CF-12

VIRGINIA RESEARCH CENTER
FOR ARCHAEOLOGY

# PREHISTORIC SITES
# IN A
# FALL LINE TRANSITION STUDY AREA

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# INTRODUCTION

The Fall Line Transition between the Piedmont and Coastal Plain physiographic provinces, has a rich 10,000 year heritage of prehistoric development and interaction in the Petersburg-Colonial Heights area of Virginia. Within it the White Bank Park, Moose Lodge, and Martin sites, located along Swift Creek below the fall line, reveal archaeological remains that represent segments of time from 3500 B.C. to the protohistoric period (Figure 1).

Abundant sources of quartzite cobble outcroppings along the stream terraces of the fall line in this area provided prehistoric man with lithic material to make his tools, especially during the Late Archaic Period (ca. 3000-1000 B.C.). Similar Late Archaic sites are found along the major river terraces at the fall line from Petersburg to Washington D.C., illustrating the widespread phenomenon of quartzite cobble quarries and workshops for tool production. The presence of ceramics of the Woodland Period (1000 B.C. - A.D. 1607) in the Colonial Heights area suggest not only indigenous development of this culture in southeast Virginia but also strong and continuous cultural interaction with prehistoric Indians of the Chesapeake Bay region, and to a lesser extent, interaction with the Piedmont of Virginia and North Carolina.

Our modern society has been attracted to the fall line, and has formed a series of cities along it up the east coast. Unfortunately contemporary construction destroys the prehistoric heritage, making urgent the need to recognize an area like Petersburg, Colonial Heights

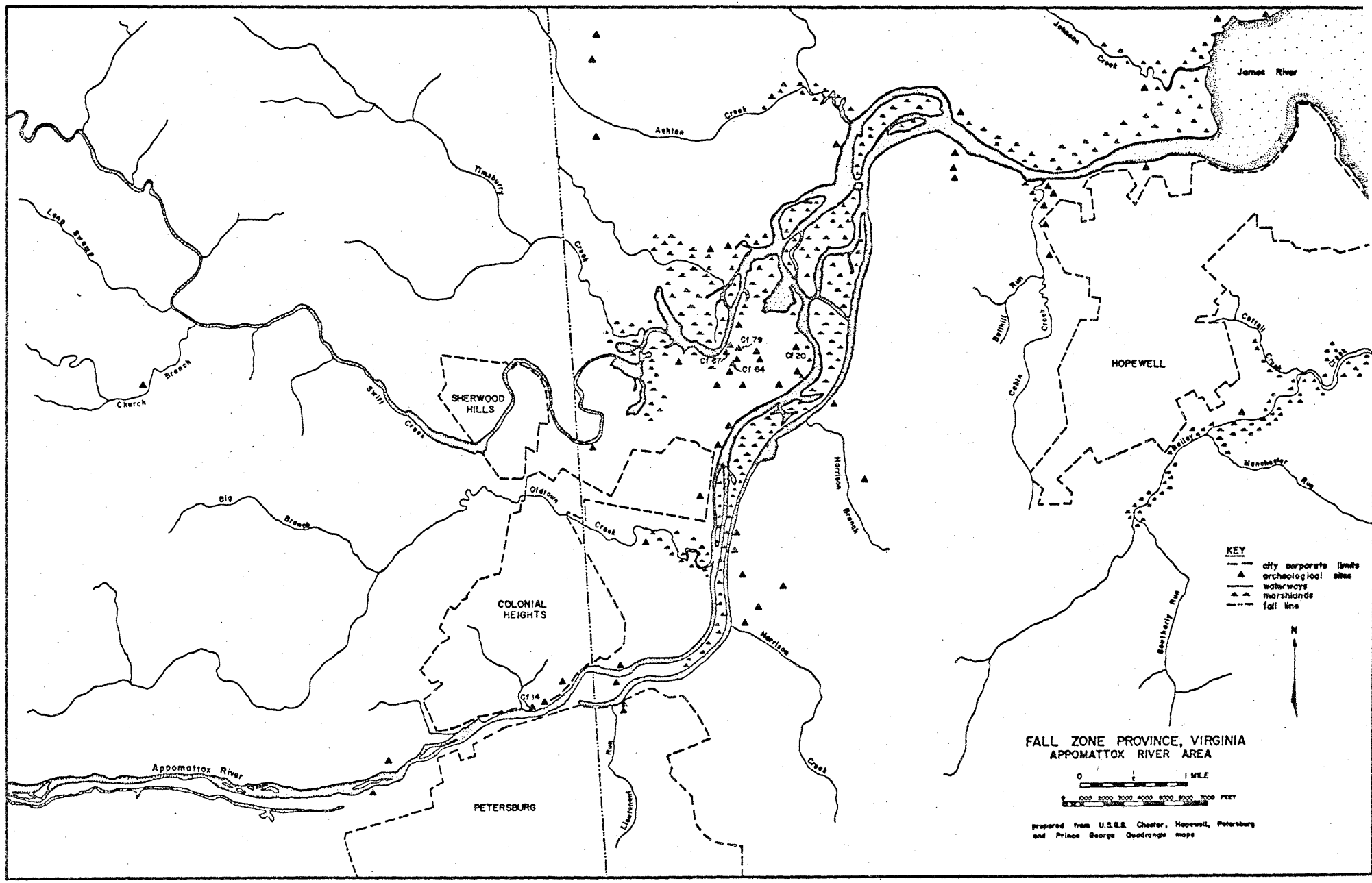


Figure 1. Fall Line Transition in the Appomattox River area.

and Hopewell, where many prehistoric sites are located, as one of high priority for archaeological study. A study area straddling the fall line and encompassing the adjacent portions of the Piedmont and Coastal Plain is proposed here for the purpose of understanding indigenous development and adaptation to the natural environment, and examining the spheres of cultural interaction between the Piedmont and Coastal Plain physiographic provinces. It is hoped that this study area approach will stimulate further explicit research not only in the Petersburg area but also in similar areas along the fall line of Virginia.

## WHITE BANK PARK SITE

### Introduction

The White Bank Park Site (44CF67), which derives its name from a public park, is located on a 35' bluff overlooking Swift Creek (Figure 2). The site was brought to the attention of the Virginia Research Center for Archaeology on 20 April 1977 when plans for a ¼ acre drainfield for rest rooms specified this area as the best for sewage perculation within the park (Figures 3 and 4).

On 23 May 1977 the City of Colonial Heights agreed to permit the Virginia Historic Landmarks Commission (VHLC) through its archaeological branch (VRCA) to enter upon a contract and conduct archaeological rescue excavations on the White Bank Park property. Excavations occurred for two weeks beginning 1 June 1977, and drew upon the services of volunteers from the Appomattox Chapter of the Archeological Society of Virginia.

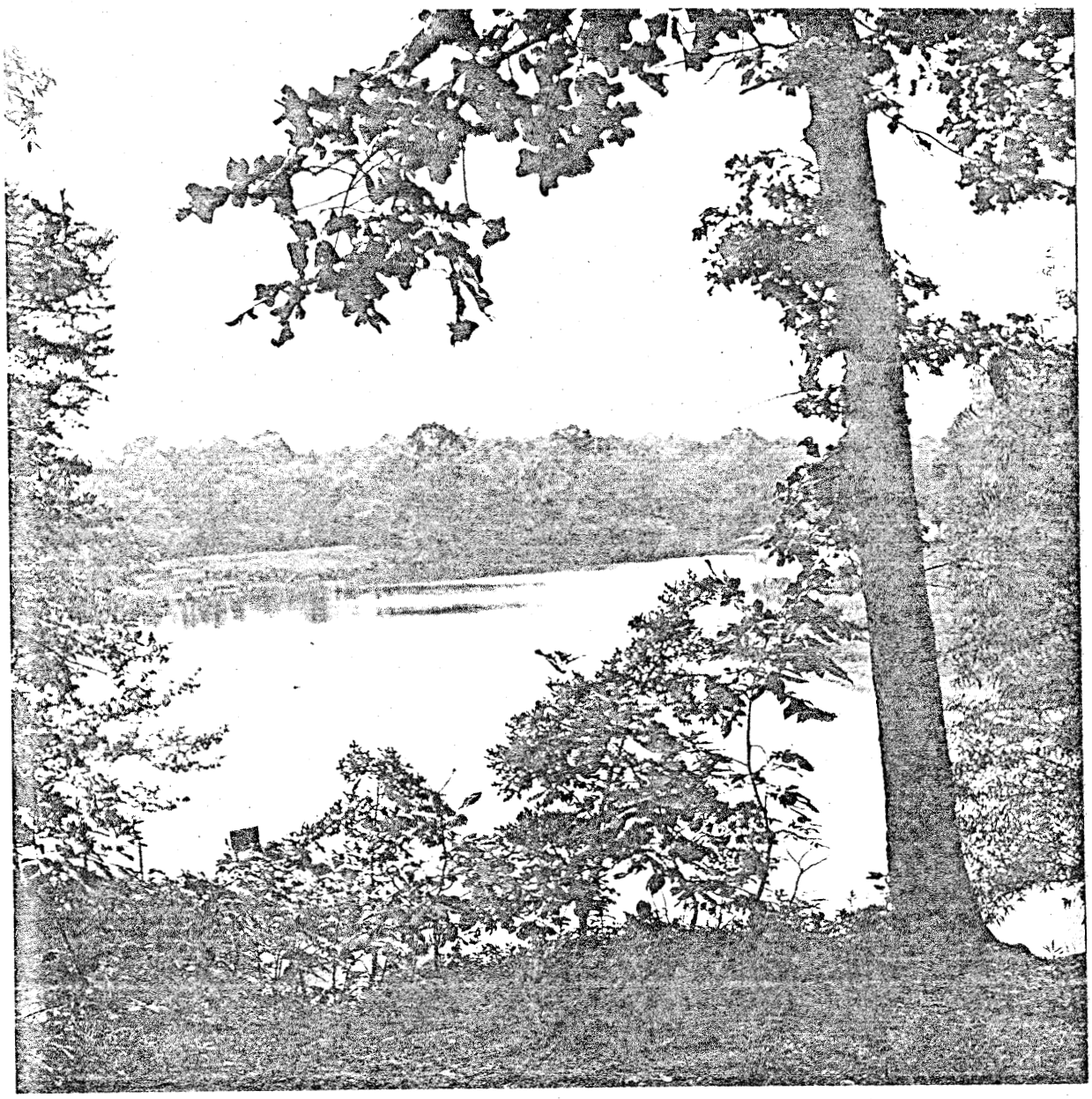

Figure 2. White Bank Park Site overlooking Swift Creek. Photo facing west.

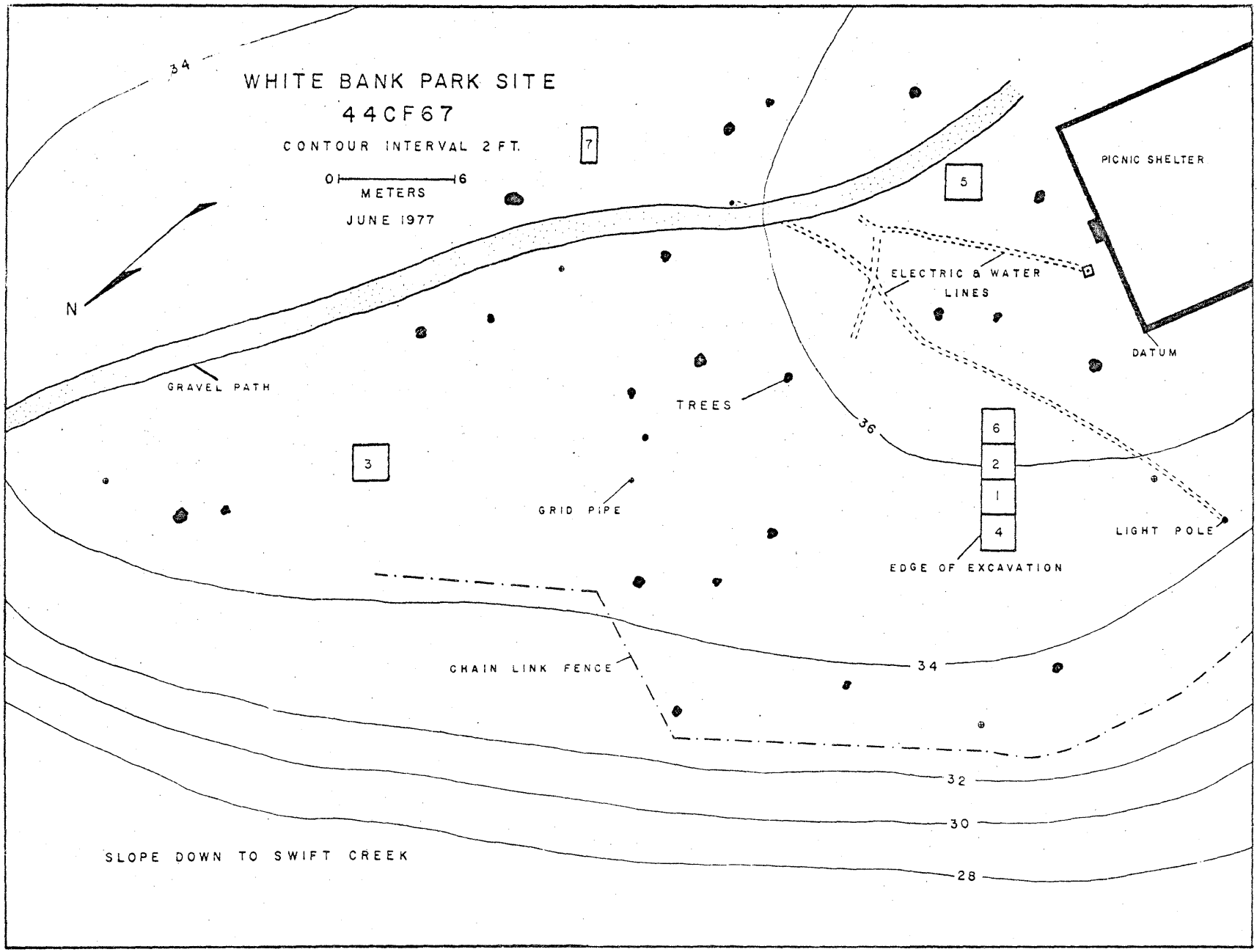


Figure 3. White Bank Park site map.

Squares

Six 2 X 2 meter squares (Figure 3, No. 1-6) and one 1 X 2 meter square (Figure 3, No. 7) were excavated approximately 45 cm. down to the sterile orange clay. The squares were distributed in such a way as to avoid disturbed areas and tree roots, to provide one long profile from the edge of the bluff to the middle of the site (Figure 3, No. 1,2,4,6), and to reveal the density of artifacts and debitage across the site. Soil was sifted through ¼" mesh screen. Rock concentrations and artifacts were plotted individually, but the multitudinous quartzite debitage was assigned to their excavated level. Excavated levels were approximately 5 cm. thick and conformed with the natural stratigraphy.

Stratigraphy

The stratigraphy of the site is best illustrated in an eight meter profile of four 2 meter squares (No. 1,2,4,6) excavated from the edge of the bluff to the center of the site (Figures 5 and 6). A grey-black sandy unplowed topsoil (Stratum I), ca. 5 cm. thick, contained both historic artifacts and aboriginal ceramics. Below this occurred a band of mottled brown-yellow sandy soil (Stratum II), ca. 15 cm. thick, containing diagnostic aboriginal ceramics and triangular points.

Numerous quartzite flakes and great quantities of fire-cracked rock clustering in hearth patterns were found in the mottled tan-yellow sandy soil of Stratum III, ca. 10 cm. thick. Savannah River stemmed blades - large, wide triangular blades with broad stems

Figure 4. White Bank Park Site. Photo facing southwest.

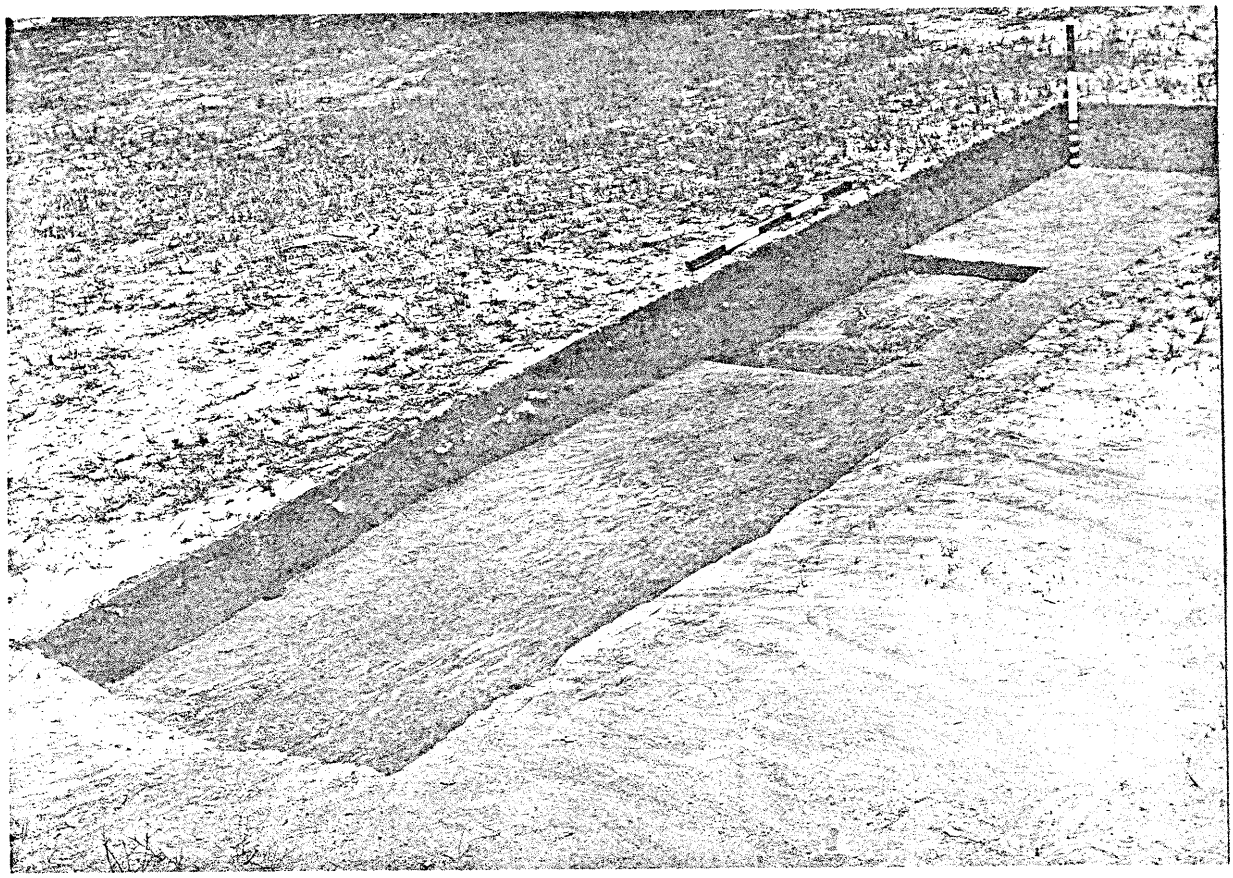

Figure 5. Trench profile illustrating Feature 1, fire-cracked rock hearth in Stratum III, at the White Bank Park Site. Photo facing east.

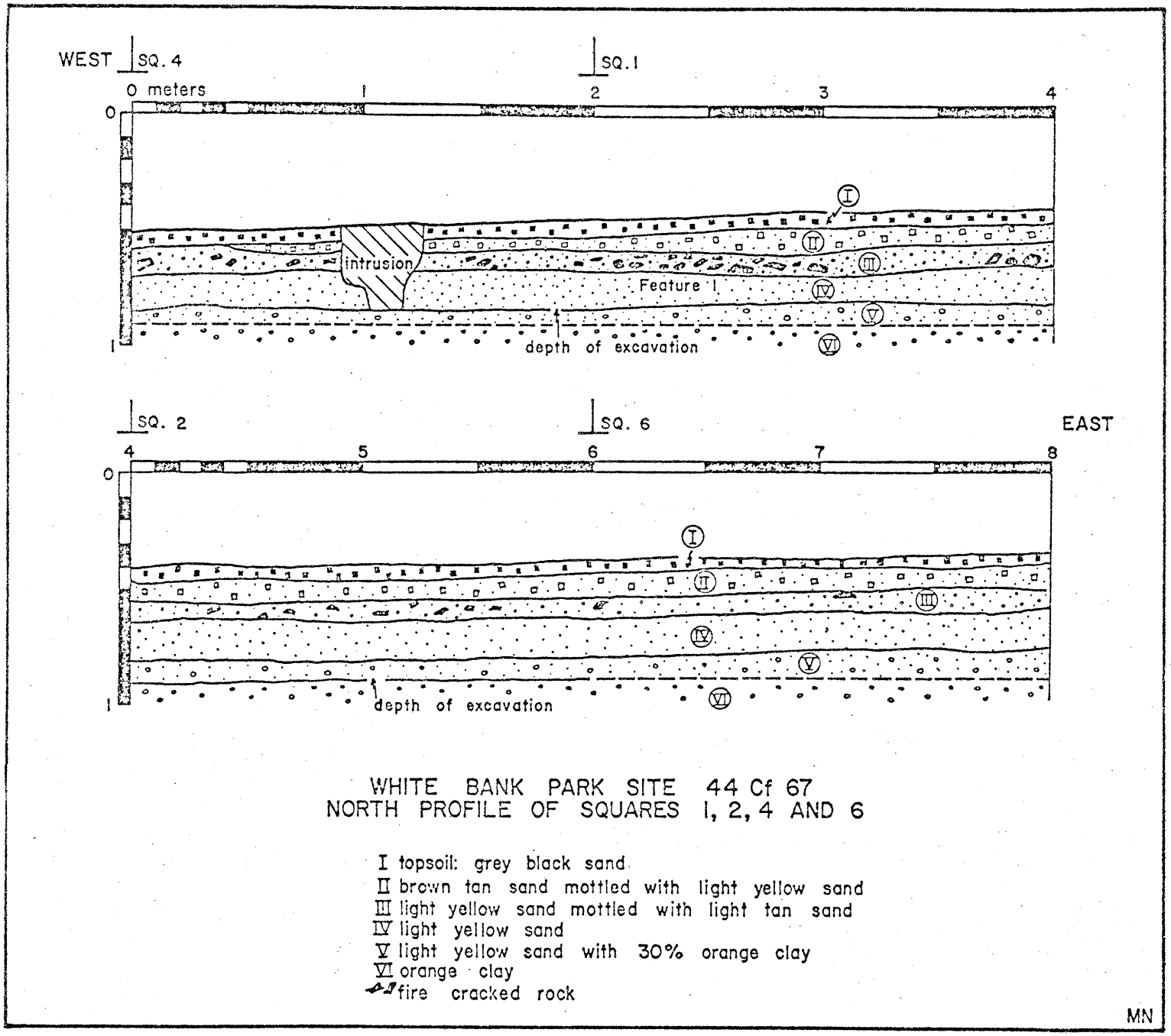


Figure 6. Trench profile at the White Bank Park Site.

dating to ca. 3000-1000 B.C. - were characteristic. A few Guilford lancelate blades - long, slender stemless points dating to ca. 4000-3000 B.C. - were found in the stratum. Early ceramics, probably intrusive, were occasionally found in the upper half of this stratum.

