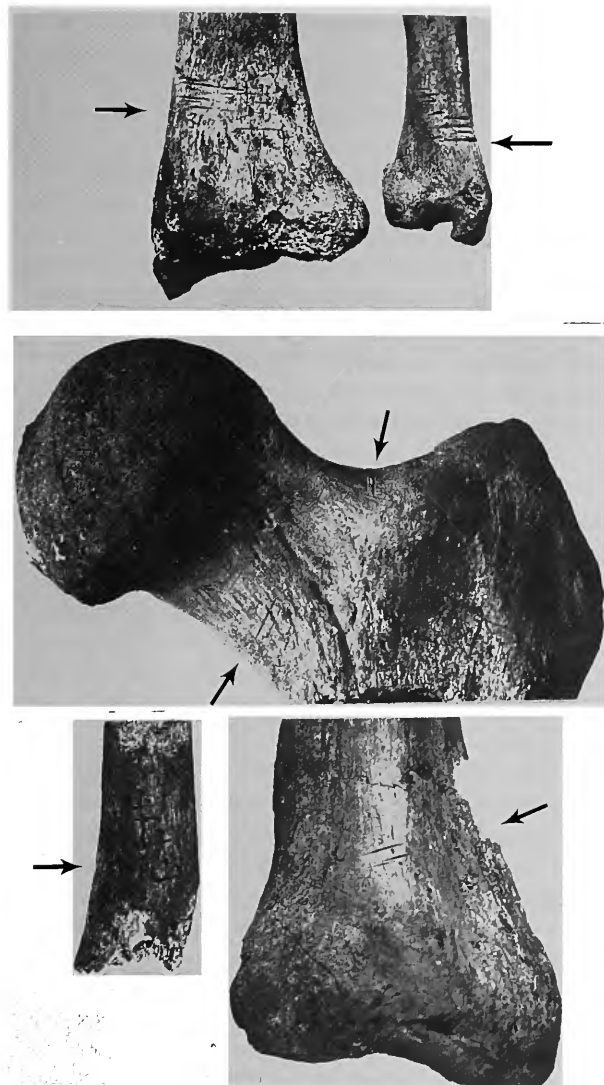


FIGURE 54.—Cut marks on five post-cranial bones (radius, ulna, femur, tibia, and fibula) from Ossuary 5 (USNM No. 384,726).

Wedel, 1937). Another ossuary was reported eroding from the north bank of York River, just east of West Point, Virginia. I excavated it, but found no European goods in it, and nothing to indicate a date for it. That ossuary was in the territory of the Pamunkey Indians during the early Historic period (Stewart and Wedel, 1940). In the 1950s, an ossuary was found by accident and excavated by me at the Juhle Site near Nanjemoy Creek, Charles County, Maryland. A few years later, Dr. Douglas Ubelaker excavated an additional ossuary at this location (Ubelaker, 1974, 1978). It is likely that the ossuaries found at sites along the Potomac River from Port Tobacco north to the present Washington, D.C., were created by the people responsible for the Potomac Creek Focus. This cultural

manifestation had been identified and named by Carl Schmitt (1952), and it is further refined in this publication.

The Patawomekes were the major tribe in the Potomac Creek complex of sites, with Moyaone a close second. Other sites are known, and for several the tribal identities of the occupants are known. However, only the sites of Moyaone and Patawomeke have been explored to the extent necessary to define the cultural remains existing there. As archeological attention is devoted to the other sites of the complex, it is certain that new and confirmatory data will be forthcoming. Such data are especially needed to enlarge upon the physical attributes of the people and also to increase knowledge and insights into the mortuary practices of each site's peoples.