Stratum IV was a light yellow sandy soil, ca. 15 cm. thick, with noticably fewer quartzite flakes and fire-cracked rock. Biface fragments related to the Savannah River tradition, and hammerstones occurred occasionally at this depth. Below this the culturally-sterile yellow sandy soil mottled with orange clay (Statum V) graded into a solid orange clay (Stratum VI).

Features

Three distinctive concentrations of cobbles were uncovered during the project. In square 1 a portion of a dispersed fire-cracked rock hearth (Feature 1) was noted at the depth of Stratum III (Figures 7,8,9). Although no diagnostic artifacts were found associated with the hearth, Savannah River tradition bifaces were found within the same stratum near the feature. The density of quartzite debitage dropped significantly within the hearth when compared to the density in the adjacent area.

A concentration of small whole cobbles (Feature 2) was uncovered in square 3 within Stratum III (Figure 10). The feature was tightly packed (40 cm. in diameter) and not dispersed, suggesting that the cobbles were placed in a shallow basin. Artifacts were not associated with the hearth, although Savannah River tradition bifaces and debitage were found adjacent to the feature.

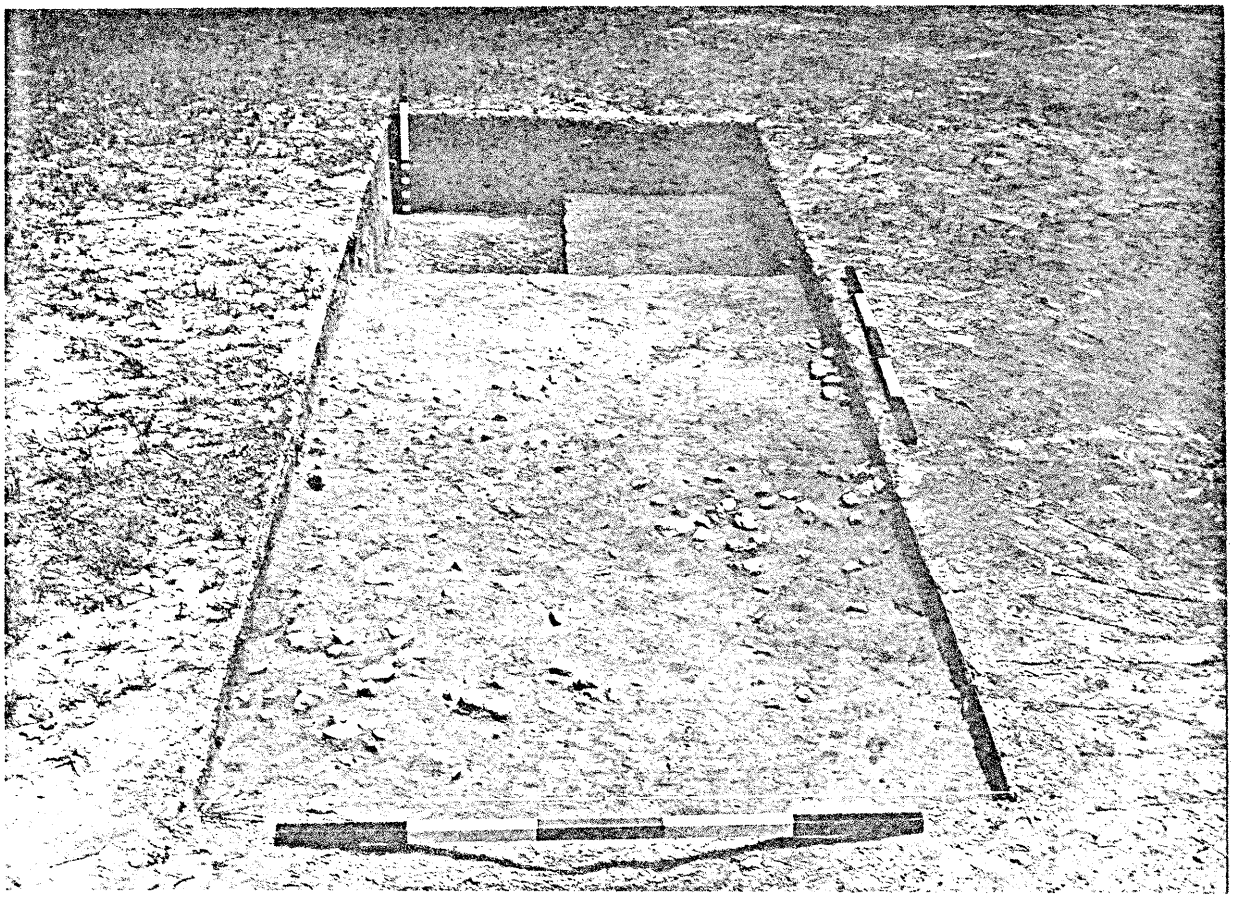

Figure 7. Dispersed fire-cracked rock hearths in Stratum III at the White Bank Park Site. Photo facing southeast.

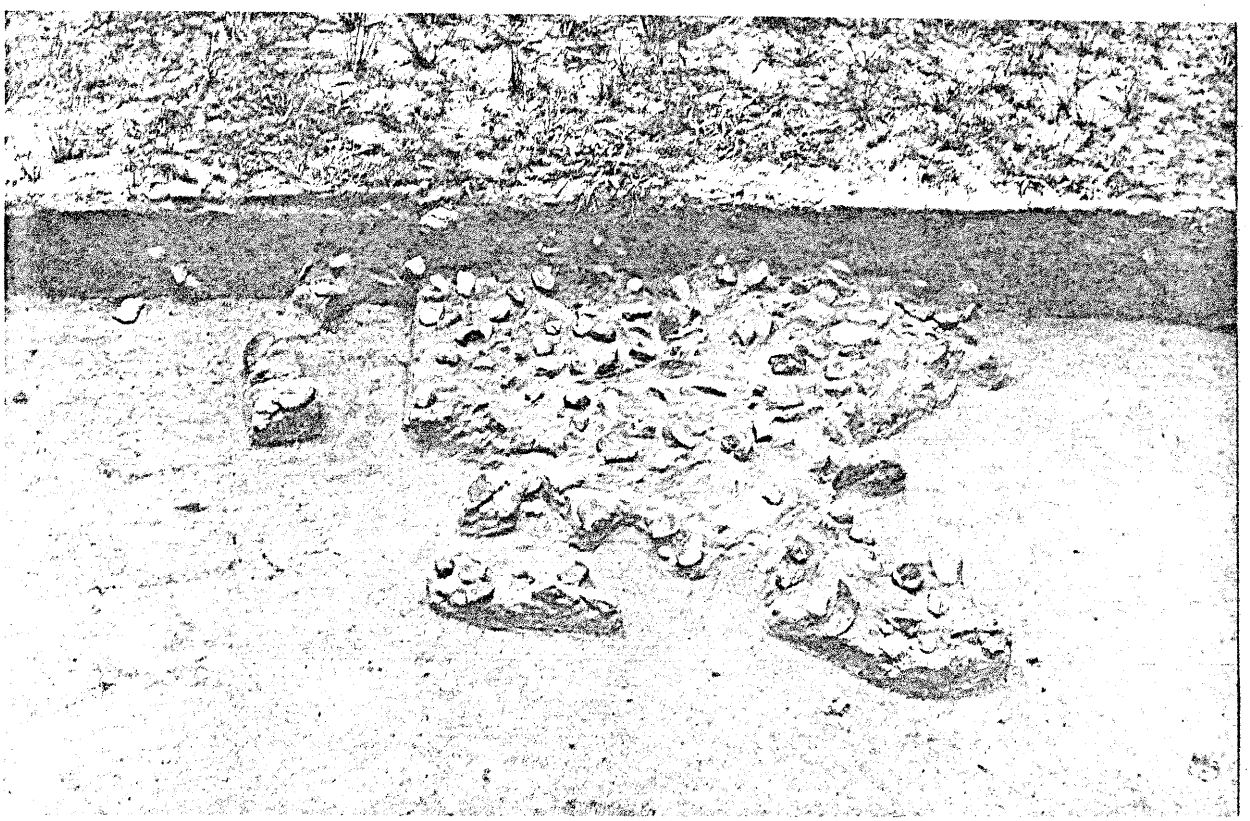

Figure 8. Feature 1, dispersed fire-cracked rock hearth in Stratum III, at the White Bank Park Site. Photo facing northeast.

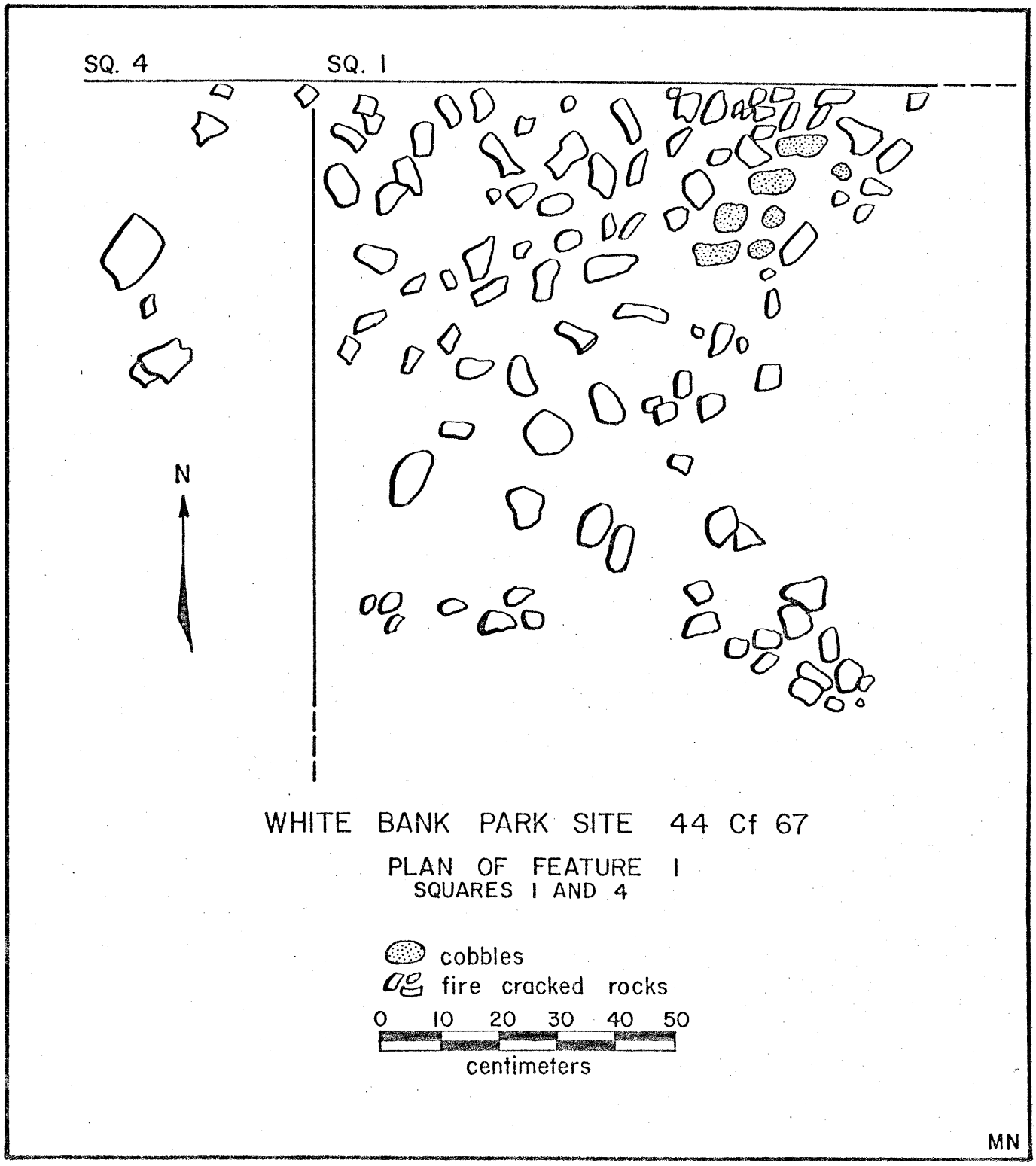


Figure 9. White Bank Park Site, plan of Feature 1.

Figure 10. Feature 2, cobble hearth, in Stratum III at the White Bank Park Site. Photo facing southwest.

Feature 3 in square 5 was a concentration of small whole cobbles 35 cm. in diameter, similar to Feature 2. This feature differed from the first two in that it originated in Stratum II and had a small fragment of pottery associated with it.

The characteristics of the two hearth types encountered during the project, dispersed fire-cracked rock and small concentrations of whole cobbles, suggest that they may have had different cultural functions. The absence of artifacts and debitage associated with these hearths, but present adjacent to them, is a distinctive quality indicating activity areas contiguous to the hearths.

## Lithic Artifacts

### Flakes

The perponderance of quartzite debitage was the most noticable characteristic of the site, although quartzite bifaces and retouched and utilized flakes were represented. The tabulation of 3,422 flakes from square 6 is presented in Table 1. Flakes were separated by project archaeologists into three size catagories (¼" to ½", ½" to 1", greater than 1") by utilizing different size mesh screen. Flakes that went through the ½" mesh screen were tabulated and listed in the 'No Cortex' column in Table 1 but were not analyzed.

Approximately 25% of the flakes larger than ¼" retained a portion of the biface's edge on their striking platform and were classed as waste flakes of the process of biface reduction (Figure 11). Many of these flakes exhibited evidence of the technique of edge-grinding for the purpose of preparing a uniform, straight platform off which to direct subsequent flakes.

Flakes from Square 6
44CF67

| Level | Quartzite | | | | Quartz | Chert | Total |
|---|---|---|---|---|---|---|---|
| | Portion of Biface on Platform | | | | | | |
| | No Cortex | Cortex | No Cortex | Cortex | | | |
| 0-4 cm. Stratum I | | | | | | | |
| ¼ to ½" | 39 | | | | 7 | 1 | 47 |
| ½ to 1" | 24 | 4 | 5 | | | 1 | 34 |
| 1 to >1" | 1 | | 1 | | | | 2 |
| | | | | | | | 83 |
| 4-9 cm. Stratum II | | | | | | | |
| ¼ to ½" | 180 | | | | 8 | 5 | 193 |
| ½ to 1" | 65 | 15 | 14 | 1 | | 2 | 97 |
| 1 to >1" | 1 | | 1 | | | | 2 |
| | | | | | | | 292 |
| 9-15 cm. Stratum II | | | | | | | |
| ¼ to ½" | 252 | | | | 6 | 3 | 261 |
| ½ to 1" | 92 | 26 | 35 | 2 | 4 | | 159 |
| 1 to >1" | 4 | 1 | 2 | | | | 7 |
| | | | | | | | 427 |
| 15-20 cm. Stratum II | | | | | | | |
| ¼ to ½" | 328 | | | | 14 | 1 | 343 |
| ½ to 1" | 82 | 18 | 46 | 2 | 5 | | 153 |
| 1 to >1" | 5 | 8 | 9 | 1 | | | 23 |
| | | | | | | | 519 |

Table 1

Flakes from Square 6
44CF67

| | Quartzite | | | | Quartz | Chert | Total |
|---|---|---|---|---|---|---|---|
| | | | Portion of Biface on Platform | | | | |
| Level | No Cortex | Cortex | No Cortex | Cortex | | | |
| 20-25 cm. Stratum III | | | | | | | |
| ¼ to ½" | 365 | | | | 9 | | 374 |
| ½ to 1" | 101 | 18 | 56 | 1 | 3 | 1 | 180 |
| 1 to >1" | 6 | 7 | 11 | | | | 24 |
| | | | | | | | 578 |
| 25-33 cm. Stratum III | | | | | | | |
| ¼ to ½" | 725 | | | | 20 | 1 | 746 |
| ½ to 1" | 162 | 17 | 80 | 2 | 5 | | 266 |
| 1 to >1" | 15 | 6 | 9 | 1 | 2 | | 33 |
| | | | | | | | 1045 |
| 33-40 cm. Stratum IV | | | | | | | |
| ¼ to ½" | 330 | | | | 28 | | 358 |
| ½ to 1" | 53 | 17 | 18 | 3 | 8 | | 99 |
| 1 to >1" | 5 | 9 | 3 | | 4 | | 21 |
| | | | | | | | 478 |
| Total | 2835 | 146 | 290 | 13 | 123 | 15 | 3422 |

Table 1

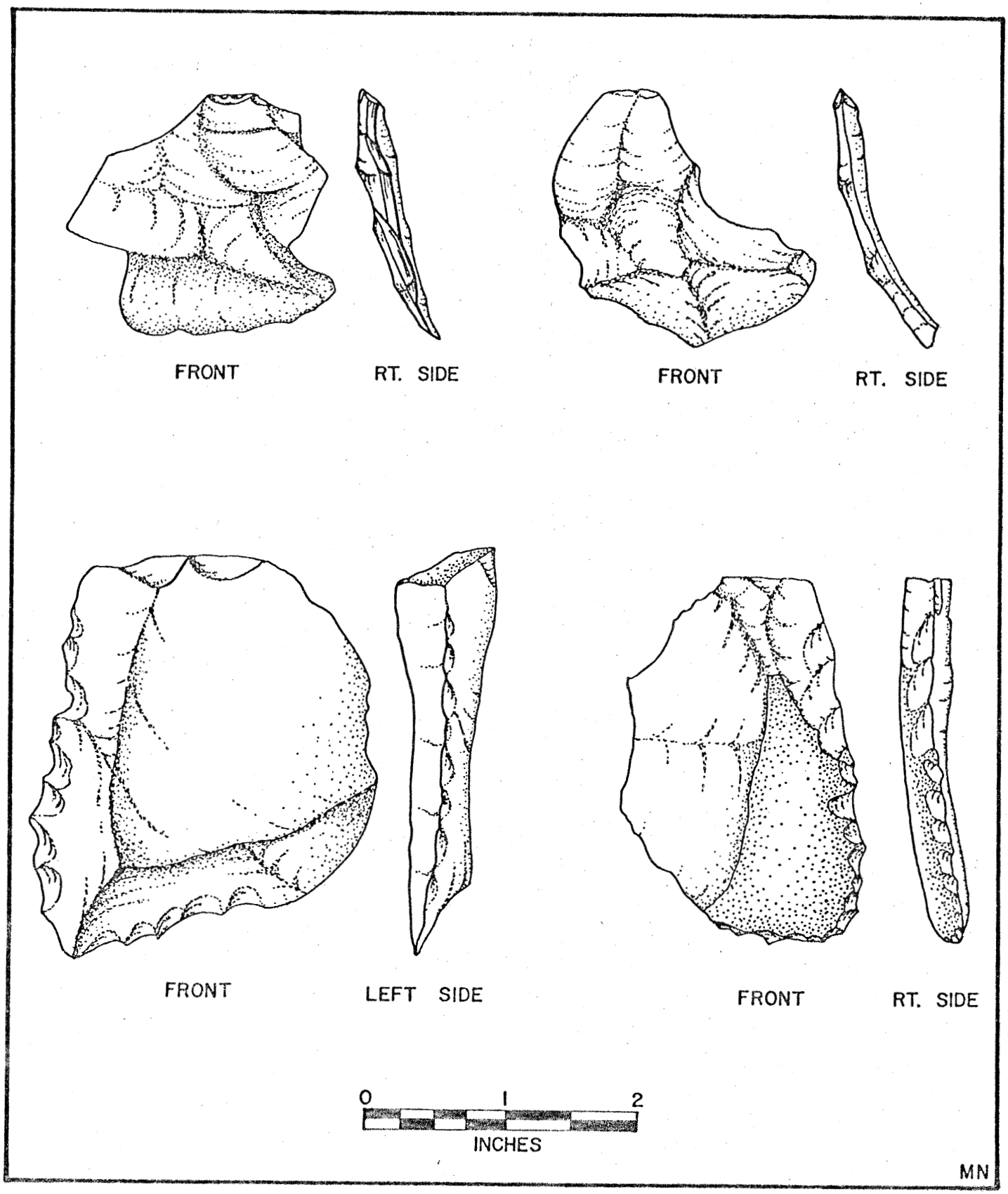


Figure 11. White Bank Park Site, waste flakes from the process of bifacial reduction (top), and retouched flakes (bottom).

Of the 1,065 analyzed flakes, only 159 flakes, or 15%, exhibited cortex (original surface of the stone) on a portion of their surfaces. The low percentage suggests that primary flakes may have been removed from the cores at the site of the cobble quarry, and only those flakes of suitable size and shape were transported to the bluff occupation site to be further flaked into finished bifaces.

Not a single primary flake was uncovered during the entire project of large, suitable size to reduce to a large biface typical of the Savannah River tradition. Apparently the people of the Savannah River tradition were very efficient at utilizing every suitable primary flake for biface production.

## Bifaces

Only 17 whole or broken points and bifaces were uncovered from square 6, compared to the 3,422 flakes. Two were diagnostic: a triangular biface from Stratum II, and a Savannah River biface from Stratum III. A total of 62 broken bifaces representing the various stages of reduction were found during the project, as compared to 12 Savannah River bifaces, 3 Guilford, 6 triangular, 1 Palmer, and two unidentified points. The listing of artifacts (excluding flakes) uncovered during the entire project is presented in Appendix A. To distinguish the different stages of bifacial reduction the following definitions were applied (Callahan 1976: 382):

Stage 1: Obtaining of flake blank.

Stage 2: Initial edging to produce centered, circumferential edge angles of between 50 to 70 degrees in order to permit primary thinning.

Stage 3: Primary thinning to drive flakes from edge to center of biface.

Stage 4: Secondary thinning to produce flattened cross section by driving flakes beyond the center line of the biface.

Stage 5: Shaping the flattened biface by alignment of edges, and specification of distal and basal ends.

Although the majority of the bifacial fragments were representations of Stages 2 to 4 that had broken during reduction, sufficient bifaces were uncovered to illustrate the variety in shape of completed Guilford, Savannah River and triangular points (Figures 12, 13, and 14). In some examples the variation represented style changes through time. One completed Guilford point had a slight shoulder or break in the contour of the side, suggesting a pentagonal outline (Figure 12, bottom left). Another Guilford-like point, small and made from quartz, probably represented a Late Archaic - Early Woodland point type (Figure 12, top left). The variety in size and shape of finished Savannah River bifaces may have been influenced by resharpening and by function. Two Savannah River bifaces, asymmetrical in outline, exhibit edge wear and may have functioned as knives (Figure 13, middle row, left and center). Two large, finely flaked stemless bifaces from square 4 were found together in Stratum III, the level containing predominantly Savannah River tradition material (Figures 15 and 16). They are defined as Savannah River tradition knives. The largest is 12.7 cm. None exhibit wear patterns.

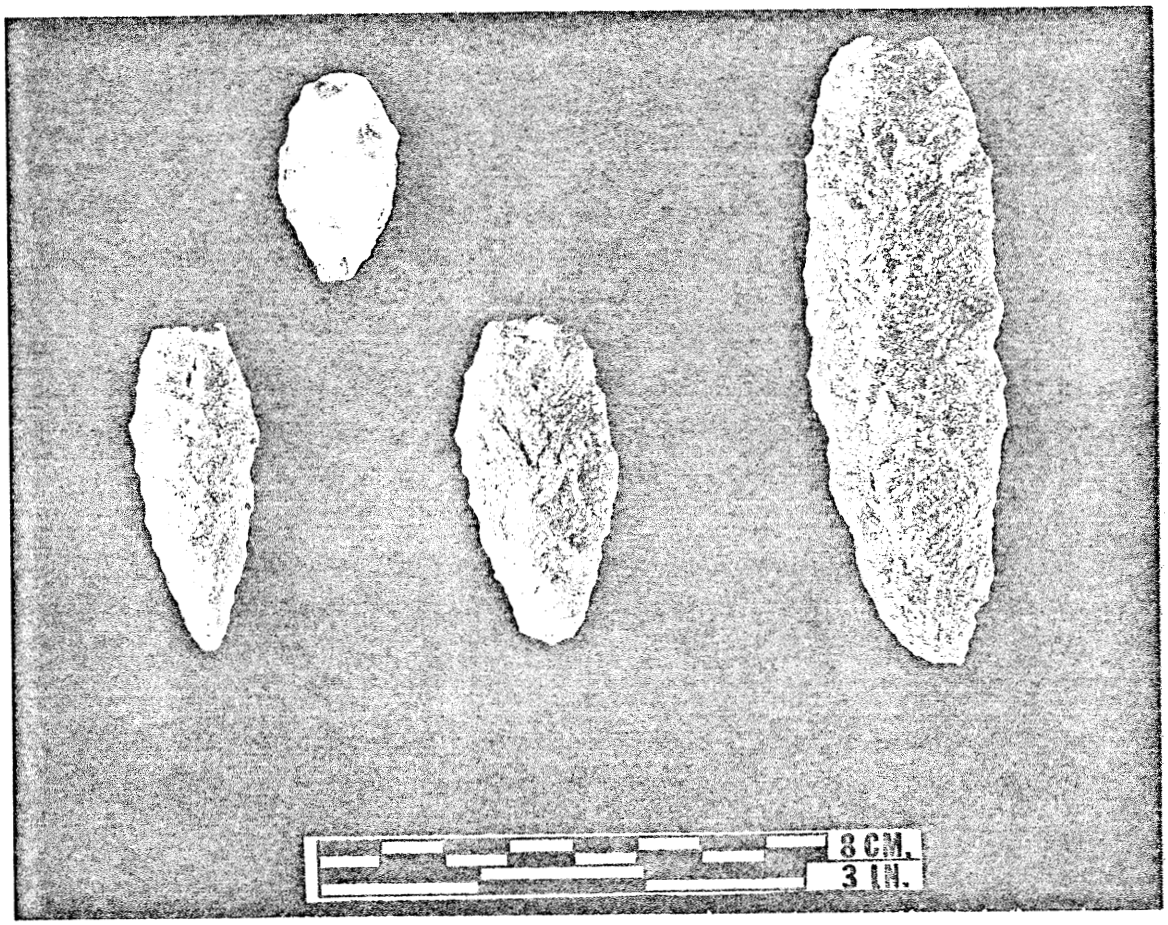


Figure 12. Guilford and Guilford-like (top left) projectile point types from the White Bank Park Site.

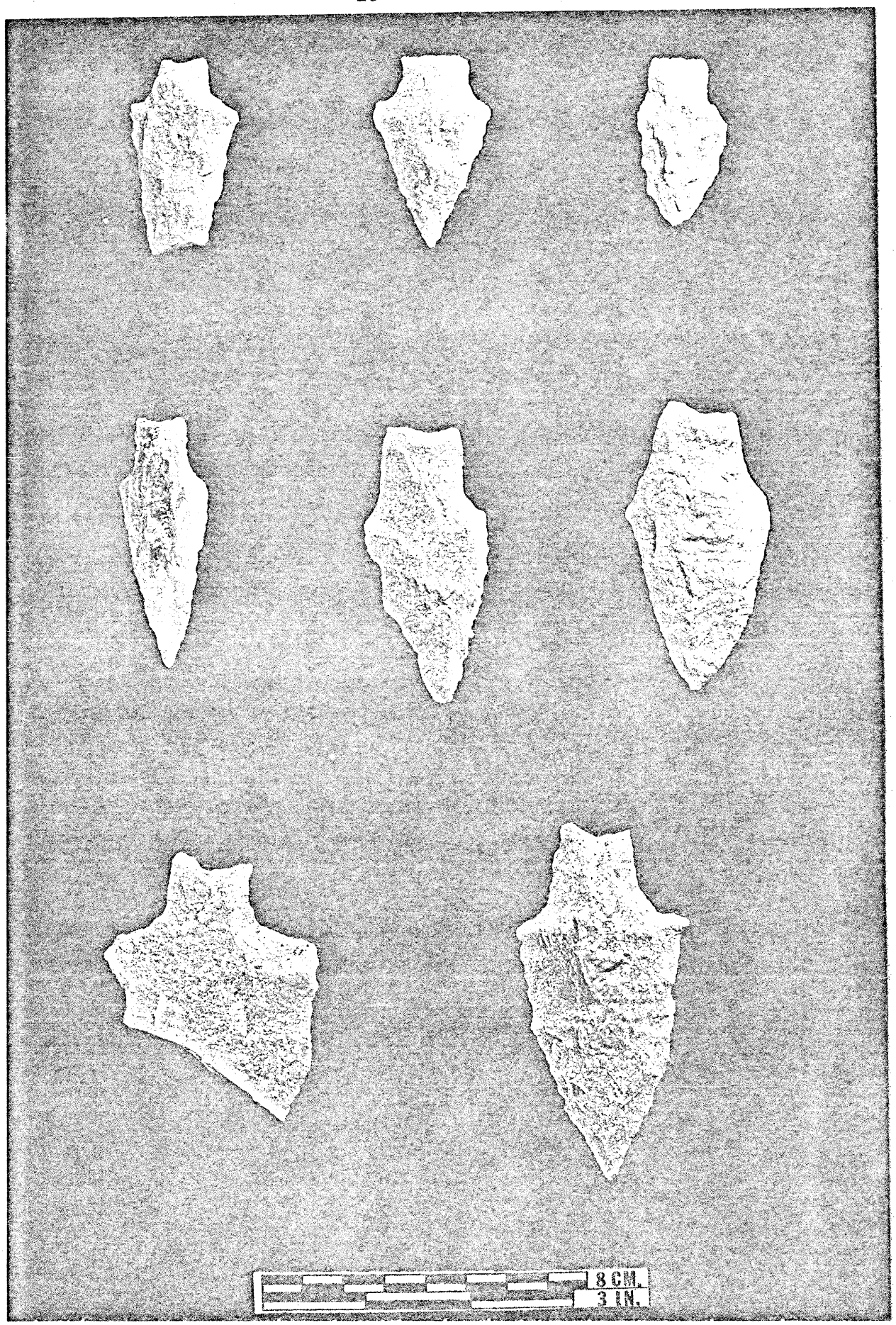


Figure 13. Savannah River tradition projectile points from the White Bank Park Site.

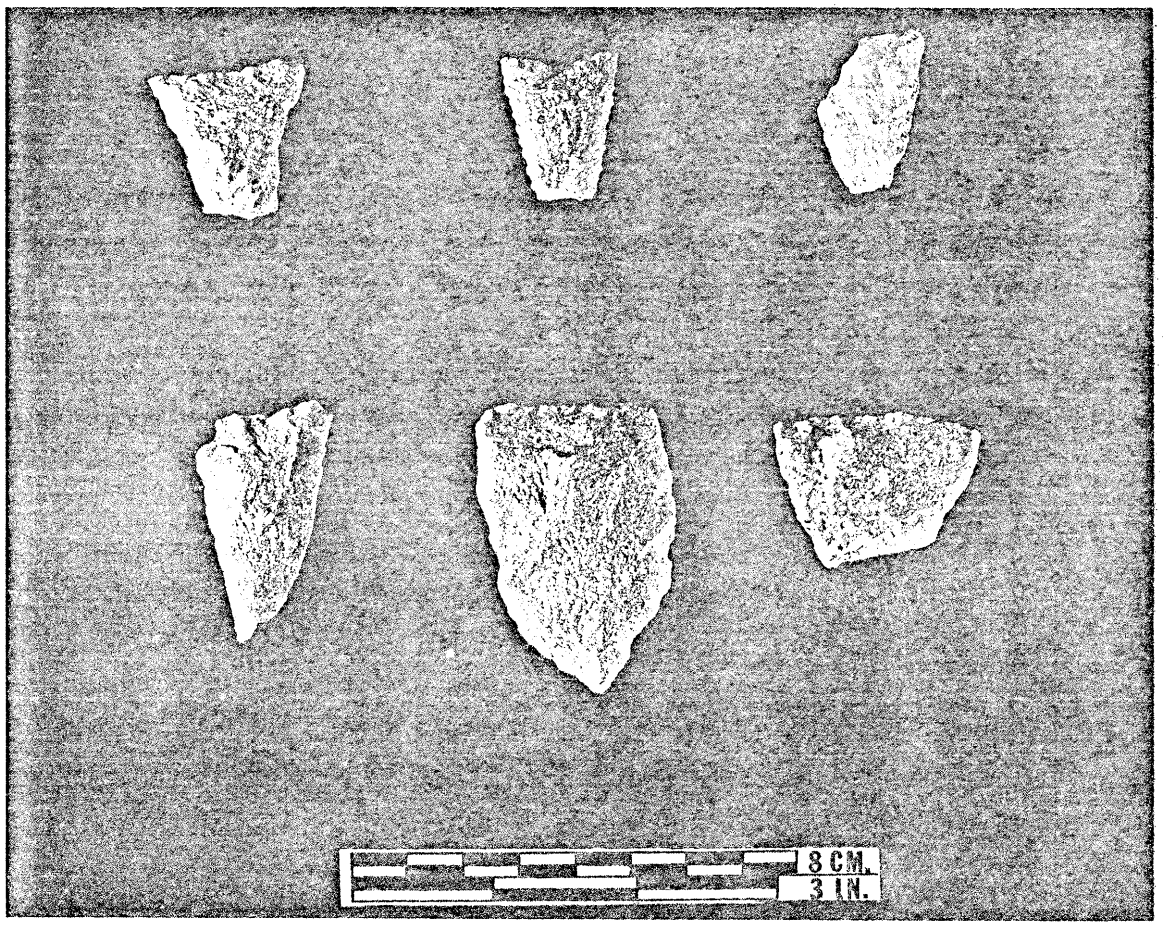


Figure 14. Triangular projectile points from the White Bank Park Site.

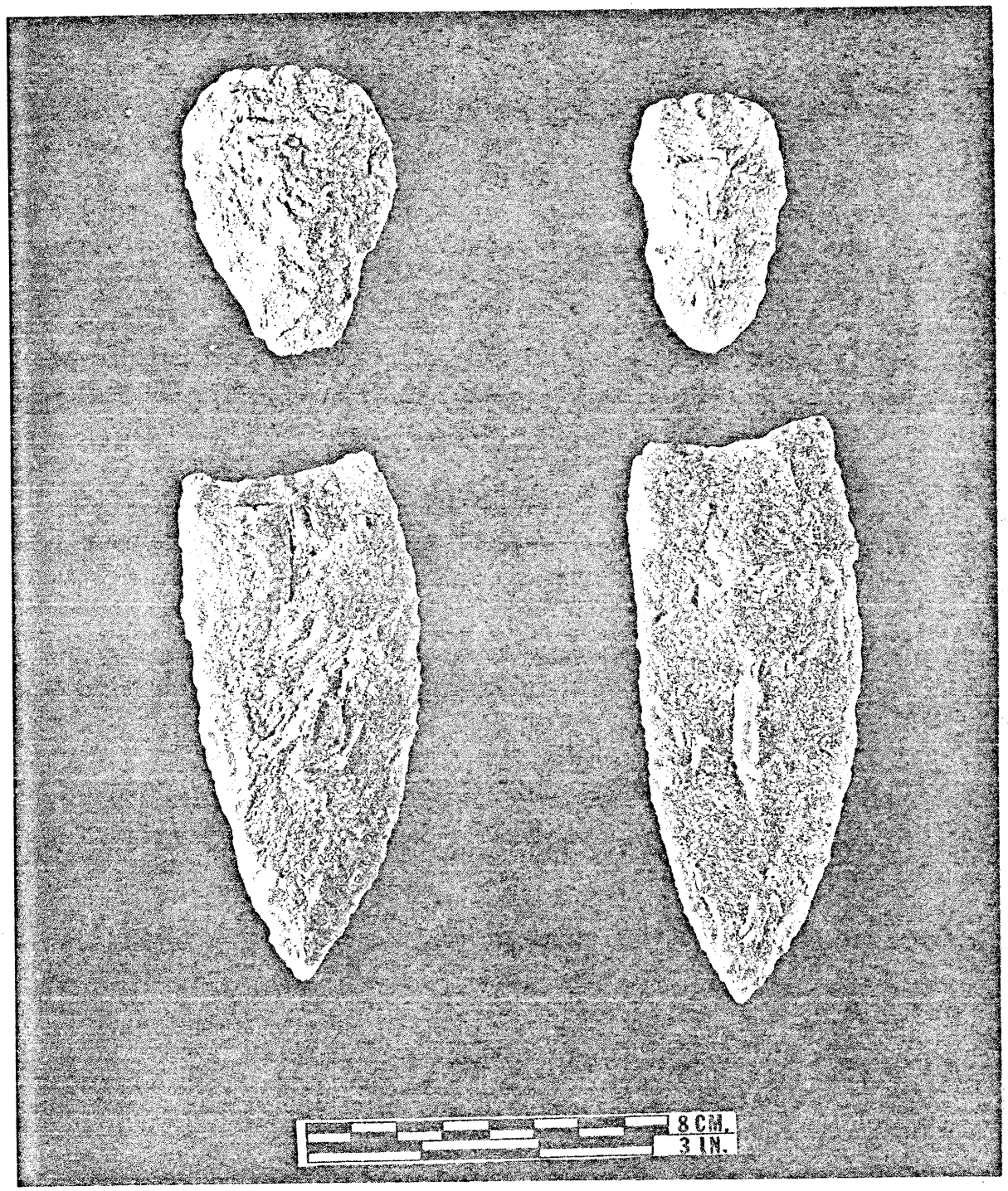


Figure 15. Bifacial end scrapers (top) and large stemless bifacial knives (bottom) from the White Bank Park Site.

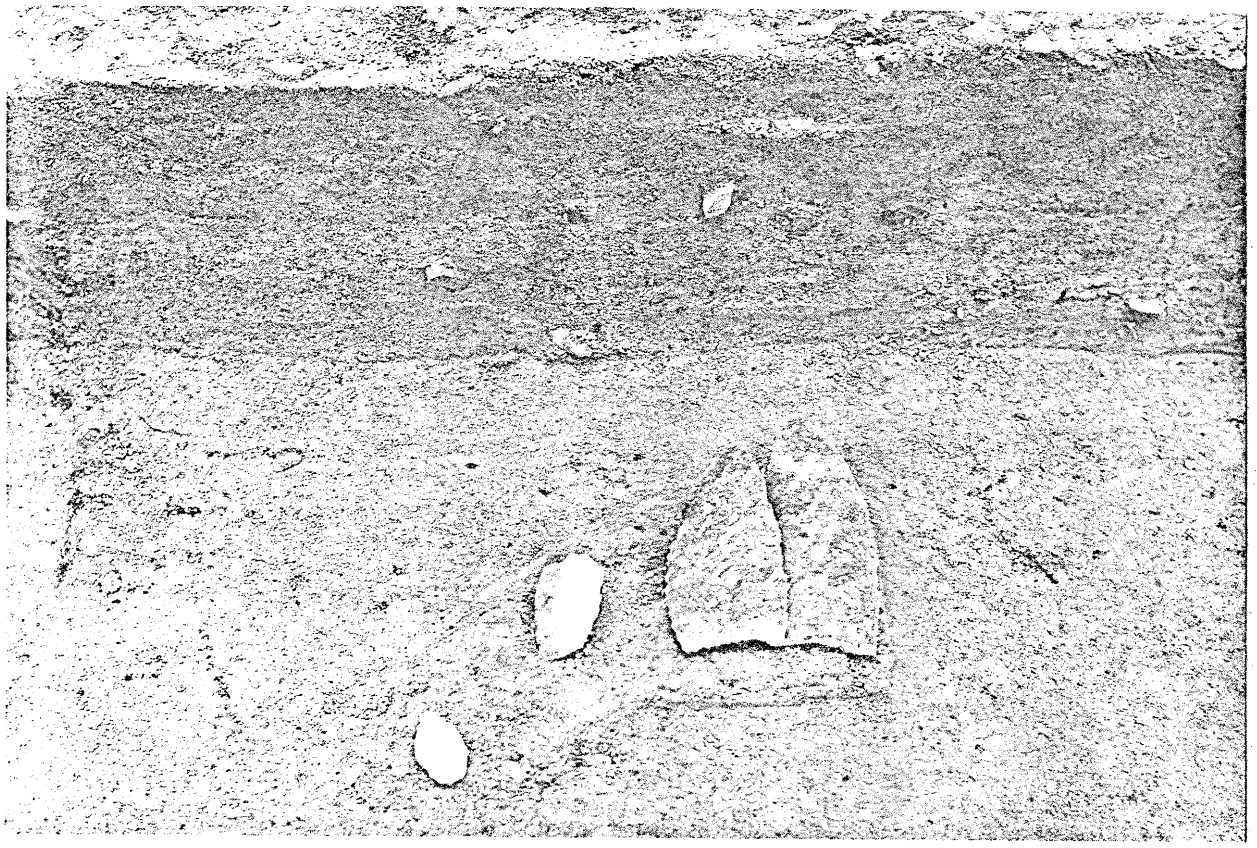

Figure 16. Two large bifacial knives from Stratum III in square 4 at the White Bank Park Site. Photo facing southeast.

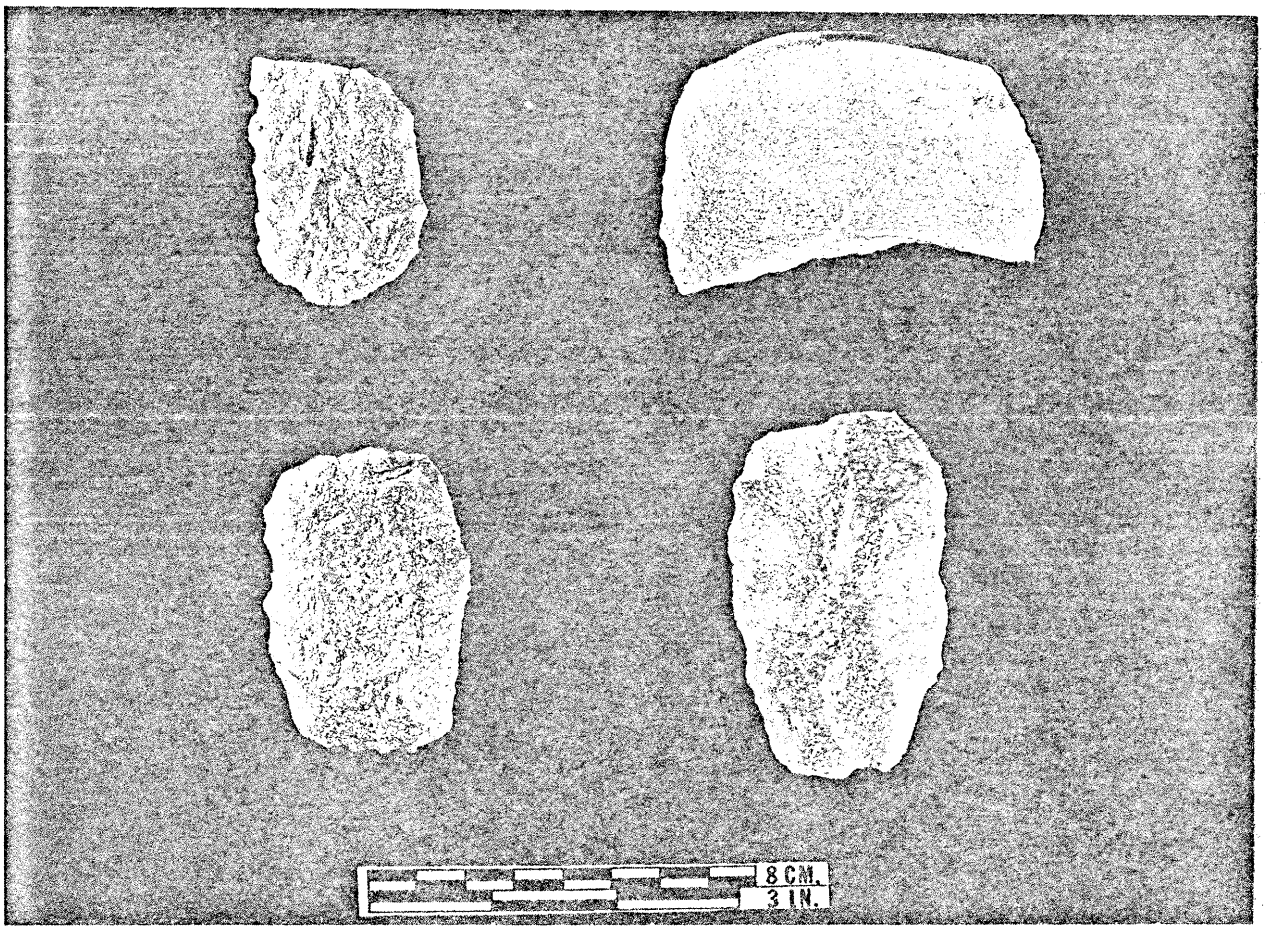


Figure 17. Bifaces illustrating unfinished stages of reduction at the White Bank Park Site.