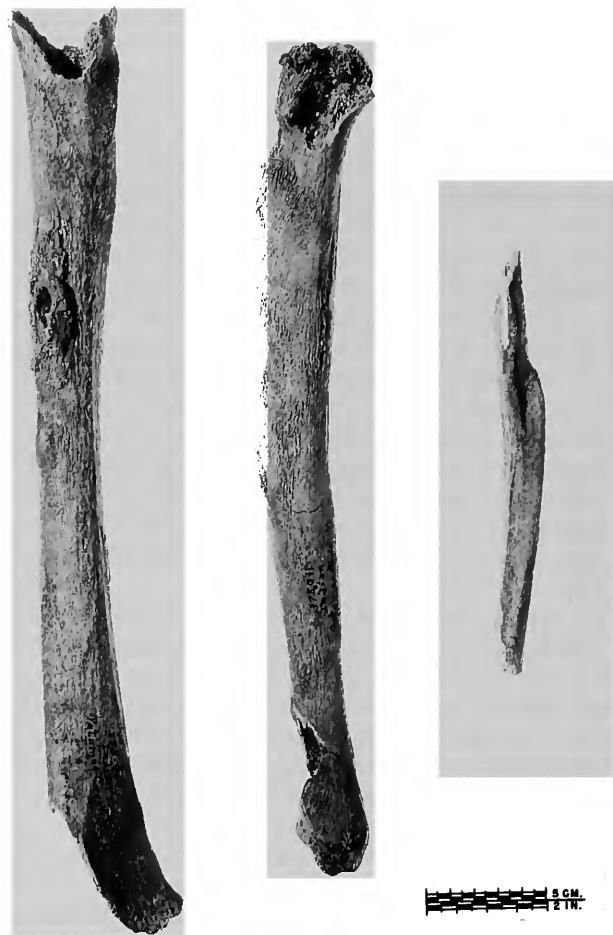


FIGURE 55.—Three abnormal long bones, Ossuary 1: *Left*, a right femur (USNM No. 378,010). *Center*, a right tibia (USNM No. 378,011). *Right*, an ulna (right?) (USNM No. 378,013).

Part IV: Conclusions

(A Look Back)

Having put together the foregoing pages, I find myself wondering whether I place too little emphasis on the historical contributions that grew out of the 1935–1940 work in which I had a hand at the Potomac Creek Indian site. As I recall, the site that Judge Graham introduced me to in the middle 1930s was then regarded as the likely site visited in 1608 by the European party under Captain John Smith. The fact that other evidence of Indian occupation existed at Indian Point, in the southwestern part of Potomac Neck, where Accokeek Creek joins Potomac Creek, was largely ignored by those with whom I worked. This was due mainly, I suspect, to the fact that it had been Manson's recovery of an early European silver wine taster in his excavation southeast of the driveway leading into the Neck that brought Judge Graham into the picture, although he was already acquainted with and had collected on the site in 1934 (Graham, 1935:21).

Following up on this find, Manson and the Judge excavated the Multiple Burial associated with the wine taster, and then they explored Ossuary 1, east of the main concentration of village debris. This ossuary also contained early European artifacts, probably trade goods. After this, and before he died in 1937, the Judge explored two additional ossuaries and a single burial. Manson finished out 1937 by partially excavating a burial pit that entered the records as Ossuary 4.

I was aware of these moves, because I followed up on the Judge's original invitation to visit the site by making occasional trips there to contribute to the work of getting out the human bones. At the end of each visit, the Judge would load his car with artifacts to take home, and I would load mine with the human bones I hoped to study at the National Museum. I mention this sequence of pre-1938 events because they explain why, when I took over the project after the Judge's death, I had seen almost none of the European objects he and Manson had recovered and none of the Judge's records.

What I did learn, however, was that the Judge was a very untidy archeologist. This was made still more clear when I took over the fieldwork in 1938 and saw in my initial field map (Figure 9) how the Judge's explorations of the site resembled gopher activity. As much as anything else, this impression convinced me that my main effort from then on should be devoted to a proper archeological exploration of the site. There is nothing like a situation such as this, I learned, to make a project manager forget about such details as where unusual finds had been made before he took over. It was only as I got deeper into the last two field seasons that I began to wonder whether the site I was working on was actually the town visited by Captain John Smith.

The high point of this last part of the excavation work was the discovery and exploration of Ossuary 5. Although the Judge

and his associates in two-plus years of field operations had found four burial pits that qualified to be called ossuaries, number 5 was the only other such find at the site. Because of this, and because I had become critical of the work on Indian ossuaries elsewhere in the local area, I made a point of seeing that number 5 on Potomac Neck was explored in careful detail. As a result, number 5 was the first ossuary in the region to be so studied in this way, and thus was the first to yield solid data on the burial customs involved.

I am not exactly sure, over 50 years later, why 1940 was when I first seriously questioned the relationship of Captain John Smith to the palisaded village site we were exploring. It may have been because Karl Schmitt, one of my assistants that year, had begun working on his M.A. thesis and for this purpose had elected to use mainly the Indian artifacts and data. Important to note in this connection, however, is that he also took a look at the European artifacts to make sure that the foreign attribution of at least some of them, such as the metal rowel, was correct.