Apparently, these bifaces were manufactured by the technique of primary flake reduction. Two bifaces that still retain the striking platforms on their distal ends are evidence supporting this conclusion (Figure 17). In his 1893 study of stone implements from the fall line near Washington D.C., Holmes reached a different conclusion (1893: 61). He felt that "... every blade-shaped projectile point made from a boulder or similar bit of rock not already approximate in shape, must pass through the same or nearly the same shapes of development, leaving the same wasters..." Thus his projectile points were the product of nodular reduction (boulder) and not flake reduction. His wasters were large bifaces that either broke or were not suitable for further reduction. Artifacts similar to Holme's 'wasters' are classified here as bifacial choppers.

Further evidence that bifacial points and knives can be the product of flake technology is found in the Crummett's Cache (Clark 1978). The cache consists of 253 quartzite bifacial blades, 5% with the striking platform intact on either their distal end or proximal sides. Approximately 50% still retain the original dorsal or ventral flake scars, strongly suggesting a flake from core technology. Apparently both techniques of biface reduction, from flakes and from nodules, were prevalent in different areas along the fall line during the Late Archaic Period.

## Bifacial End Scraper

Two oval to triangular-shaped bifaces from Stratum IV, associated with the Savannah River tradition, were more finely flaked across the broad working ends and are defined as end scrapers (Figure 15). One exhibits the wear pattern of edge rounding along the broad end. The technique of manufacture is reduction from primary flakes.

## Large Bifacial Choppers

Eight large bifaces with edge angles of from 55 to 80 degrees were found from Stratum IV on up to the surface of the ground. They are probably associated with the Savannah River tradition. Their shape is too bulky and thick to be representatives for the initial stage of bifacial reduction. Some exhibit cortex on their ventral and dorsal surfaces, suggesting they they were made by a technique of nodular reduction. Wear patterns in the form of grinding and crushing occurs on some examples. A distinctive attribute is the intentional flattening of one end to form a backed tool (Figure 18 and 19).

## Large Unifacial Tools

Seven large unifacial tools from Stratum III and IV, associated with the Savannah River tradition, and the surface of the ground exhibit retouched edge angles of 55 to 70 degrees. They were not made from flakes, but were produced by a similar technological process as the large bifacial choppers. A large, thick portion from the end of a cobble was removed and further modified by secondary

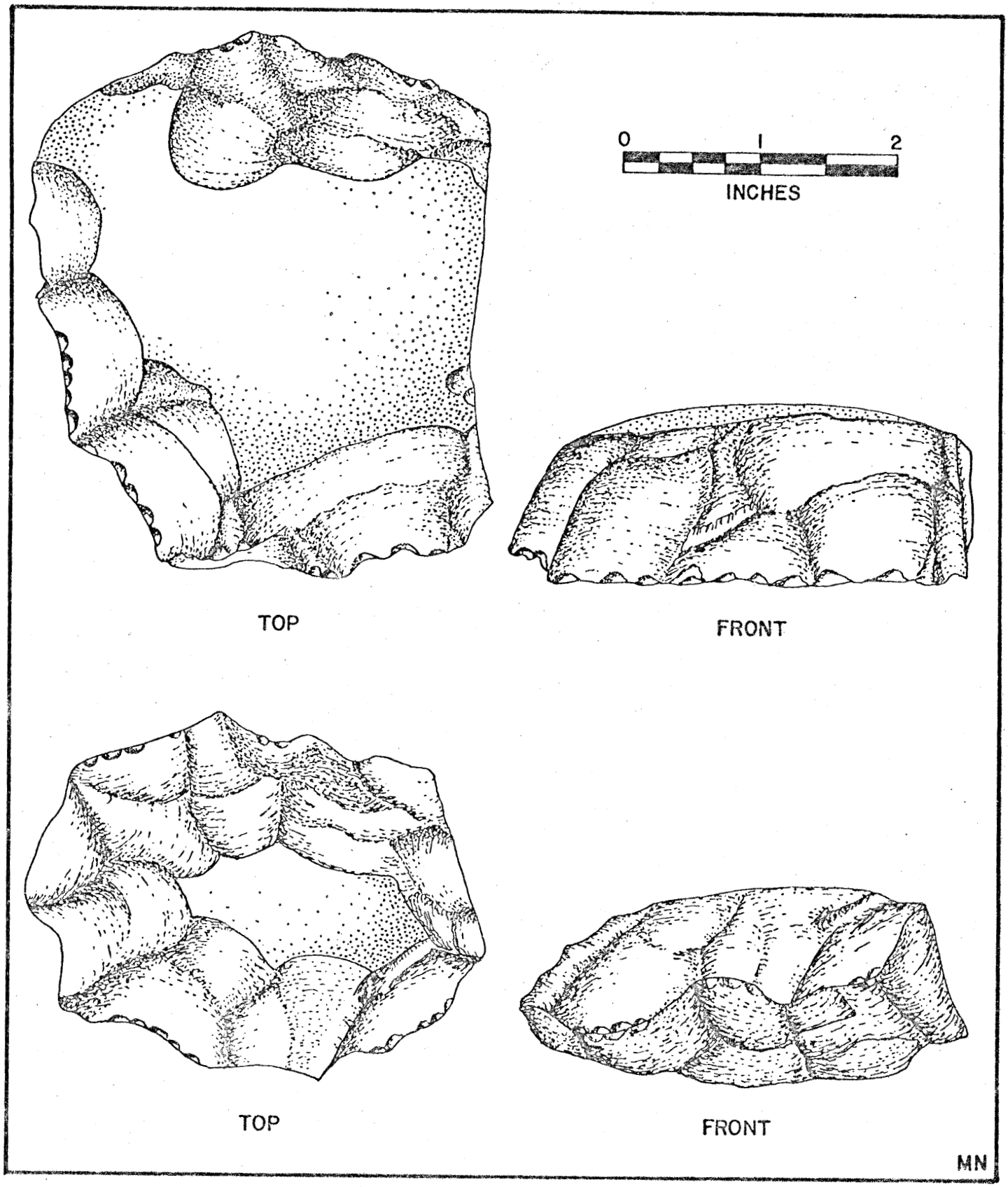


Figure 18. Large unifacial tool (top) and bifacial chopper (bottom) from the White Bank Park Site.

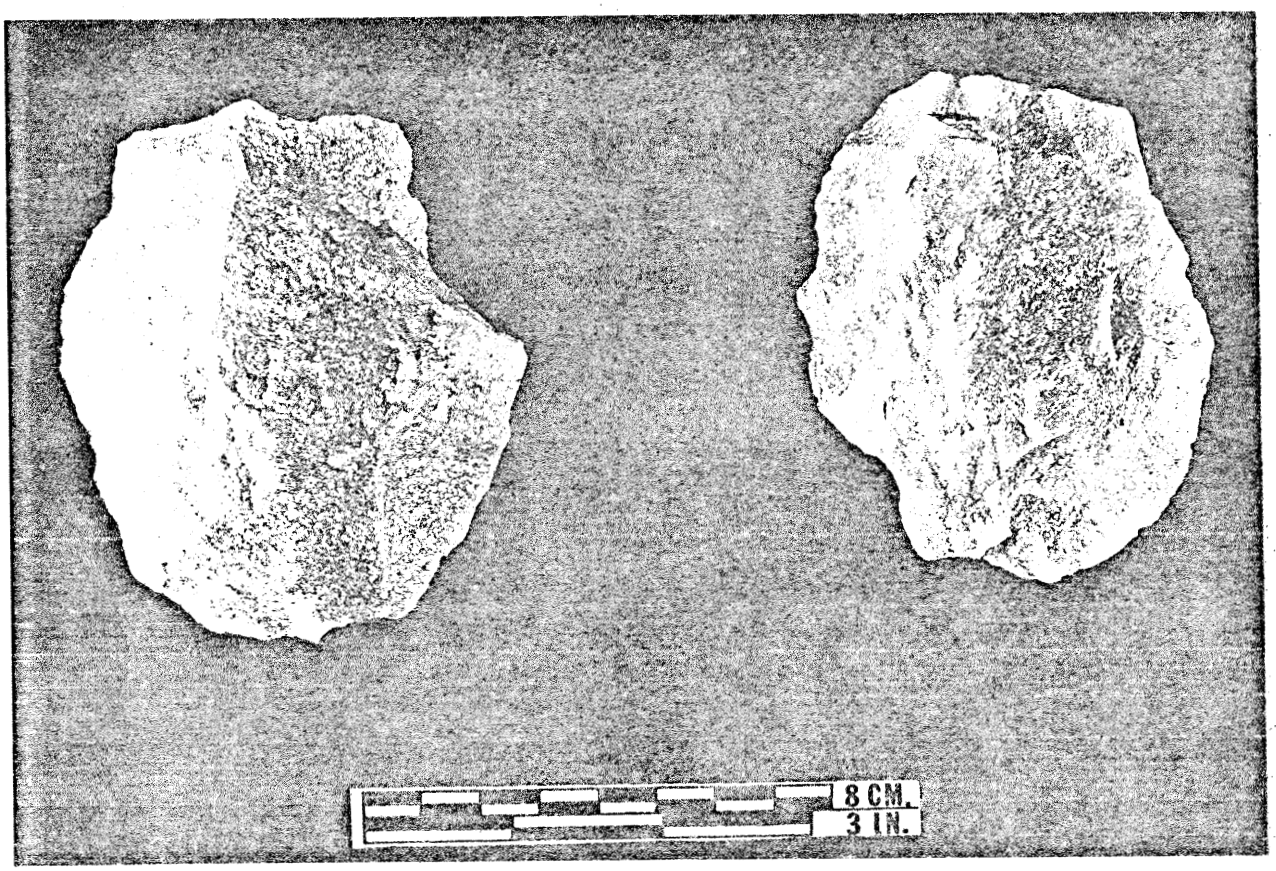


Figure 19. Large bifacial choppers from the White Bank Park Site.

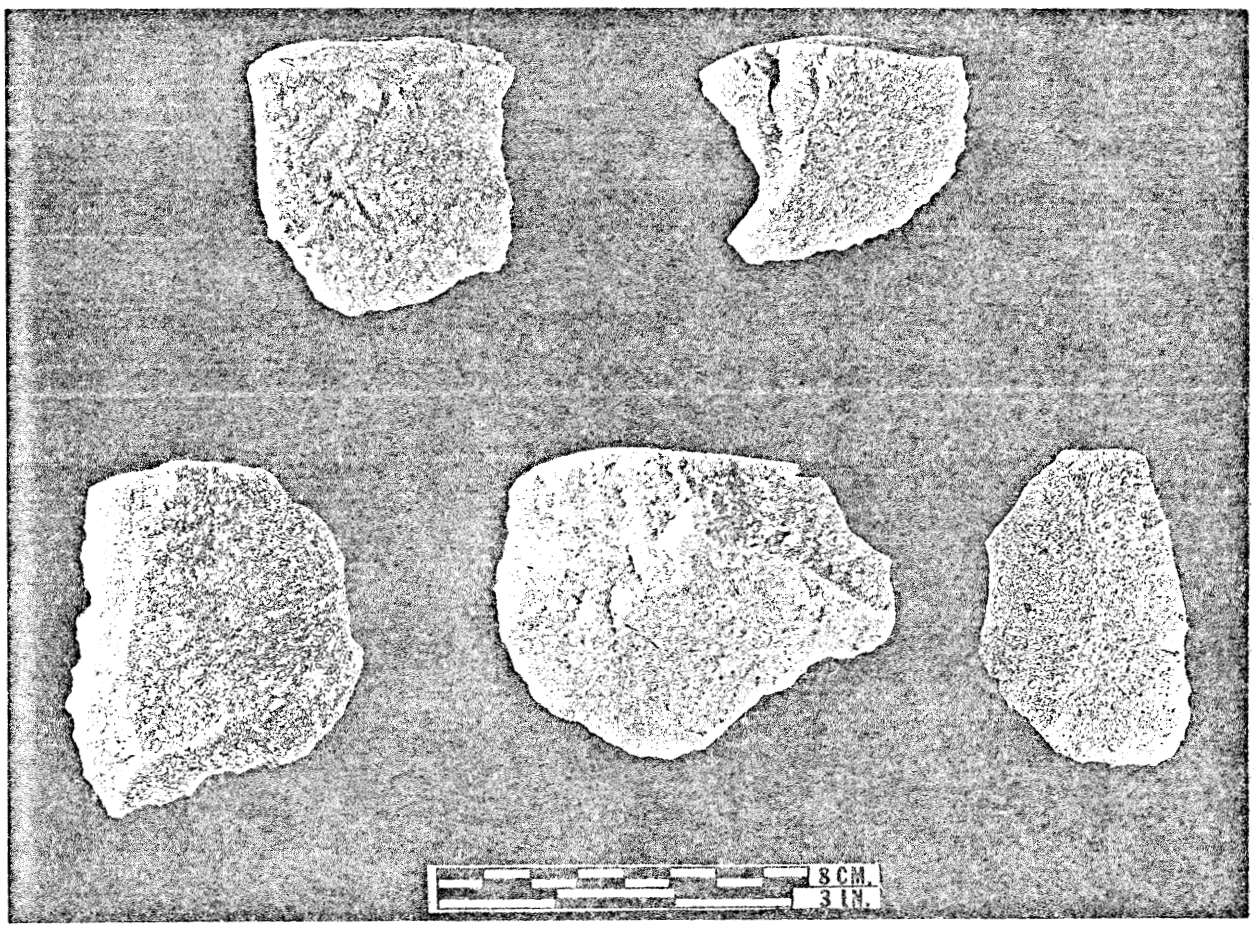


Figure 20. Retouched and utilized flakes from the White Bank Park and Moose Lodge sites.

flaking solely along the cortex face. As with the bifacial choppers, the large unifacial tools exhibit an intentionally flattened end to form a backed tool (Figures 18 and 21).

## Retouched Flakes

Thirteen primary flakes not large enough for bifacial reduction were made into tools by unifacial retouching. All of them exhibit cortex on either their striking platforms or on the dorsal surface. Apparently very little was wasted, and primary flakes that were not suitable for the process of biface reduction were retouched into other tools (Figures 11 and 20).

On the other hand, not one of the larger secondary waste flakes from the process of bifacial reduction showed modification by retouching. This indicates that small primary flakes, which were made into flake tools, were as carefully selected for as larger primary flakes used in the process of biface reduction. Figure 11 illustrates the different structural configuration between waste flakes from the process of bifacial reduction, and small primary flakes carefully selected to be fashioned into retouched tools.

## Flake Utilization

Because of the character of the material, its granular texture and semi-translucent qualities, wear patterns on quartzite flakes are at best difficult to identify. Only a few quartzite tools, including two Savannah River bifaces, an ovate end scraper, and the larger bifacial choppers and unifacial tools, showed edge rounding, grinding,

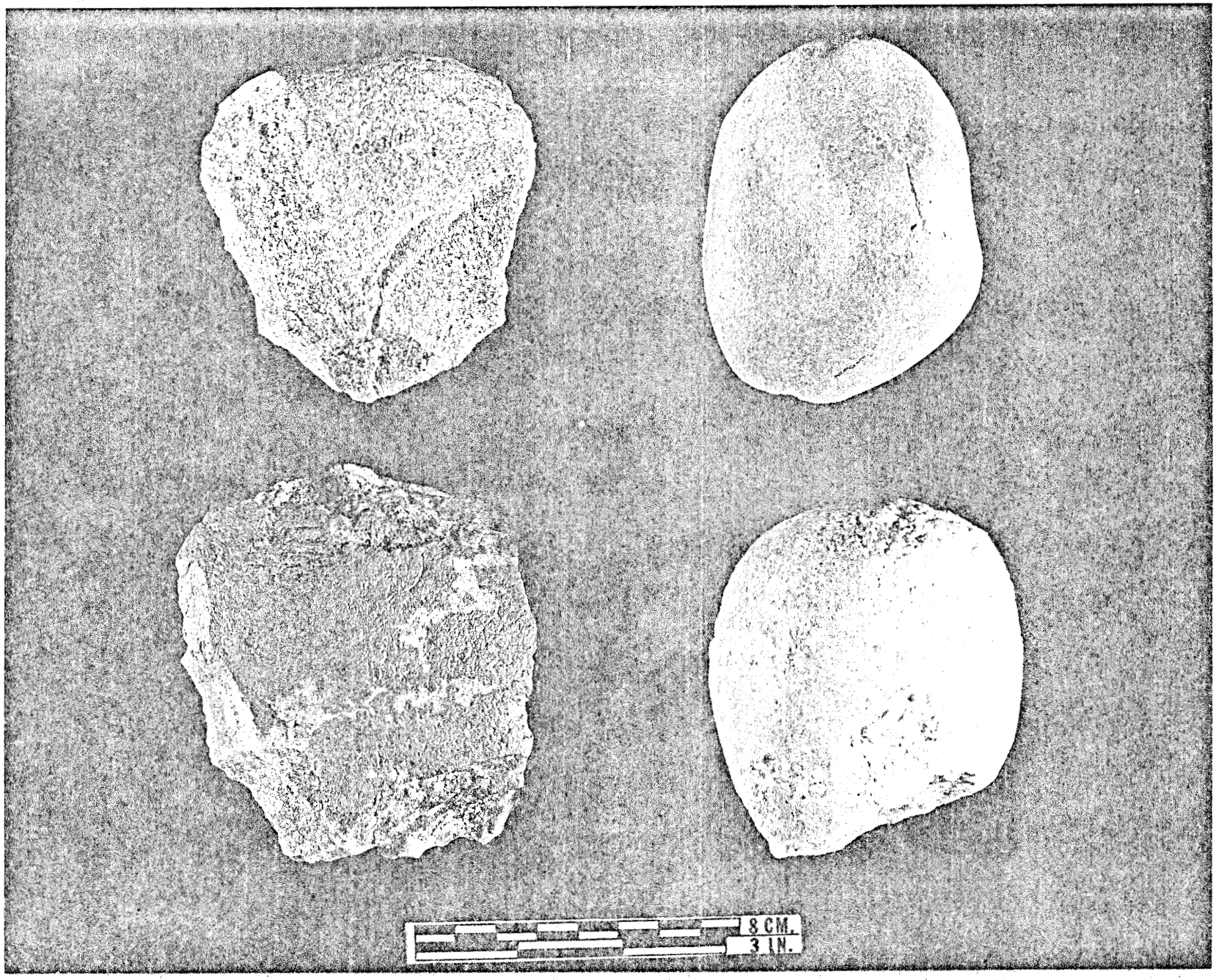


Figure 21. Large unifacial tools (left) and hammerstones (right) from the White Bank Park Site.

or crushing. While experimental data from butching suggests that an association exists between wear patterns (observed under a microscope) and length of time of tool use (Brose 1975: 86-94), the data also indicate that granular lithology, such as quartzite, seems to suffer more loss-of-function due to fat adherence than fine lithology (e.g. obsidian). Quartzite flakes therefore would lose their functional utility more rapidly than flakes of fine lithology. As a result most utilized quartzite flakes would be discarded before the development of observable edge wear. At the White Bank Park Site only a few primary flakes illustrated definite patterns of edge rounding and blunting (Figure 20 ).

## Hammerstones

Nine hammerstones uncovered from Strata III and IV exhibited pecked surfaces and ends on otherwise unmodified cobbles. None had abraded surfaces resulting from grinding. They appear to have functioned as hammers or anvils, detaching flakes during the process of bifacial reduction (Figure 21).

## Cores

Six large portions of cobbles, showing irregular flake-scarred surfaces and cortex remnants, were first assigned to the catagory of cores. It soon became apparent that the large primary flakes needed for the process of biface reduction of Savannah River blades could not have been removed from these cobbles. Since quartzite cobbles do not occur naturally at the site, the large primary flakes were

probably removed from the cores at the site of the cobble quarry and transported to the bluff location. The quarry location may have been below the site, where quartzite cobbles occur along the shore of Swift Creek.

## Conclusion

The diagnostic projectile points from the White Bank Park Site indicated that major occupation occurred at the site during the Savannah River tradition (3000-1000 B.C.), with sporadic occupation earlier (Guilford, 4000-3000 B.C.) and occasional settlement after (triangular points, A.D. 1-1607). The majority of the multitudinous quartzite debitage resulting from the process of biface reduction belonged to the Savannah River tradition.

Primarily the site functioned as a lithic workshop specializing in the process of bifacial reduction from primary flakes. Finished bifaces, functioning as projectile points, knives, and scrapers, were probably removed from the site and dispersed to areas in the Piedmont and Coastal Plain, where lithic material is scarce. A high degree of craftmanship and efficiency is attested to by knife blades 12 cm. long and by the scarcity of broken bifaces.

Larger primary flakes unsuitable for bifacial reduction were retouched into unifacial tools and probably used during the daily activities of the camp. Large bifacial choppers and unifacial tools were not made from a flake technology, but were produced by a technique of nodular reduction.

Ceramic Artifacts

A sample of 898 sherds, recovered from Strata I and II in three squares at the White Bank Park Site and representing ceramic series from ca. 500 B.C. to A.D. 1600, was analyzed in order to refine the regional typlogy first established by Clifford Evans in 1955 (Table 2). In addition ceramic series from Maryland, Delaware, and North Carolina are referred to to clarify the ceramic sequence from the Fall Line Transition and Coastal Plain of east central Virginia.

Evans defined three ceramic series which are pertinent to the analysis of ceramics from the White Bank Park Site. The pebble temper Prince George Series, which he designated as one of the oldest wares in the area preceding the Stony Creek Series, has net, fabric, cord, plain, scraped, and simple stamped surface impressions. The sand temper Stony Creek Series has cord, fabric, net, plain, scraped, simple stamped, and incised surfaces. The latest ware, the shell tempered Chickahominy Series, has fabric, cord, net, plain, simple stamped, scraped, and cord-wrapped dowel surface treatments.

In this report the Stony Creek and Prince George series established by Evans are retained, although both series have been modified by dropping the plain, simple stamped, and scraped types while keeping the cord, wicker-type fabric, and knotted net impressed ceramic types. Furthermore, the Stony Creek Series is seen as preceding the Prince George Series. Recent research indicates that the Chickahominy Series, originally defined by Evans, actually spans nearly 2000 years, and needs to be temporally subdivided. Therefore, the Chickahominy Series and its component types have been replaced in this report with the

| | Sussex Plain | Flowerdew | Rappahannock | | Mockley | | | | Prince George | | | | Stony Creek | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P | S | F | U | C | N | P | U | C | N | F | U | C | N | F | U | U | |
| Square 3 | | | | | | | | | | | | | | | | | | |
| A | | | 11 | | | | | 6 | 1 | | | | 2 | | | 6 | 7 | 33 |
| B | | | 8 | 7 | 7 | 29 | 4 | 11 | 2 | 1 | | 2 | 3 | 3 | 2 | 12 | 65 | 156 |
| C | | | 2 | | 5 | 8 | | 7 | 17 | | 4 | 5 | 6 | 5 | | 12 | 12 | 83 |
| D | | | | | | | | 1 | | | | 4 | | | | 1 | 1 | 7 |
| E | | | | | | 1 | | | | | | | | | | | 5 | 6 |
| | | | | | | | | | | | | | | | | | 2 | 2 |
| Sub-Total | | | 21 | 7 | 12 | 38 | 4 | 25 | 20 | 1 | 4 | 11 | 11 | 8 | 2 | 31 | 92 | 287 |
| Square 5 | | | | | | | | | | | | | | | | | | |
| A | | | 9 | | | | | | | | | | 1 | 2 | 1 | 1 | 13 | 27 |
| B | | | 49 | | 1 | 6 | | | 4 | 3 | | | 4 | 2 | | | 35 | 104 |
| C | | 1 | 13 | | | | | | | 1 | | | 3 | 1 | | 1 | | 19 |
| D | | | 10 | | 2 | | | 1 | 3 | 17 | | 3 | 5 | 16 | | 3 | 14 | 75 |
| E | | | 2 | | | | | | | | | | 1 | 19 | | 4 | 1 | 27 |
| F | | | | | | | | | | | | | | 4 | | 1 | | 5 |
| G | | | | | | | | | | | | | 1 | 2 | | 2 | | 5 |
| H | | | | | | | | | | | | | | | | 1 | | 1 |
| | | | | | | | | | | | | | | 1 | | | | 1 |
| Sub-Total | | 1 | 83 | | 3 | 6 | | 1 | 7 | 21 | | 3 | 15 | 47 | 1 | 13 | 63 | 264 |
| Square 6 | | | | | | | | | | | | | | | | | | |
| A | 6 | 7 | 4 | 3 | 4 | 2 | | 2 | 1 | | | 1 | 4 | | | 2 | 15 | 51 |
| B | 4 | 4 | 9 | | 1 | 15 | | 7 | 3 | 3 | | 3 | 4 | 4 | 3 | 3 | 35 | 98 |
| C | 1 | 2 | 3 | 1 | 7 | 41 | 3 | 7 | 6 | | 4 | 5 | 7 | 6 | 4 | 2 | 52 | 151 |
| D | | | 1 | | 2 | 6 | | 1 | | 1 | | | 2 | 3 | 3 | 3 | 14 | 36 |
| E | | | | | | | | 2 | | | | | 1 | | | | 7 | 7 |
| | | | | | | | | | | | | | | | | | 1 | 4 |
| Sub-Total | 11 | 13 | 17 | 4 | 14 | 64 | 3 | 19 | 10 | 4 | 4 | 9 | 18 | 13 | 10 | 10 | 124 | 347 |
| Total | 11 | 14 | 121 | 11 | 29 | 108 | 7 | 45 | 37 | 26 | 8 | 23 | 44 | 68 | 13 | 54 | 279 | 898 |

Surface Finish Key:
P Plain
S Simple Stamped
F Fabric
C Cord
N Net
U Unidentified

following contextually refined series: the Mockley Series replaces the Chickahominy Cord Marked and Potts Net Impressed Types; and the Townsend Series replaces the Chickahominy Fabric Type.

Stony Creek Series
(Stony Creek Fabric, Cord, and Knotted Net Impressed Types)

Paste:

Temper: Fine (.25 to .10 mm.) to a medium (.5 to .25 mm.) sand with occasional coarse (1 to 15 mm.) sand.

Texture: A fine sandy to slightly-clayey feel to interior surfaces. Some of the sherds appear rather compact, while the others are more friable.

Surface Treatment:

Exterior: The entire exterior surface is marked with either a cord, wicker-type fabric, or a knotted net. The cord impressions are clear and run at right angles to the rim, with considerable diagonal crisscrossing. The cord is medium fine (1 mm. in diameter) and spaced 2 to 5 mm. apart. The wicker-type fabric impressions have a large warp ranging from 10 to 12 mm. betweem elements, with the weft of a twisted cord 2 to 3 mm. in diameter. The knotted net impressions are clear, with knots ranging from 3 to 5 mm. in diameter and spaced 3 to 5 mm. apart. The tighter net may be a later refinement of the loose net, which continued in use (Figure 22).

Interior: The interior surface is smooth, with no evidence of tooling, although tooling does appear on net impressed examples from other sites. The 'floating' procedure, where fine clay is floated to the surface of the interior of the vessel by a smoothing process when the clay is wet, covered the medium sand particles and gives the interior its clayey feel.

Form:

Lip: In two cases the lip was flattened and cord marked. Otherwise the lip is slightly rounded and unmodified.

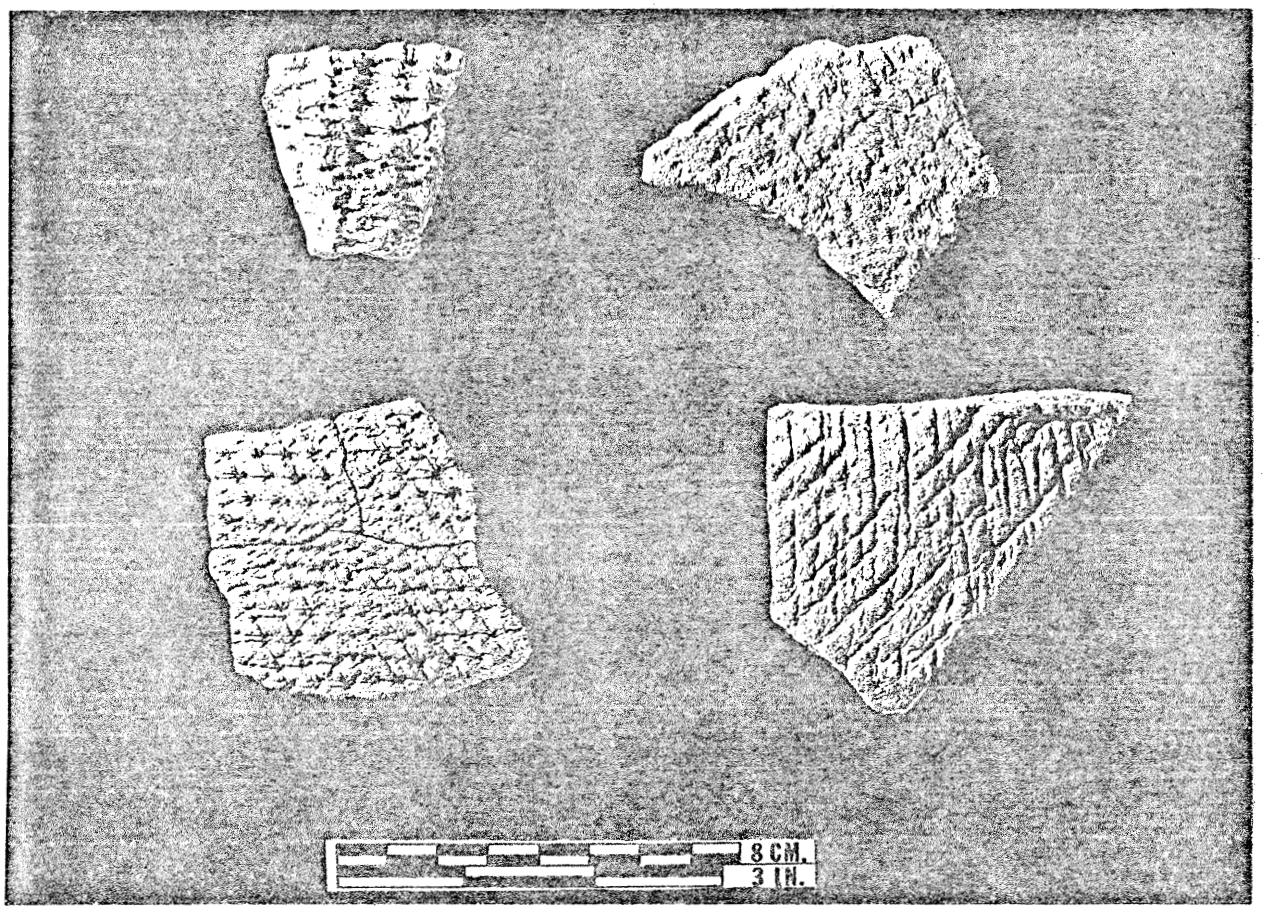


Figure 22. Stony Creek ceramic series. Fabric impressed (top left), net impressed (top right, bottom left), and cord impressed (bottom right).

Rim: Straight and vertical.

Body wall thickness: Moderately thick in appearance, averaging 6 to 8 mm.

Discussion:

Besides the types discussed above the Stony Creek Series defined by Evans also included Stony Creek Plain, Stony Creek Simple Stamped, Nottoway Incised, and Rivanna Scraped. Evans grouped these types together solely because of similar paste qualities. Later Binford described the Stony Creek Series in southeastern Virginia as including only cord, fabric, and net impressed ceramics (Binford 1961: 275). Evidence throughout the Middle Atlantic Region suggests that simple stamping, incising, and scraping are surface treatment styles that did not occur during the Early Woodland Period, and, therefore, should not be included in the Stony Creek Series.

The Stony Creek Series has close association with Accokeek Cord Series (medium fine sand temper), and Popes Creek Net Series (medium to coarse sand temper), in the Potomac River Valley (Stephenson 1963: 92). Recent work by McNett in Maryland uncovered Popes Creek ceramics stratigraphically above Accokeek (McNett 1975: 109). The accepted temporal range for Accokeek Series in the Potomac River Valley is 800 to 300 B.C., with the Popes Creek Series developing at 500 B.C. and continuing until 100 B.C. (McNett 1975).

The earliest ceramic surface treatments in Maryland and Delaware are cord and net. The steatite tempered Seldon Island Cord Series (ca. 1000-800 B.C.) found on Seldon Island in the Potomac River

suggests that cord impressions were an earlier surface treatment than net. Further north in Delaware the Wolf Neck (crushed quartz temper) and Coulbourn Series (clay temper) dating from 800 to 400 B.C. have solely net and cord as types of surface treatment (Griffith and Artusy 1977: 13). The point to be stressed is that cord impressed ceramics appear to occur before net, and that fabric impressed ceramics do not occur in the Potomac River Valley or in Delaware until the crushed quartz Hells Island Series, ca. A.D. 650 (Artusy 1976).

In North Carolina material similar to the Stony Creek Series was collected from the Roanoke Rapids Basin and described by Coe as the Vincent Series (Coe 1964: 119). Recently Phelps (1980: 75) placed the Vincent Series in the Early Woodland Period. The Vincent as well as the following Clements Series contain solely cord and fabric impressed ceramics. Knotted net impressed ceramics have not been reported as occurring early in this area.

In summary, during the Early Woodland Period in the Coastal Plain and Fall Line Transition of the Middle Atlantic Region cord and net impressed ceramics are a predominant type in the north while the wicker-type fabric and cord impressed ceramics are a prevailing type in the south. However, in southeastern Virginia we find ceramics with similar paste qualities exhibiting all three surface treatments. Furthermore, the net impressed Popes Creek Series, strongly associated with riverine environments, may have persisted later in time.

## Prince George Series
## (Prince George Fabric, Cord, and Knotted Net Impressed Types)

Paste:

Temper: A mixture of coarse (1 to .5 mm.) to very coarse (2 to 1 mm.) sand with large smooth pebbles (2 to 12 mm.)

Texture: A coarse sandy feel, with occasional lumps on the interior surface where large particles of temper occur. Mediumly well-kneaded and compacted.

Surface Treatment:

Exterior: The exterior surface of the vessels are marked with either a cord, wicker-type fabric, or a knotted net. The cord impressions are clear and deep, with considerable crisscrossing. The cord is coarser (2 to 3 mm. in diameter) than Stony Creek Cord and spaced 2 to 5 mm. apart. The wicker-type fabric has a large warp similar to Stony Creek Fabric ceramics. The knotted net impressions are rougher in appearance than Stony Creek Net ceramics due to larger knots (5 mm. in diameter) and the frequent overlapping of impressions (Figure 23).

Interior: The interior surfaces are clayey-smooth and uneven due to temper size. The 'floating' proceedure covered the majority of the coarse particles with clay, leaving a few of the pebbles visible.

Decoration: Two examples occurred of finger pressing below the rim, forming a deep hole on both surfaces. This is an extremely diagnostic trait commonly found only in this series.

Form:

Lip: Less concern with neatness than in the Stony Creek Series. In a few cases the undulating lip was flattened and cord or net marked. In other cases it was left rounded.

Rim. Straight and vertical.

Body wall thickness: Very thick in appearance ranging from 6 to 12 mm. Significantly thicker than sherds from any other series.

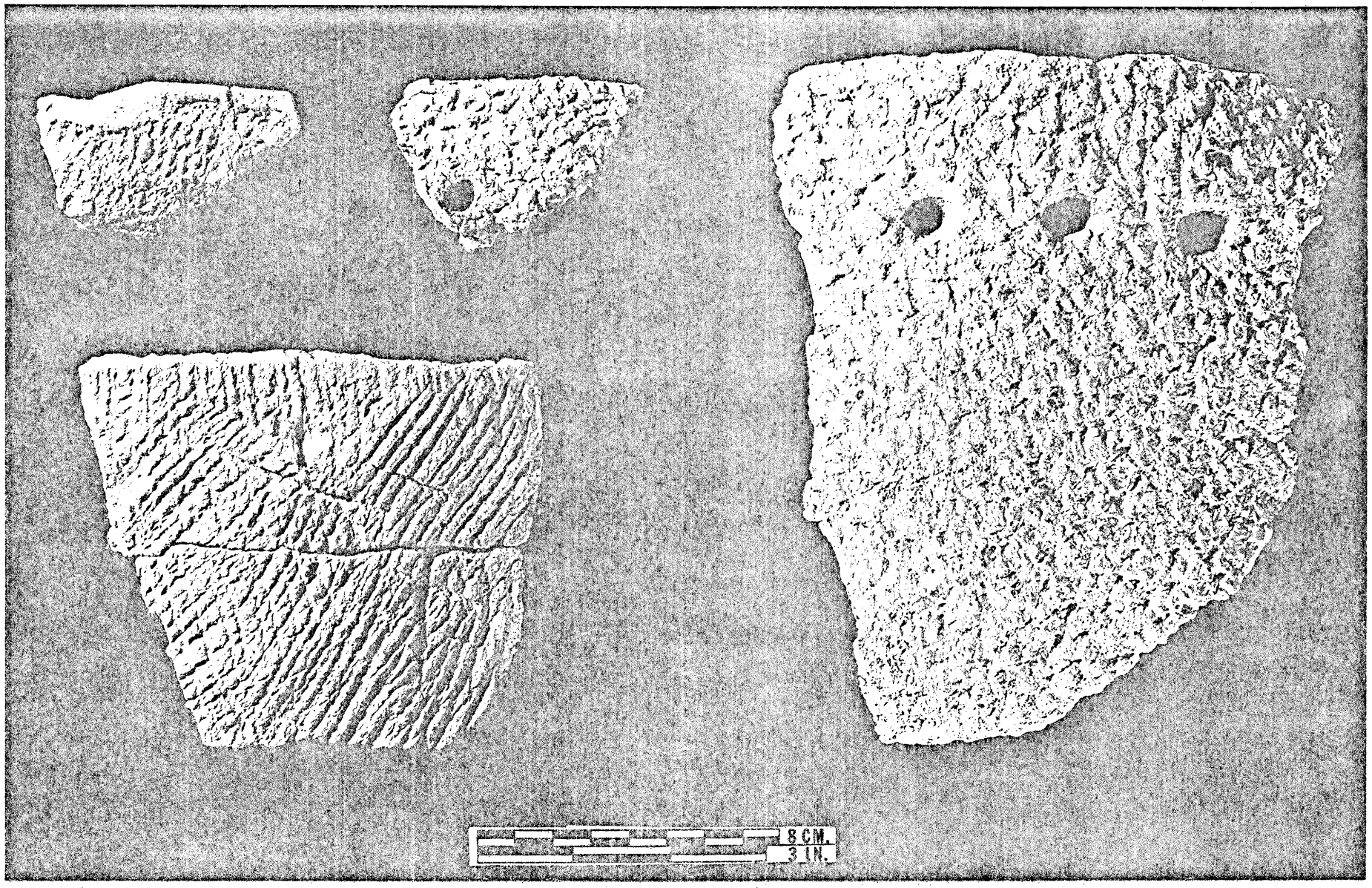


Figure 23. The Prince George ceramic series. Fabric impressed (top left), net impressed (top center and right), and cord impressed (bottom left).

Discussion:

The Prince George Series as defined by Evans also included plain, scraped, and simple stamped types. To group all of these surface treatment types into one series based solely on similar paste qualities is misleading. Evidence throughout the Middle Atlantic Region suggests that simple stamping occurred later. Evans contended that Prince George Series sherds were lower in the midden deposit than Stony Creek ceramics, based on stratigraphic evidence from the Potts Site (Evans 1955: 96), though this is at variance on statistical grounds with the data presented in his ceramic charts.

The Prince George Series appears to have originated and developed solely in southeastern Virginia. The series is found along the Fall Line Transition from below Petersburg to Richmond, and extends into the interior Coastal Plain. Comparable material has not been found to the north in Maryland and Delaware, or to the south in North Carolina. There is scant stratigraphic evidence for the age of this ceramic series. In the shallow stratigraphy at the White Bank Park Site it statistically occurred above the Stony Creek Series in square 5, and mixed with the Mockley Series in square 3 and 6 (Table 2). This would tentatively place the series in the period 500 B.C. to A.D. 500.

## Mockley Series
(Mockley Plain, Cord, and Knotted Net Impressed Types)

Paste:

Temper: Crushed shell ranging from 1 to 3 mm. in diameter, with occasional fragments of 5 to 7 mm. Shell may be leached out, leaving identifiable fine, flat holes. Coarse sand grains occur extremely rarely.

Texture: Light weight, soft, clayey feel with a distinctively laminated structure.

Surface Treatment:

Exterior: Due to paste's softness erosion obscured the details of the impressions, but surface treatments can be identified. The exterior of the vessels are commonly marked with a cord or knotted net. A small percent of sherds, most of them rim sherds, exhibit plain surfaces. Significantly, wicker-type fabric impressed ceramics do not occur. The cord impressions which periodically criss cross are medium fine (1 mm. in diameter) and spaced 1 to 3 mm. apart. The knotted net impressions are indistinct and rough in appearance, caused by haphazard overlapping and smoothing (Figure 24).

Interior: Smooth and even.

Form:

Lip: Predominantly flat to slightly rounded, with the exterior edge occasionally lipping out 1 mm.

Rim: Straight-sided to slightly outcurving.

Body wall thickness: Moderately thick in appearance, 6 to 8 mm. Similar in thickness to the Stony Creek Series.

Discussion:

Mockley ceramics first appeared in the literature as part of the Chickahominy Series (Chickahominy Cord Marked and Potts Net Impressed), a descriptively diverse and temporally varied group defined by Evans. Later Stephenson refined the ceramic typlogy, defining Mockley Ware as exhibiting unique paste qualities, with surface treatments restricted solely to plain, cord, and net (Stephenson 1963: 103).

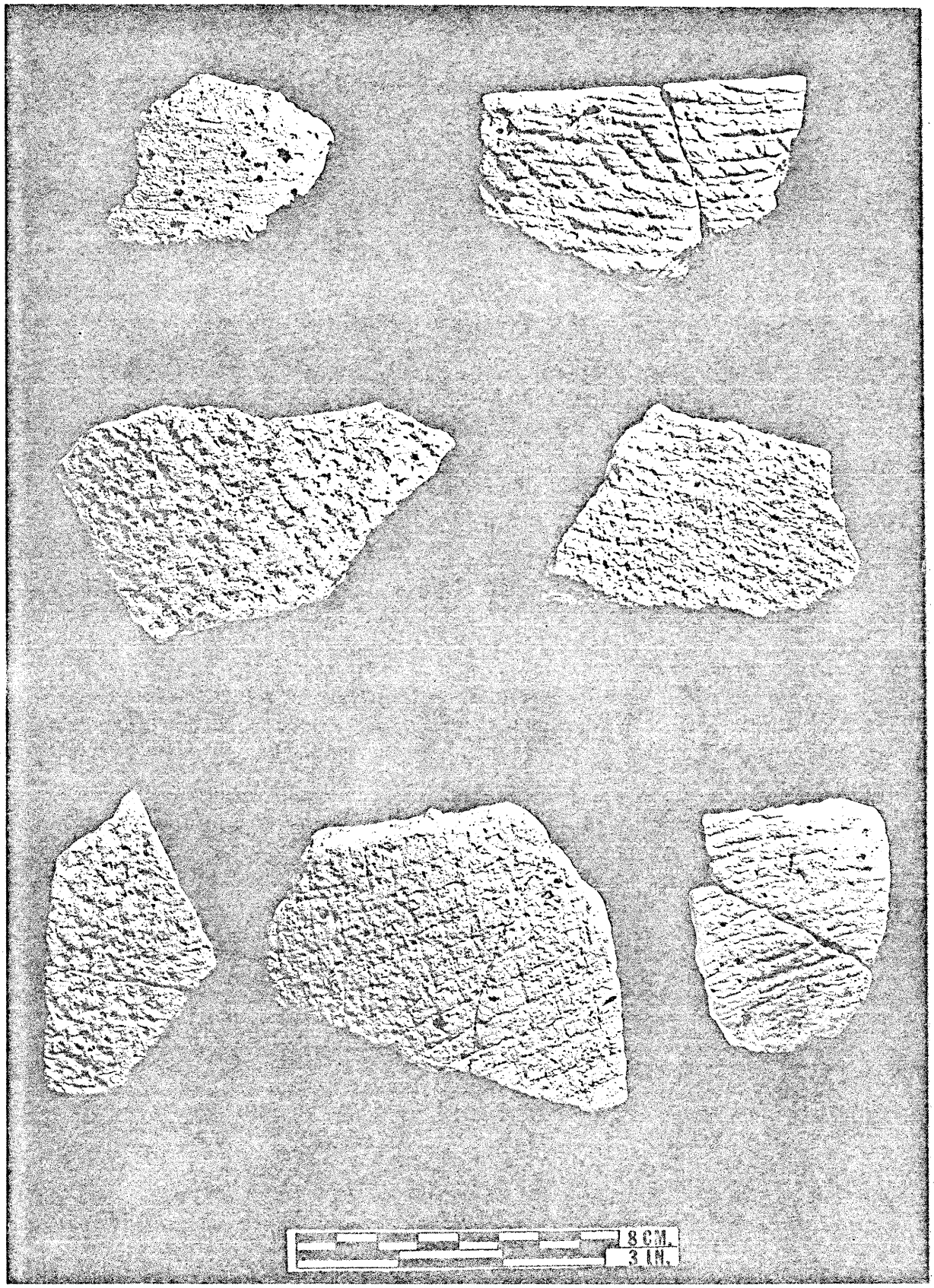


Figure 24. The Mockley ceramic series. Plain (top left), cord impressed (top right, bottom right), and net impressed (middle row, bottom left and center).