Schmitt completed his M.A. thesis two years after the 1940 field season, and he provided me with a copy. At my request, he sent me a revised copy of it the year before his tragic death in 1952. Thus, over a period of some forty years, and with help from Margaret Blaker of the Museum's Division of Archeology, I put together the section on aboriginal artifacts. There remained, then, the European artifacts, which I had still not studied, to deal with in a separate section. It was these artifacts that I felt would support my now strong idea that their dates of burial had to have been after the abandonment of the palisaded village. My impression was that the Indians had moved elsewhere before Smith's arrival, probably to Indian Point. In working on this problem, I felt it desirable to treat separately the European artifacts from each of the two burial places where they were found. In doing so, I came to realize that the complex of artifacts from the Multiple Burial was not the same as that from Ossuary 1. This emerges clearly when the different artifacts from the two burial pits are compared.

The generally better class of artifacts in the Multiple Burial suggested to me that an important individual was among those buried there. If so, it is tempting to view the skeletal remains accompanying him as those of sacrificial victims, although they could just as well be the naturally deceased members of his family, who died before or after him. The characterization of this individual (burial 3) as "important" is due to the fact that the restored skull proved to have a large cranial capacity (approx. 2000 cc) and was, in the opinion of Ales Hrdlicka (1939), that of a male Caucasian. Be this as it may, in the absence of a more detailed excavation record, we are unlikely

ever to know the correct interpretation of these intriguing circumstances.

As for the first ossuary, the fact that native-made ornaments of European copper or brass were found so frequently suggested to me that the burials were those of the ordinary people of the village. Whether or not the interments in the first ossuary were made at the same time as those in the Multiple Burial does not appear from the nature of the copper and brass artifacts in each.

Most of the European artifacts found by the Judge and his associates do not lend themselves to close dating of the burials with which they were found. However, the few that give hints, especially the wine taster, the spur rowel, the pipestem, and perhaps the glazed tile, support rather than disprove the possibility of these burials having occurred after the Indian town had been abandoned. The village on Indian Point was close enough that the inhabitants (or some of them) might have considered burial at their ancestral home both desirable and convenient. The quantity of copper and brass encountered in the two burial pits suggests that trading with Europeans at some

point on Potomac Neck was on going and had been in progress for some years, possibly decades. The lack of firearms, axes, hoes, and other large items of iron indicate that trade had not progressed beyond the exchange of trinkets and small tools, such as scissors. The evidence seems to demonstrate that trading took place at Indian Point, rather than at site 44St2. This is why, in the title of this report, the site is called Patawomeke and characterized as "ancestral" to the Indian Point site "visited in 1608 by Captain John Smith."

Finally, the excavations at Patawomeke did not end in 1940. Following up on a test done in 1957 by Manson, Howard MacCord, in October 1983, invited me to visit the site to see what he and a few associates were learning about the contents of several squares then being opened along the top of bluff, near where the original farm road turned westward in 1940 (Manson and MacCord, 1985). To my surprise, the waterfront lots now are occupied by houses, although there are still clear areas to the north, away from the creek bank. This revelation led me to conclude that it is unlikely that anything more of importance will be added to the story of the 1935-1940 field work there.

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Manuscripts intended for series publication receive substantive review (conducted by their originating Smithsonian museums or offices) and are submitted to the Smithsonian Institution Press with Form SI-36, which must show the approval of the appropriate authority designated by the sponsoring organizational unit. Requests for special treatment—use of color, foldouts, case-bound covers, etc.—require, on the same form, the added approval of the sponsoring authority.

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Copy must be prepared on typewriter or word processor, double-spaced, on one side of standard white bond paper (not erasable), with 1¼" margins, submitted as ribbon copy (not carbon or xerox), in loose sheets (not stapled or bound), and accompanied by original art. Minimum acceptable length is 30 pages.

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Text-reference system (author, year:page used within the text, with full citation in "Literature Cited" at the end of the text) must be used in place of bibliographic footnotes in all Contributions Series and is strongly recommended in the Studies Series: "(Jones, 1910:122)" or "... Jones (1910:122)." If bibliographic

footnotes are required, use the short form (author, brief title, page) with the full citation in the bibliography.

Footnotes, when few in number, whether annotative or bibliographic, should be typed on separate sheets and inserted immediately after the text pages on which the references occur. Extensive notes must be gathered together and placed at the end of the text in a notes section.

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