The earliest dates for the Mockley Series, A.D. 200, come from Delaware. There it was replaced at A.D. 650 by a crushed quartz temper, cord or fabric impressed Hell Island Series (Griffith and Artusy 1977: 23). In Virginia the Mockley Series has been dated from A.D. 460 to 875 at the Maycock Site on the James River (Barka and McCary 1976).

A small percent of sherds exhibiting qualities of both the earlier Stony Creek and the later Mockley Series suggests an evolutionary tie between the series. These sherds are cord and net marked, with the paste containing both sand and crushed shell. In Delaware this same phenomenon occurs in the Coulbourn Series, which precedes the Mockley Series. There a few sherds, usually tempered solely with crushed quartz, contain some finely crushed shell (Wise 1975: 25).

## Townsend Series
## (Rappahannock Fabric Impressed)

Paste:

Temper: Predominantly crushed shell ranging from 1 to 5 mm. in diameter. Some pieces exhibit a fine sand (.25 to .10 mm.) with occasional crushed shell.

Texture: A fine sandy to very clayey feel to interior surfaces. The clay is well kneaded, very compact and hard.

Surface Treatment:

Exterior: The exterior surface of the vessels are impressed with a wicker-type fabric (Figure 25). The fabric has a finer twisted cord (1 to 2 mm.) in the weft than on the earlier Stony Creek and Prince George Series, and a considerably more narrow warp (4 to 5 mm. between elements).

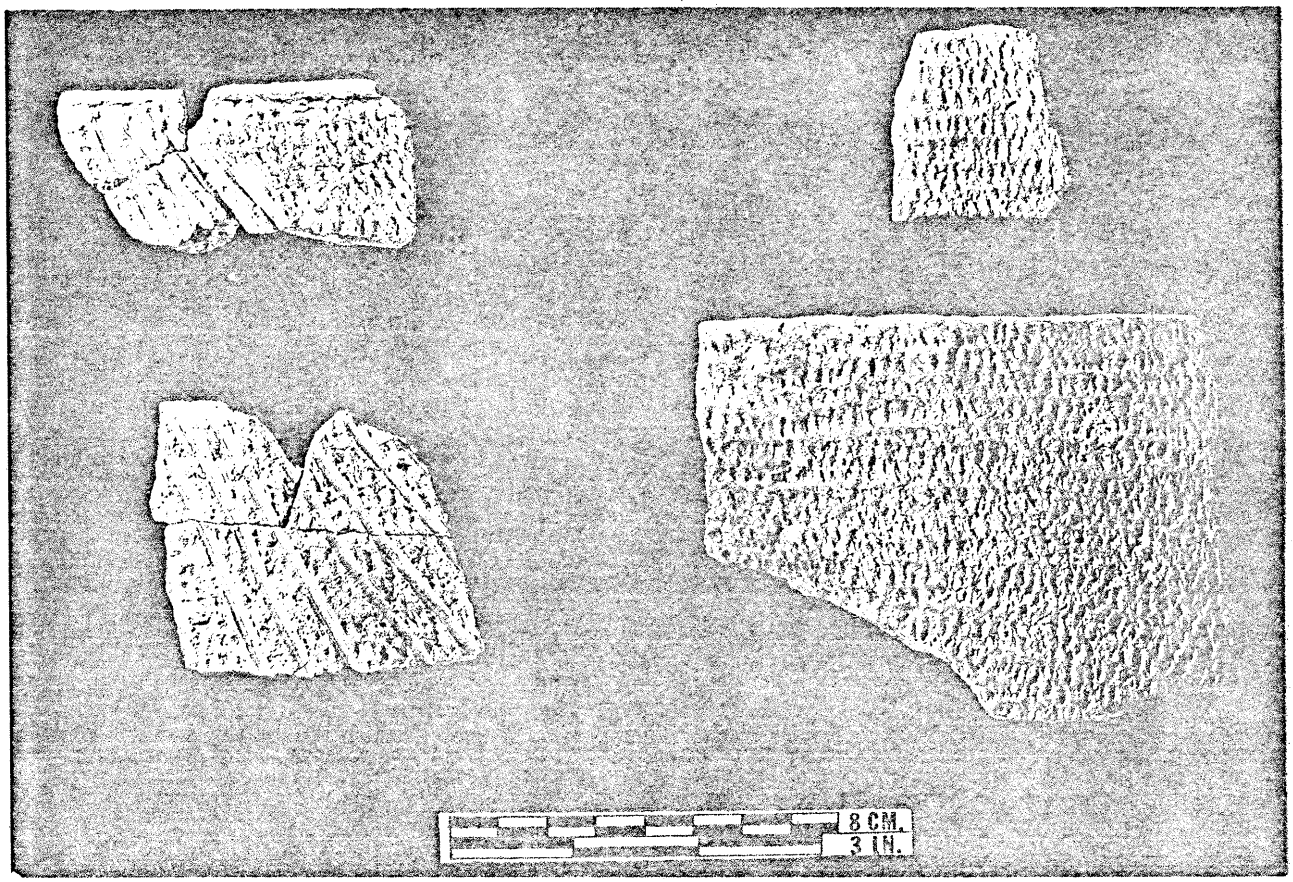


Figure 25. The Townsend ceramic series.

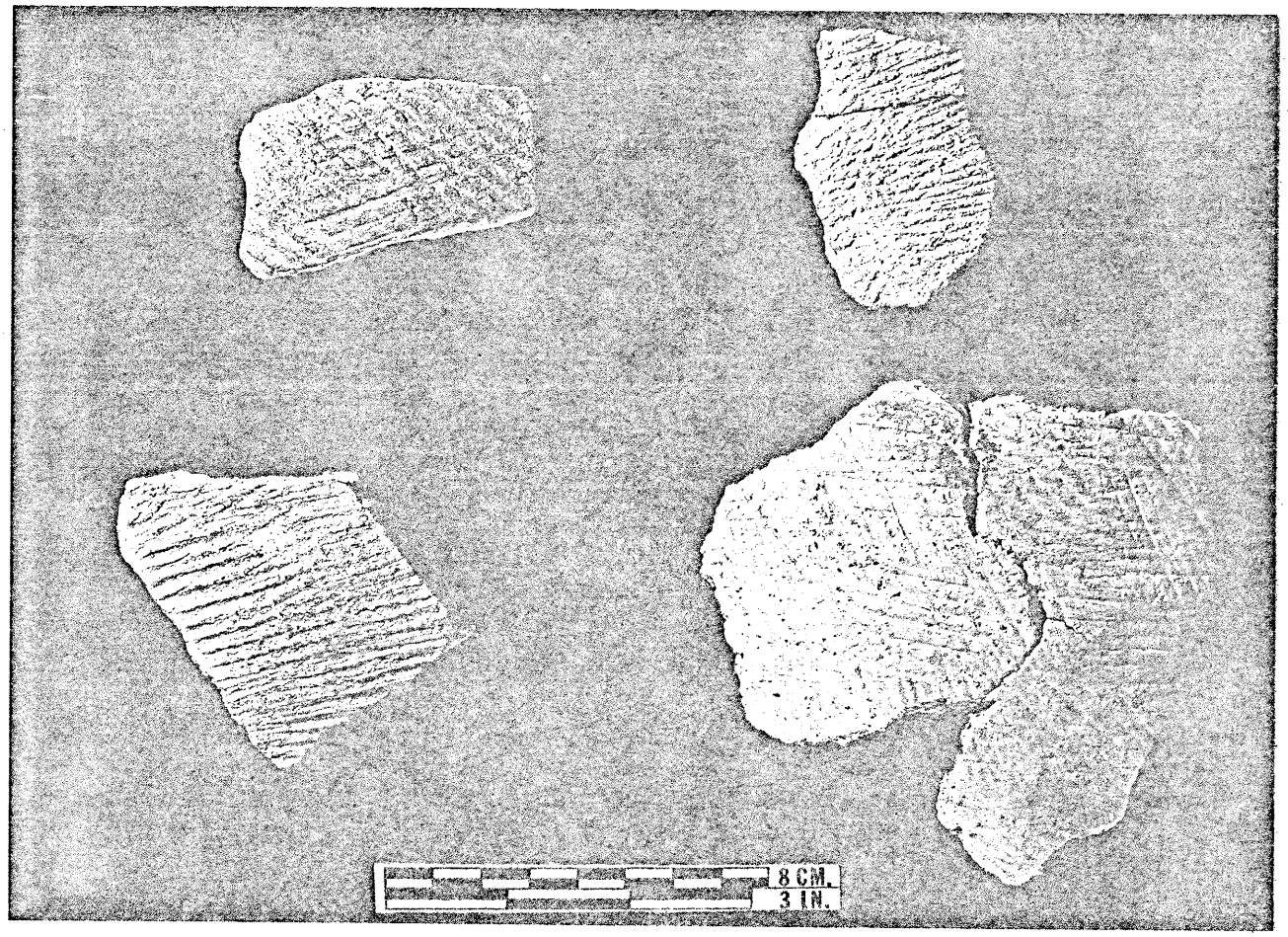


Figure 26. Flowerdew ceramic series.

Decoration: Incising with a blunt tool 1 to 2 mm. wide. The parallel incisions run obliquely to the rim or around the base of the vessel. Ceramic examples from sites across the Coastal Plain of Virginia exhibit frequent use of decoration, noticably various punctated and incised motifs.

Form:

Lip: Flattened and fabric-marked with a small lipping out of the exterior edge.

Rim: Straight-sided to slightly outcurving.

Body wall thickness: Thin appearing ceramics, 5 to 7 mm. in diameter.

Discussion:

The Townsend Series, originally defined by Blaker (1950), is described here to help clarify earlier work by Evans (1955). The Townsend Series is equilvalent to the Chickahominy Fabric Impressed Type, which Evans placed within the Chickahominy Series. In Virginia the series has been dated to A.D. 945 at Governor's Land on the James River (Outlaw 1978: 112), and to A.D. 1590 at the De Shazo Site on the Rappahannock River (MacCord 1965: 98).

This series in Delaware has been subdivided into two temporal periods based on decorative techniques (Griffith and Artusy 1977: 23). The incised design on fabric is the earliest ceramic style, ranging from A.D. 1000 to 1300. The pseudo-cord design on fabric occurs on ceramics from A.D. 1300 to European contact.

The Townsend Series is a Circum-Chesapeake Bay manifestation of the Late Woodland Period. The series changed in the historic period, due to the ceramic influences from Europeans, gradually

acquiring smoothed-over surfaces and eventually becoming the Sussex Plain Type defined by Evans. Within the series there exists variation in temper - from large amounts of shell to little shell (especially near the fall line) and variation in decorative techniques of incising, punctation, and pseudo-cord marking (decoration applied with the edge of the fabric-wrapped paddle). These differences have temporal and spatial significance which subsequent archaeological investigation should further clarify.

Flowerdew Series
(Flowerdew Simple Stamped Type)

Paste:

Temper: A mixture of angular to rounded granules, mainly quartz, ranging in size from .5 to 3 mm. Temper may compose up to 40% of the paste.

Texture: The paste is clayey, compact and hard. Many sherds have a conglomerate appearance, due to the temper.

Surface Treatment:

Exterior: The whole exterior surface was marked with parallel grooves of various widths and spacing. The impressions were rounded and were probably made with a thong-wrapped paddle rather than a carved paddle (Figure 26).

Interior: Tool scraping with subsequent smoothing is evident on the interior.

Decoration: No rim sherds (the prime area for vessel decoration) are in the sample. Evans illustrates examples with rim thickening and pinching as part of his Albemarle Series (1955: plate 6).

Form:

Body wall thickness: Ranging from 5 to 8 mm. and appearing moderately thick.

Discussion:

The Flowerdew Series, first defined at the Flowerdew Hundred Site on the James River, includes the diagnostic trait of thickened rims with notching and pinching (Charles T. Hodges, personal communication). The series is similar to the Gaston Series first defined in the Roanoke Rapids Basin, North Carolina. The Gaston Series is dated from the end of the Clements period, A.D. 1600, to the terminal date (1740) for all aboriginal occupation in that area (Coe 1964: 119). In southern Virginia similar simple stamped material with crushed quartz or granules as temper is found in small quantities in the Albemarle Series, and in the Branchville Series (Evans 1955: 43; Binford 1961). Simple stamping does not occur far to the north in Maryland and Delaware. Therefore, the innovation of simple stamping probably moved from North Carolina north into Virginia during the latter stages of the Late Woodland Period.

## Hercules Series
## (Hercules Fabric Impressed Type)

Paste:

Temper: A mixture of angular quartz and feldspar with noticable mica plates ranging from .5 to 5 mm. in diameter. The particles, broken especially for tempering material, may compose up to 40% of the paste.

Texture: The paste is clayey, compact and contorted by the temper.

Surface Treatment:

Exterior: The surface was malleated with a medium wicker-type fabric. Warp diameter ranged from 4 to 5 mm., with a weft 2 to 3 mm. in diameter. The wicker fabric was finer than the fabric used to malleate vessels of the Stony Creek and Prince George Series (Figure 27).

Interior: Very faint tool scrapings are evident on a few of the examples, with subsequent floating of surface clay. This covers the majority of the temper particles, leaving the interior irregular but smooth.

Decoration: None has been observed.

Form:

Lip: Usually rounded, with occasional notching along the top.

Rim: Straight-sided to moderately flaring rim.

Body wall thickness: Moderately thick in appearance, ranging from 5 to 8 mm.

Discussion:

The Hercules Series, first defined at the Hand Site in Southampton County, was described as fabric impressed with crushed gneiss temper (Smith 1971: 81). It was placed chronologically immediately preceding the shell tempered Townsend Series. Although the Hercules Series does not occur at the White Bank Park Site, it is widespread near the fall line, occuring not only in surface collections from Prince George County, but also as a major component at the Kiser Site at Petersburg. The temper modification and fabric impressions of Hercules Series sherds are similar to sherds described in the Yadkin Series from the Piedmont of North Carolina (Coe 1964: 30). Sherds similar to those from the Hercules Series were included by Evans in the Albemarle Series (1955: 39).

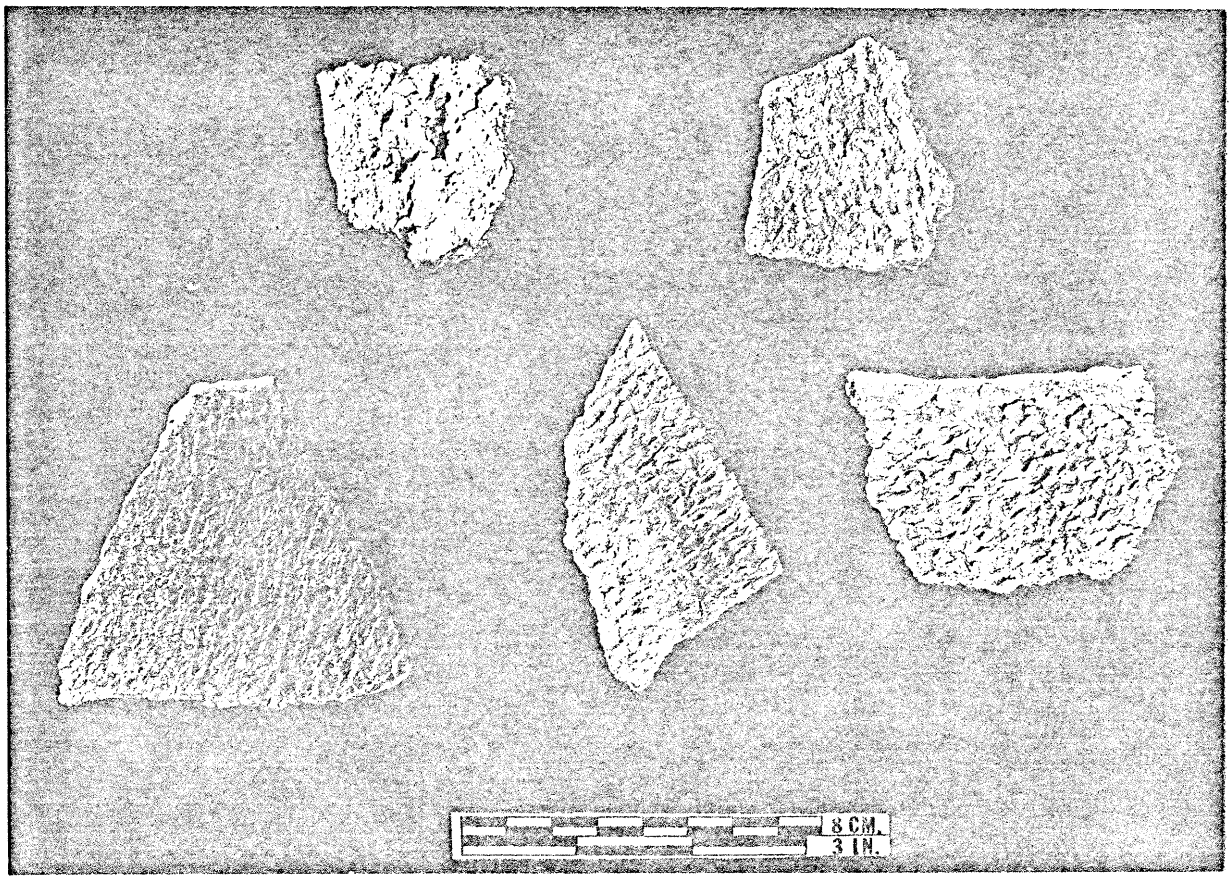


Figure 27. The Hercules ceramic series.

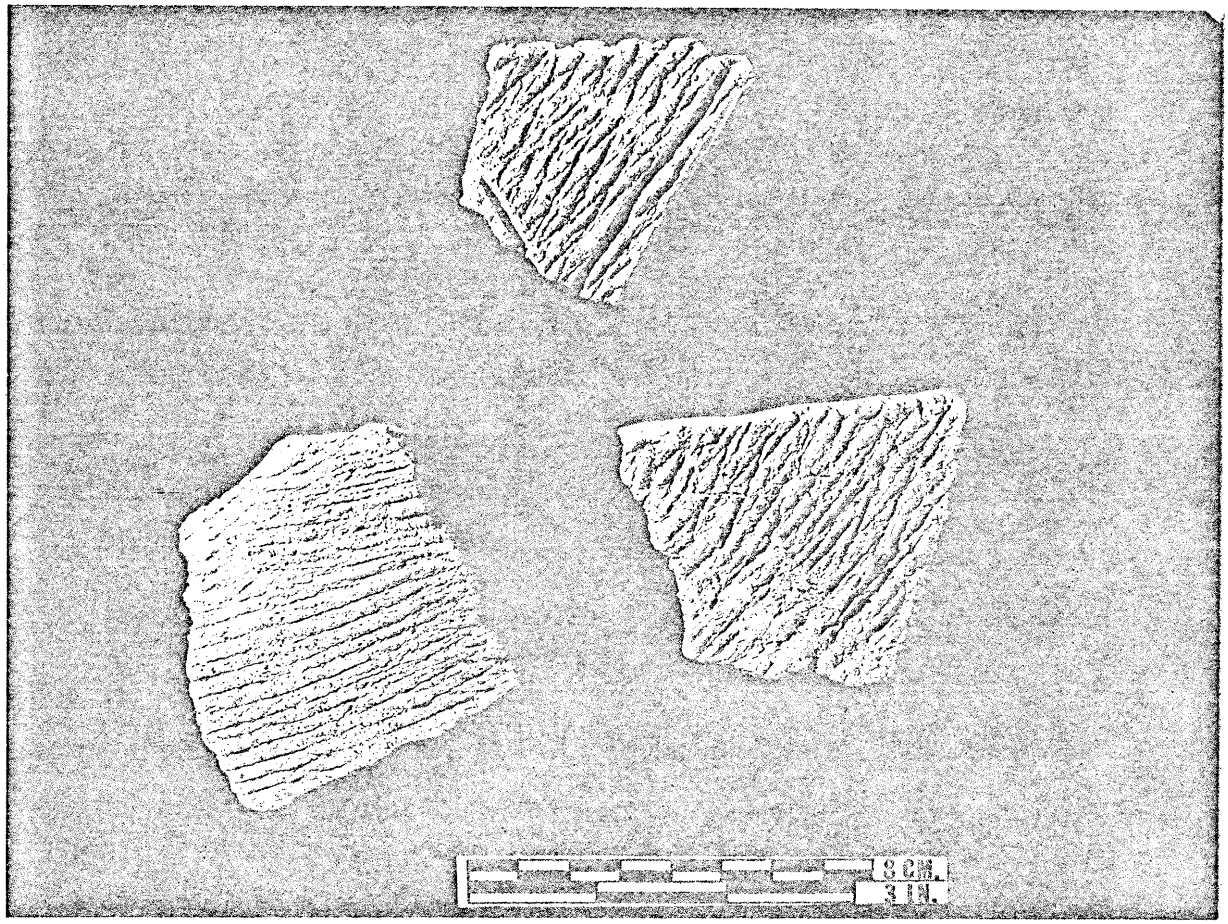


Figure 28. Coarse sand temper, cord impressed ceramic type.

The Hercules Series is typical of the late ceramic traditions of the Piedmont of Virginia and North Carolina that exhibit crushed particle temper. The smaller size of the wicker fabric impressions indicates that the series is relatively late, but its lack of rim modification and decoration indicates it is not too late. The temporal relationship of the series is uncertain, probably within the last half of the Middle Woodland Period.

### Ceramic Variant
### (Coarse Sand Temper, Cord Impressed)

An insufficient sherd sample permitted only an indefinite description of a pottery variant that could not be placed with assurance in any existing ceramic series. The diagnostic attribute of the variant is an abundance of coarse angular sand .5 to 2 mm. in diameter contained in the paste. Approximately 40% of the paste is made from this ingrediant, producing an interior surface that feels similar to coarse sandpaper. The clay is well-kneaded, very compact and hard. The body wall is of moderate thickness, ranging from 6 to 8 mm. The surface treatment is cord impressed, with some overlapping, but greater care was taken and there is no deliberate crisscrossing. The cord is fine, ranging from 1 to 1.5 mm. in diameter, and twisted tightly. One sherd exhibits incising with a blunt tool near the rim, and a crisscross notching along the top surface of the lip (Figure 28).

Similar material, dated from A.D. 1200 to 1600, has been defined as the Clements Series in the Roanoke Rapids Basin (Coe 1964:

102). Recently Phelps (1980: 75) has placed the Clements Series in the Middle Woodland Period. Rim notching, some incising, and fine twisted cord are all attributes that would occur on ceramics of this time period.

## MOOSE LODGE SITE

### Introduction

The Moose Lodge Site (44CF79), located 600 feet east of the White Bank Park Site, was brought to the attention of the VRCA on 18 February 1977. Most of the site had already been destroyed by the construction of a lodge for the Loyal Order of Moose and an associated road. The proposed extension of Moose Avenue as an access road to White Bank Park threatened to remove the remainder of the site (Figure 29). Plans were made by the VRCA to test the site and permission was obtained from the City of Colonial Heights.

### Stratigraphy

Profiles (N-S, E-W) through the site had been revealed when dirt removal for the construction of Moose Avenue and Moose Lodge exposed two bank cuts. When cleaned, the bank profiles revealed a shallow stratified site (Figure 30). Pockets of orange clay subsoil (Stratum I) found on the surface of the ground resulted from construction activity on the road and lodge. A dark brown sandy soil (Stratum II), varying from 8 to 10 inches in thickness, made up the disturbed plow zone which covers the entire site.

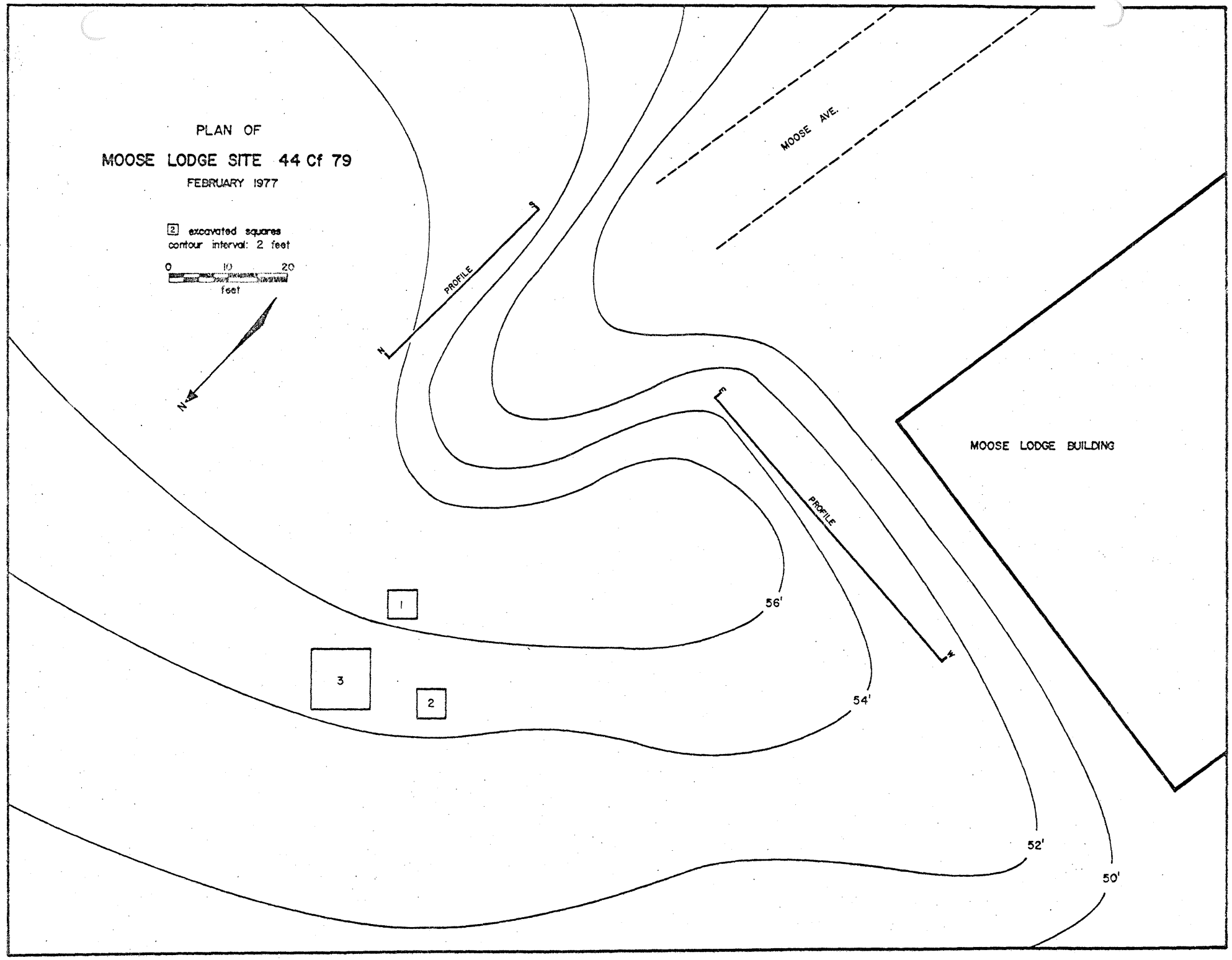


Figure 29. Moose Lodge Site map.

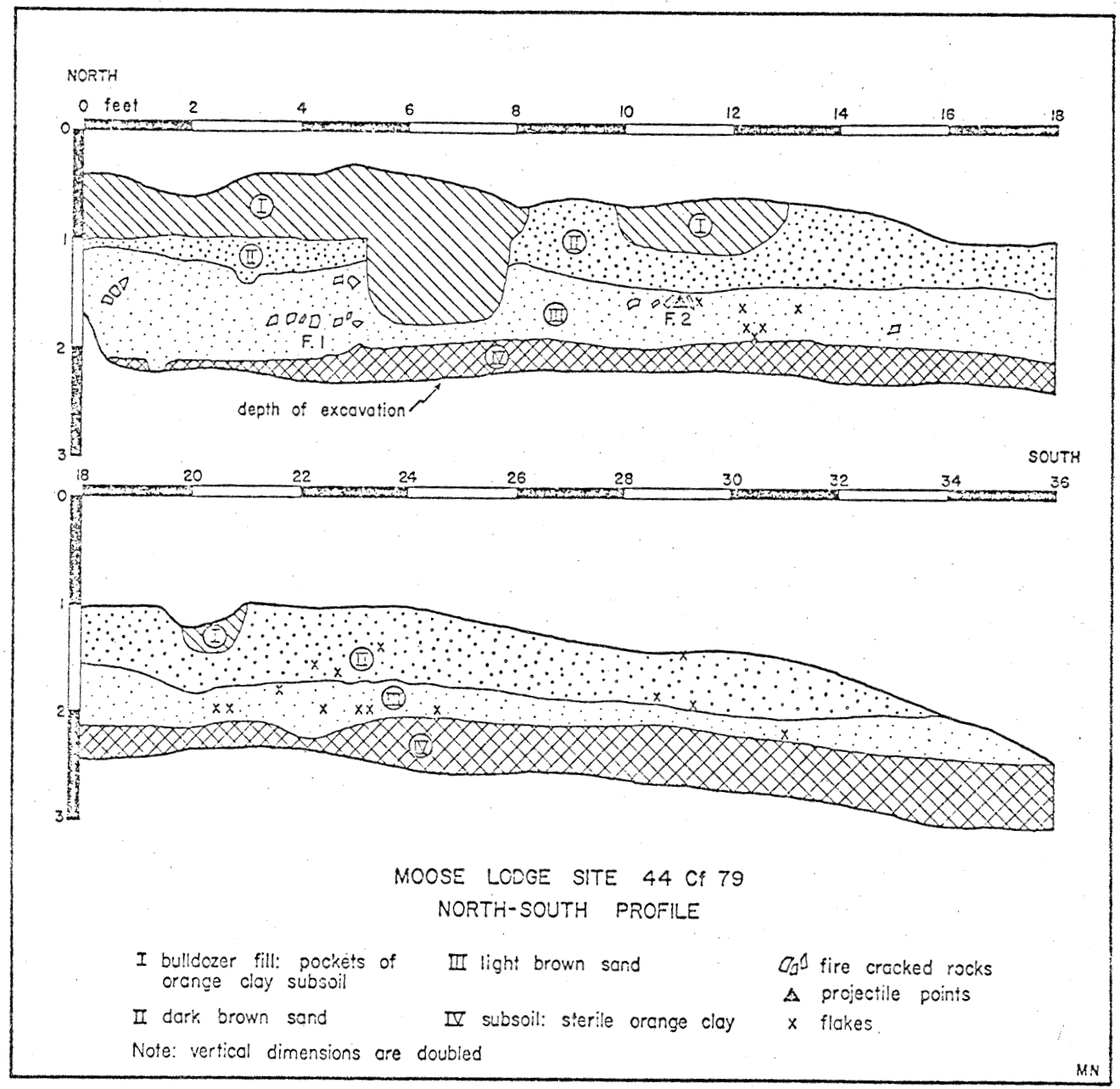


Figure 30. Moose Lodge Site, north-south bank profile.

The undisturted occupation, marked by scattered and clustered fire-cracked rock, quartzite debitage, and artifacts, occurred in a light brown sandy layer (Stratum III), varying in thickness from 3 to 9 inches. One Guilford and one Savannah River biface (3500 to 1000 B.C.) were collected from this stratum in the bank profiles. The Guilford had a slight shoulder or break in the contour of the sides, suggesting a pentagonal outline (Figure 31, bottom left). A sterile orange clay (Strata IV) mottled with light brown sand underlay the occupation layer.

Squares

Two 5-foot squares were excavated on the highest portion of the site. Soil was sifted through ¼" mesh screen. The first level excavated corresponded to plow zone. The undisturbed occupation in Stratum III was excavated in three arbitary levels, each approximately .3' thick.

The material recovered from square 2 is presented in Table 3. No diagnostic artifacts, unifacial or bifacial tools were found. The density of debitage has dropped dramatically when compared to the White Bank Park Site which overlooks the bank of Swift Creek and is located nearer the source of cobble quartzite. The few friable sand tempered net impressed sherds that were found were assigned to the Stony Creek Series (Figure 32). They are similar to the Popes Creek Series first defined in the Potomac River Valley.

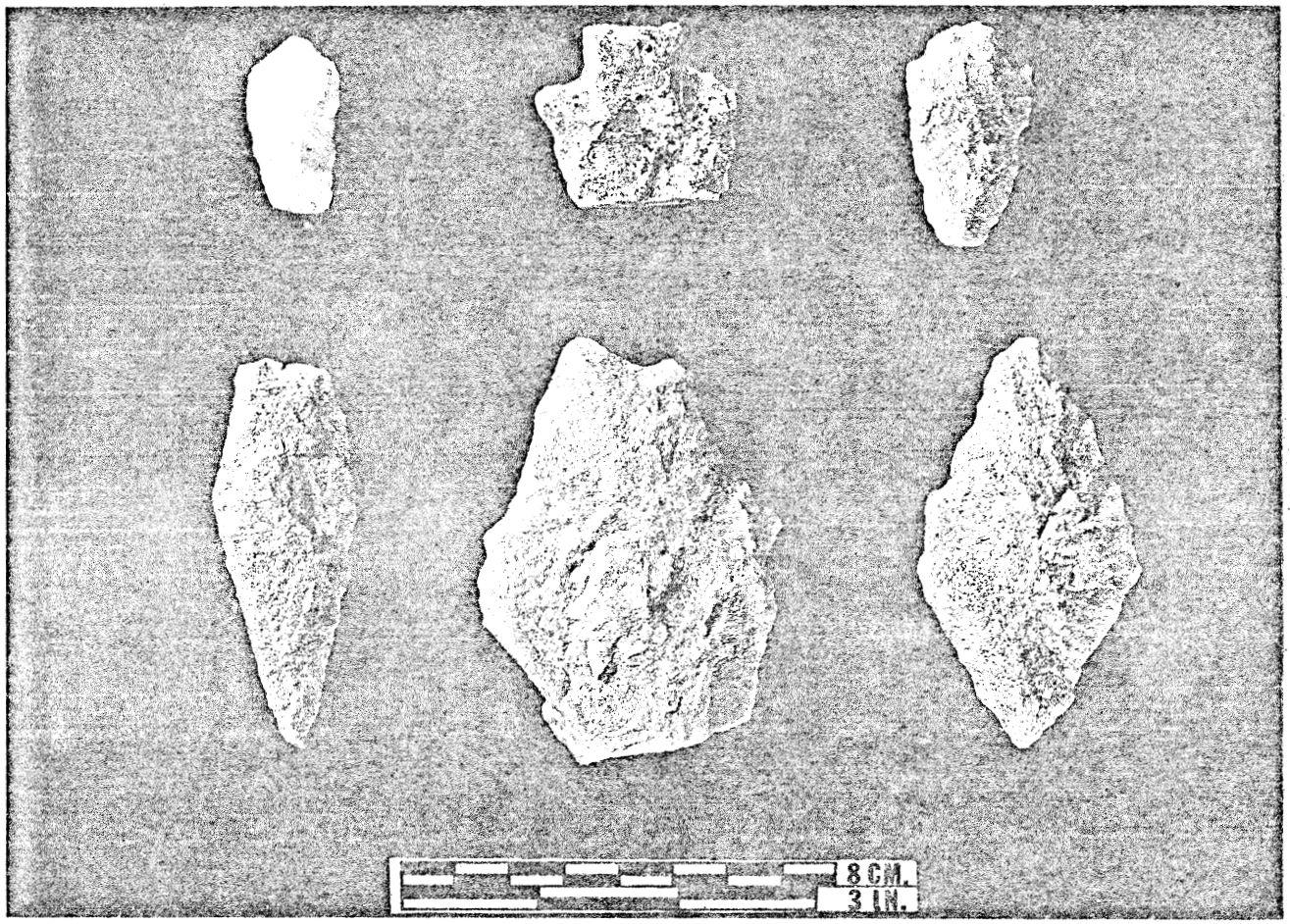


Figure 31. Projectile points from the Moose Lodge and Martin sites. Guilford, lower left. Savannah River, top center and bottom center. Rossville, top right. Piscataway, top left.

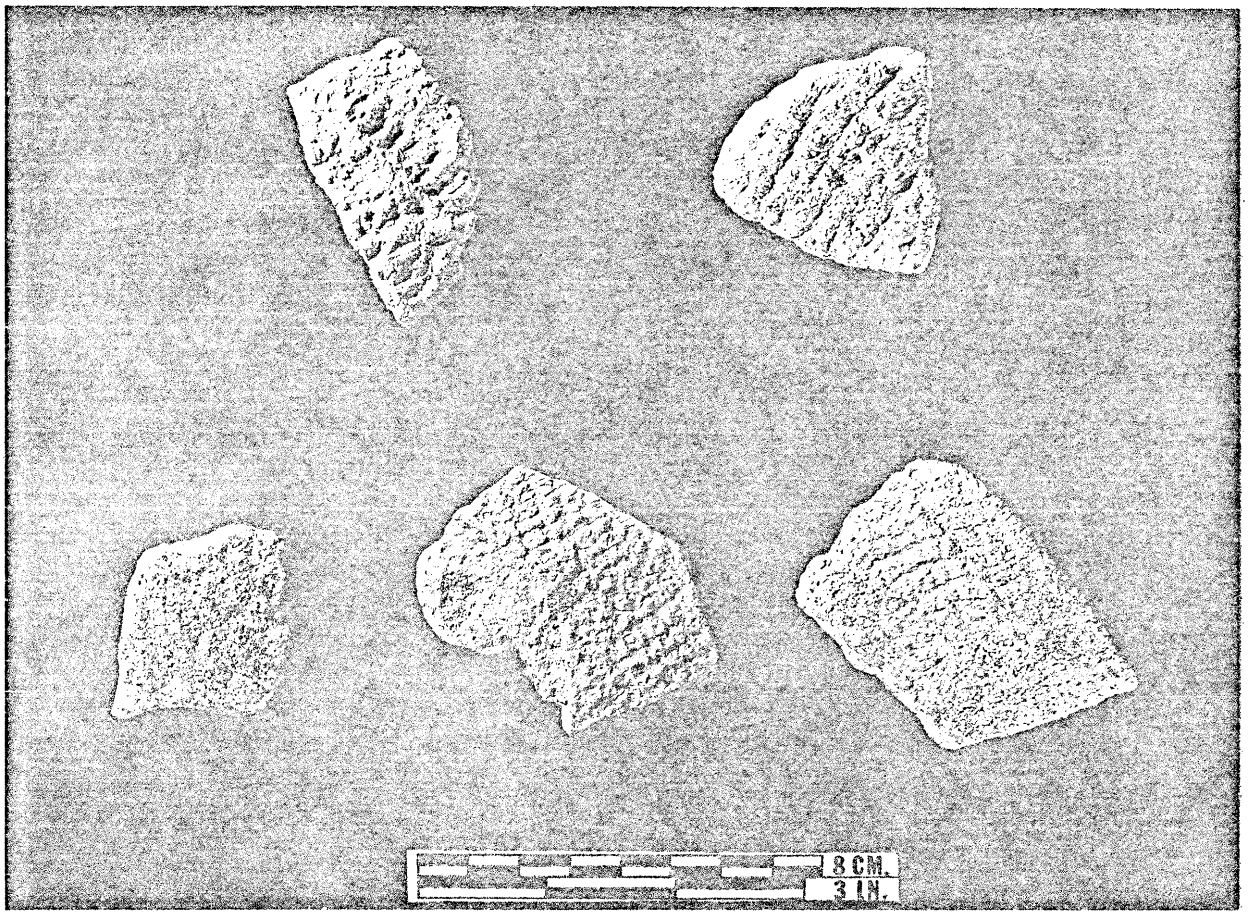


Figure 32. The Stony Creek ceramic series. Fabric impressed (top left), cord impressed (top right), and net impressed (bottom row).

44CF79

Artifacts from Square 2

| | Flakes | | Sherds |
|---|---|---|---|
| | Qrtzite. | Qtz. | |
| Level 1 | 29 | 5 | |
| 2 | 95 | 6 | 3 |
| 3 | 108 | | 2 |
| 4 | 11 | | 1 |

Table 3

Features

Eight concentrations of fire-cracked rock were noted during the project. Feature 1 and 2 were mapped in the N-S profile; Feature 3 and 4 were uncovered in square 1 and 2; and Features 5, 6, 7, and 8 were uncovered after the surface of the ground had been disturbed during undergrowth clearing with heavy machinery and designated as square 3.

Despite the great density of fire-cracked rock in square 3, only 49 flakes and two artifacts were found associated with Features 6, 7, and 8 (Figures 33 and 34). A steatite sherd was found in Feature 6 and a Savannah River biface fragment in the lowest rock cluster, Feature 8. The point was made from siliceous slate that had become highly patinated (Figure 31, top center).

Conclusion

The diagnostic bifaces and ceramics indicate that the inland knoll Moose Lodge Site was occupied sporadically from ca. 3500

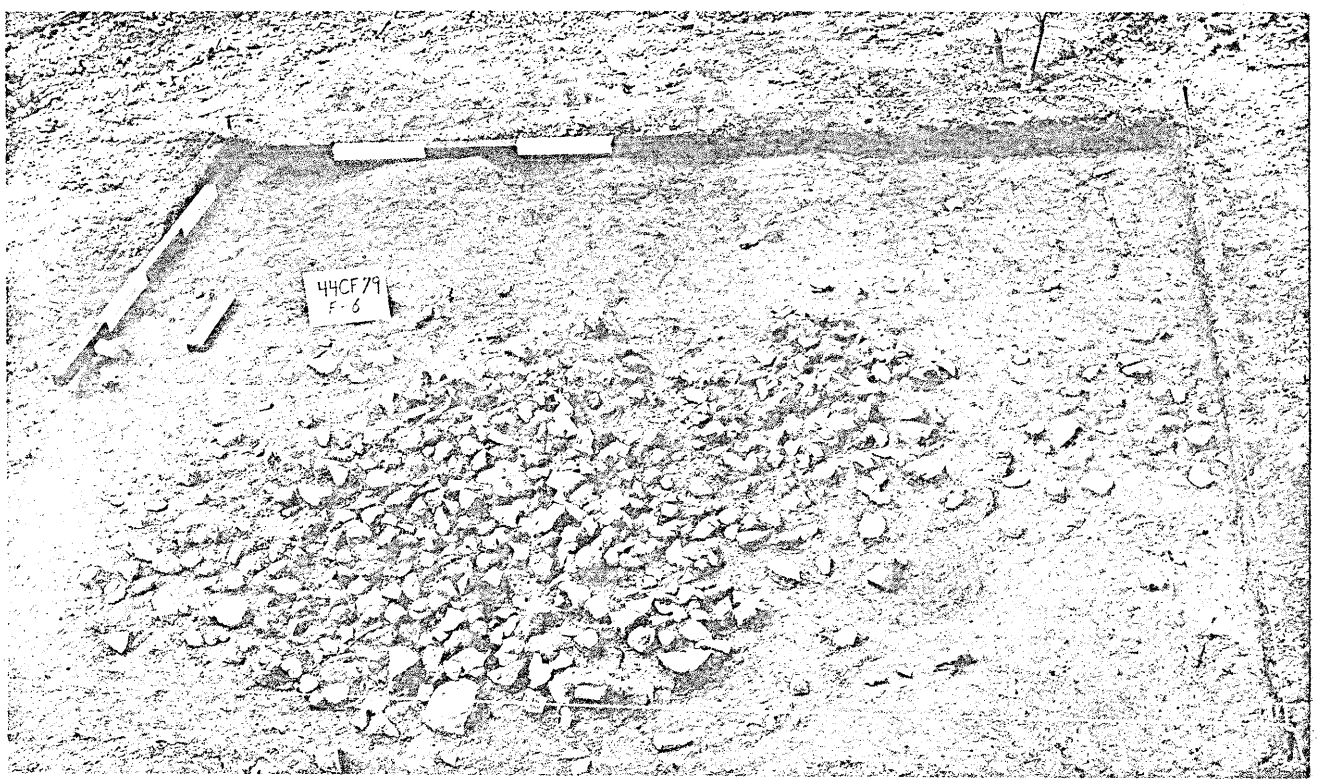


Figure 33. Dispersed fire-cracked rock hearths, Features 6, 7, and 8 at the Moose Lodge Site. Photo facing north.

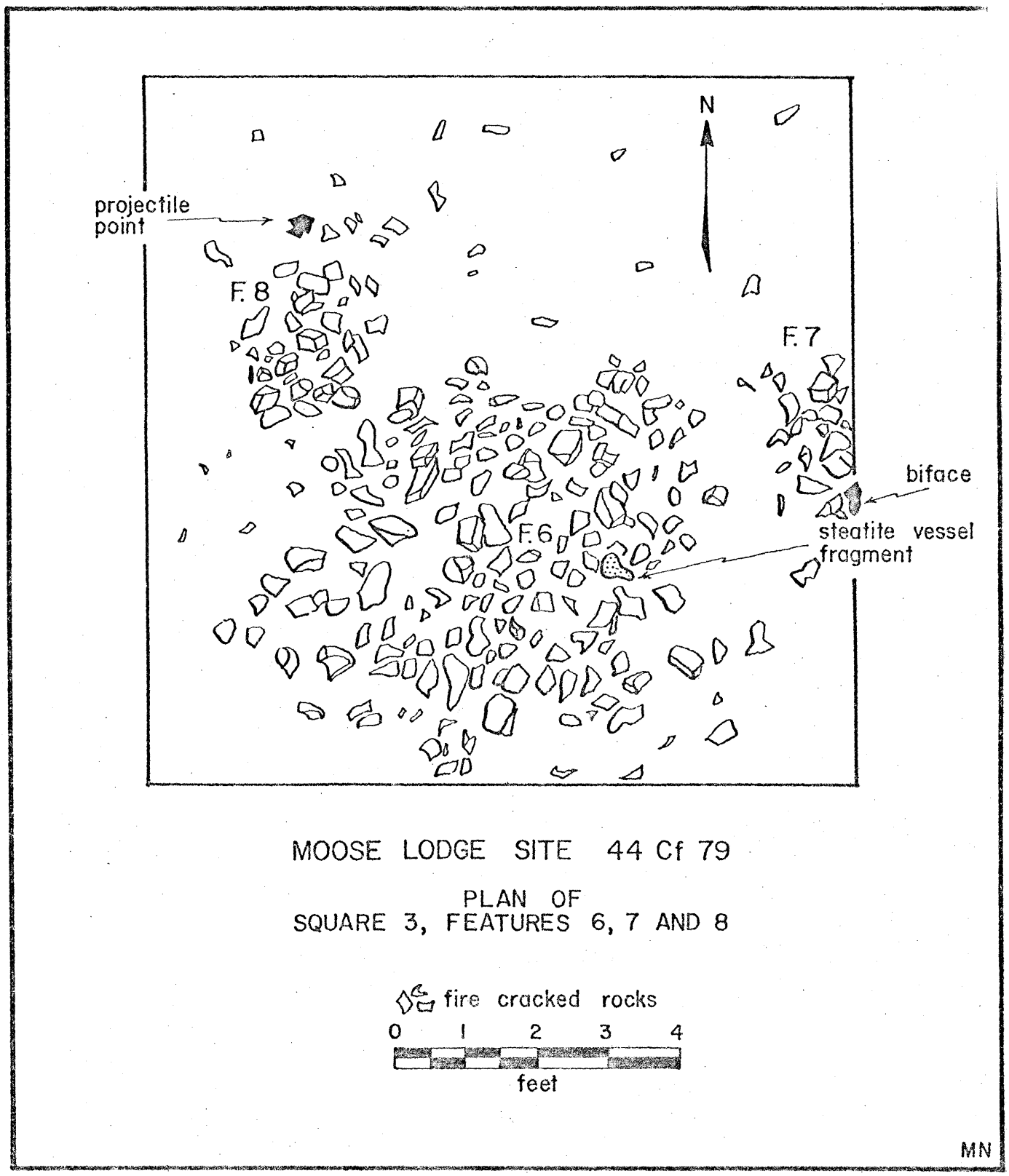


Figure 34. Feature 6, 7, and 8, rock hearths, at the Moose Lodge Site.

to 1 B.C. Due to its inland location, the debitage density was significantly less than that at the White Bank Park Site, which overlooks the bank of Swift Creek and is nearer the source of quartzite cobbles. The majority of diagnostic artifacts came from Stratum III and are placed in the Savannah River tradition (3000 to 1000 B.C.). Associated quartzite debitage and various fire-cracked rock hearths that were located also belong to the ca. 3000 to 1000 B.C. period. The single Guilford biface and the few Stony Creek Series sherds found indicate occasional occupation before and after this period.

## MARTIN SITE

### Introduction

The Martin Site (44CF64) is situated 150' south of the White Bank Park Site on a bluff 50' above a tidal swamp that at one time was a portion of Swift Creek. In close proximity are civil war earthworks which were part of nearby Fort Clifton. Fill dirt previously had been removed from a borrow pit on the bluff west of the site, but apparantly very little of the site was disturbed (Figure 35). On Saturday 5 June 1976 members of the Appomattox Chapter of the Archeological Society of Virginia assisted by employees of the Virginia State Library, established a grid and datum point and began testing the site.

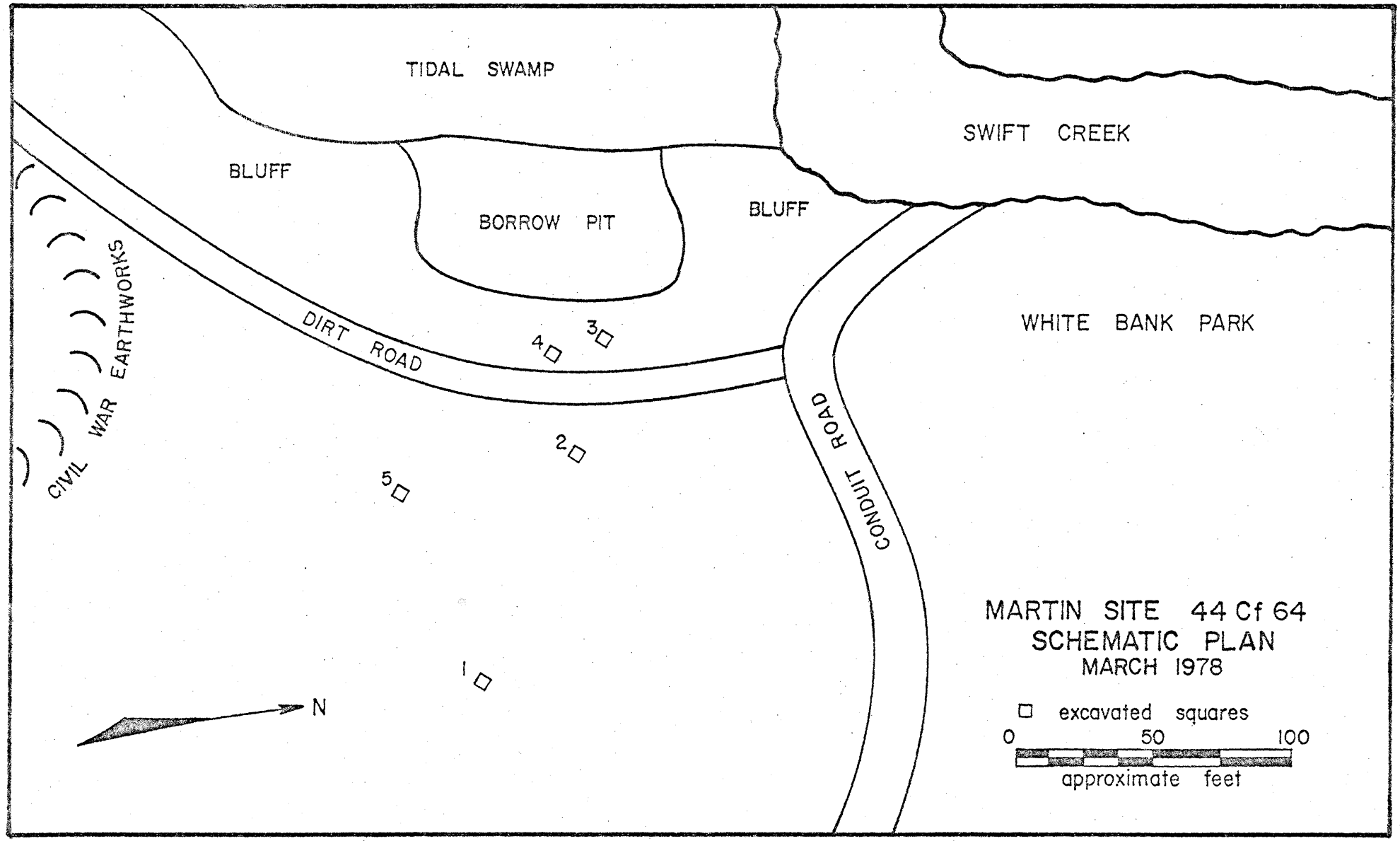


Figure 35. Martin Site map.

Stratigraphy

The cultural stratum consist simply of an unplowed dark brown sandy topsoil, ca. .4' thick, covering a white sandy clay, ca. .4' thick. Sterile yellow clay underlies the occupation.

Squares

Five 5' squares were spaced across the site, which covers an area approximately 200' by 200'. Soil was sifted through ¼" mesh screen. Only a few diagnostic artifacts were uncovered, including a Rossville point, a Piscataway point, two steatite sherds, and a few net impressed Stony Creek sherds (Figures 31 and 32). The Piscataway point type has been found associated with pottery similar to the Stony Creek Series (Stephenson 1963: 184).

The debitage material recovered from square 3 is presented in Table 4. The flakes that went through a ½" mesh screen were tabulated and listed in the 'No Cortex' column but were not analysed. 43% of the larger flakes retained a portion of the biface's edge on their striking platform, strongly suggesting that the site functioned, at least in part, as a workshop for bifacial reduction. The perferable material was quartzite, varying in color from grey to red, and of a fine-to-medium texture. Although fire-cracked rocks were prevelant at the site, hearth-like clusters were not encountered when excavating the levels in the squares.

Flakes from Square 3
44CF64

| Level | Quartzite | | Portion of Biface on Platform | | Quartz | Siliceous slate | Total |
|---|---|---|---|---|---|---|---|
| | No Cortex | Cortex | No Cortex | Cortex | | | |
| 3 | | | | | | | |
| ¼ to ½" | 94 | | | | 38 | 4 | 136 |
| ½ to 1" | 133 | 60 | 111 | 9 | 8 | 3 | 324 |
| 1 to >1" | 9 | 6 | 11 | | | | 26 |
| | | | | | | | 486 |
| 3A | | | | | | | |
| ¼ to ½" | 127 | | | | 2 | | 129 |
| ½ to 1" | 141 | 68 | 162 | 22 | | | 393 |
| 1 to >1" | 7 | 4 | 12 | 2 | | | 25 |
| | | | | | | | 547 |
| Total | 511 | 138 | 296 | 33 | 48 | 7 | 1033 |

Table 4

Conclusion

The diagnostic projectile points and ceramics indicate that the Martin Site was occupied sporadically from ca. 3000 to 1 B.C. The site was ideally located on a bluff overlooking Swift Creek near a source of quartzite cobbles. From this spot people could exploit the resources of the creek and tidal marshes, as well as the Fall Line Transition area. The high density of quartzite debitage attests to its importance as a workshop for biface reduction.

## FALL LINE TRANSITION STUDY AREA

The proposed study area straddles the fall line and encompasses adjacent portions of the Piedmont and Coastal Plains, incorporating 120 square miles of diverse physiography. Portions of the James and Appomattox Rivers, Swift Creek, and minor tributaries cross the area with a web of water systems. Rich and diverse sources of flora and fauna abound producing an area ideally suited for prehistoric man. These people left behind numerous sites, illustrating how they heavily exploited the natural resources and formed spheres of cultural interaction. Modern people also have found the area attractive as well, and have established the cities of Petersburg, Colonial Heights, and Hopewell. Unfortunately, contemporary construction destroys and will continue to destroy the prehistoric heritage of the area, making it a high target for archaeological study. Fredricksburg, Richmond, Stony Creek, and Emporia are further examples of cities located in a similar area where a major river crosses the

fall line of Virginia. This research approach is applicable as well to these areas.

## Environment

### Physiography, Geology, and Soils

Although cultural processes are understood primarily in terms of cultural factors, no culture is wholly intelligible without reference to the environmental factors which condition and stabilize it. The study area includes the Piedmont and Coastal Plain physiographic provinces, and the Fall Line Transition that have uniquely affected the environment adaptation and therefore the cultural dynamics of the indigenous people.

Gently rolling dissected surfaces and low elevations are the characteristic topographic features of the Piedmont physiographic province. These terrain features are erosional in origin, having been formed by the dissection of both the stratified sediments of the triassic basin and the granite gneiss of the Petersburg formation. The Appomattox River has a narrow flood plain and displays minor meandering. It's stream basin and that of Swift Creek is characterized by a well-developed dentrictic network of minor tributaries. Soils that form from the Petersburg formation and sediments of the trassic basin are moderately drained and very strong to extremely acidic, and low in organic matter and natural fertility (Winters 1957: 559; Mathews 1970).

The Fall Line Transition is between the Piedmont and Coastal Plain physiographic provinces. Streams crossing the fall line from

the Piedmont increase in gradient, with a consequent increase in erosive action that has given the Fall Line Transition a topography characterized by steep bluffs and V-shaped valleys. The larger rivers have eroded through the thin cover of Coastal Plain sediments, causing stream beds to lie on the resistent crystalline basement rock, a phenomenon that confines the river to a relatively shallow bed interspersed with rock outcropping and small islands. Soils here are formed by chemical and biotic action on the unconsolidated sediments of the middle and upper Coastal Plain terrace. Moderately well drained, the soils are mediumly acidic and low in organic matter content.

Once the Appomattox River and Swift Creek cross the fall line and enter the Coastal Plain, their gradients decrease, reducing their carrying capacities. The minor tributaries, having steeper gradients, are the active erosion agents in the Coastal Plain, while the larger rivers are characterized by broad alluvial flood plains, numerous meandering loops and extensive swamps. The upland soils, developed from the loam and sandy unconsolidated sediments of the middle and upper Coastal Plain terrace, are deeper and better drained than Piedmont soils. They are less strongly acidic, but still low in organic matter content and fertility (Hanna 1957: 620). The alluvial land is deep, coarse-textured soils developed from stream deposits and subject to frequent flooding. The soils are primarily sandy throughout their profiles and have seasonal water tables within 3 to 18 inches of the surface, which results in poor drainage. The areas best suited for prehistoric agriculture were

the adequately-drained alluvial land (refer to Turner 1976 for a discussion of soil fertility in Coastal Plain Virginia). Adjacent to the alluvial land are broad wet marshes which contain soils developed from river deposits and which are subject to daily tidal action. The strongly acidic soil is high in organic matter content.

In summation the geologic transition from the Piedmont to the Coastal Plain is represented in the physiography and soils in those areas. The relief ranges from rolling topography in the Piedmont to steeper bluffs and V-shaped valleys in the Fall Line Transition, to flat to gently rolling hills in the Coastal Plain province. The soils of all three areas are low in organic matter and natural fertility, although the soils of the Fall Line Transition and upland Coastal Plain are deeper, slightly less acidic and better drained than those in the Piedmont. The underlying subsoils of the Piedmont are more dense and clayey, with fragipan occurring more frequently. Prehistoric habitation would most likely be encountered in the better drained areas in the Fall Line Transition and Coastal Plain province, especially the adequately drained alluvial soils bordering the major rivers and streams.

## Flora

The study area lies within the temperate deciduous forest biome, of the eastern United States. The biome is subdivided into several climax forest types, with the oak-hickory forest being the dominant type in the area. This forest type, which supports a wide

variety of canopy trees, substantial understory (shorter trees and bushes) and diverse ground cover, is modified by local conditions of soil, moisture and light (Shelford 1963: 56).

There are five naturally occurring vegetational types in the study area. They include: 1) flood plains, 2) flooded bottomland, 3) coastal plain wooded slopes, 4) piedmont wooded slopes, and 5) disturbed areas (Bremner 1975: VI-18).

The flood plains are wide, and defined by low, gentle slopes. Vegetational communities differ in that the frequency of oak and yellow poplar is greatest, with black willow, red cedar and mountain laurel dominant as understory species.

The flooded bottomlands are similar to the flooded plains except that the species are more thick and diverse. Trees that have become dominant, mature trees include black willow, river birch, sweet and black gum, tupelo, red maple, American sycamore and bald cypress.

The dominant tree species on the coastal plain wooded slopes included oak (white, pin, black, willow) and hickory (pignut, bitternut). American beech and yellow popular also exert influence.

The piedmont wooded slope is similar to the coastal wooded slope, without the dominance of the oaks. Tree species encountered include scrub pine, loblolly pine, red cedar, black willow, cottonwood, bitternut hickory, white oak, pin oak, red mulberry, yellow poplar, sweet gum, hawthornes, black locust, staghorn sumac, and red maple.

The disturbance of climax forest either by natural causes, i.e. fires, or by man's activities reduces vegetational diversity in the

area. However, when a section of land is opened additional sunlight on the forest floor stimulates understory development resulting in various grasses, fruits and nut-bearing vegetation suitable for human consumption, which in turn encourages desirable lower story wildlife such as bobwhite, quail, grey and fox squirrel, rabbit and deer.

In summation the five natural occurring vegetational types ranked according to decreasing vegetational species diversity are: flood plains, flooded bottomland, coastal plain wooded slopes, piedmont wooded slopes, and disturbed areas. In general the Coastal Plain and Fall Line Transition offer greater vegetational diversity and wildlife diversity than the Piedmont. Although less overall vegetational diversity occurs in disturbed areas, understory vegetation is more abundant and diverse, resulting in the increase of desirable lower story animal species. Prehistoric activities that disturbed the forest habitat, especially slash-and-burn agriculture and the use of fire in hunting, inadvertently promoted desirable understory plant and wildlife species.

The availability of flora and fauna in the Coastal Plain province is presented by Binford (1964) and discussed by Turner (1976). Binford suggests that the best area for exploitation occurred in the vicinity of the freshwater-saltwater transitional zone where greater density of deer, migratory fowl and edible wild plants existed, and the diet could be supplemented with marine fish, shell fish and anadromous fish. This transitional zone occurs along the James River approximately 40 miles east of the study area.

## Ecosystems

An ecosystem is the continual and dynamic interaction between plant habitats, animal communities, and man. The flow of energy through plants, herbivores, carnivores, and up to man makes a food chain. Each link in the chain of consumers must be larger in biomass than the link that follows (Shelford 1963: 2). Thus, more people potentially could live in an ecosystem where there exists a larger biomass of desirable foodstuff.

The Coastal Plain province, when compared to the Piedmont, offers vastly more vegetational and wildlife diversity as well as a larger biomass desirable to man. Thus, it is not surprising that Kroeber calculated a substantial population density of 38 individuals per 100 square kilometers for coastal Virginia based on demographic data from the coastal Algonquin at the time of European contact (Kroeber 1939: 145). This contrasts with 9 individuals per 100 square kilometers for the piedmont Siouan, located along the upper waters of the James River. Recently, Turner (1976) and Feest(1973) have calculated Coastal Plain population densities as high as 79 and 80 people per 100 square kilometers.

The Fall Line Transition, due both to its own biota diversity and to its proximal location between the two major physiographic provinces, offers unique opportunity for man while settled in one area to exploit a wide range of available ecosystems. Thus optimal environmental conditions, second only to the freshwater-saltwater transitional zone in the Coastal Plain, exist in and near the Fall Line Transition.

## Theories of Cultural Dynamics

Four theories of cultural dynamics pertain to the unique environmental and cultural conditions of the study area. They are economic systems of exploitation, cultural and natural areas, interaction spheres, and buffer zones. By applying these theories to the cultural history of past groups we begin to understand the dynamics of man's everchanging culture.

### Economic Systems of Exploitation

Beginning with man's first arrival in eastern North America in the Paleoindian Period there gradually developed increased efficiency and success in exploiting the resources of the forest. The exploitive systems originally were based on man's accumulated knowledge of hunting and gathering, then marine resources, and eventually agriculture (Caldwell 1958: 6). The possible over-exploitation of deer within the Coastal Plain during the Late Archaic Period and the subsequent switch to increased utilization of marine and riverine resources is discussed by Turner (1978). As man's knowledge evolved, perhaps in response to increased population and overexploitation of some resources, his methods of exploiting the natural resources became more specialized.

The combination of exploitive systems were further complicated by seasonal economic cycles (Caldwell 1958: 6). Probably no exploitive system was supplanted by another and dropped entierly from use by a group of people. But rather they were prioritized and recombined at different seasons of the year to maximize total exploitive potential.

## Cultural and Natural Areas

All societies must adapt to the environment which conditions and stablizes the culture. Without external influence, cultures are inclined to change slowly once they have adjusted to a particular environment. They are also predisposed to spread over the whole of the natural area in which their structure was formed before expanding to a different environment (Kroeber 1939).

In Virginia the Coastal Plain and Piedmont physiographic provinces conditioned and stabilized two distinct cultural areas. By 1607 the two cultures existing there were the coastal Algonquin and the piedmont Siouan, which Kroeber presented as one of the clearest coincidence of physiographic and native culture area boundaries to be found in North America (Kroeber 1939: 183).

## Interaction Spheres

The Fall Line Transition, because of its diverse ecosystem and its centralized location, attracted the cultures from both the Coastal Plain and the Piedmont provinces. It is here that interaction between these two cultural areas could and did occur, accelerating the rate of cultural innovation in eastern Virginia.

The nature of the interaction spheres depended upon the kinds of culture systems interacting. Here in the Virginia Fall Line Transition a wide variety of cultural interactions were possible through trade, other economic systems, social and religious ties, and warfare.

## Buffer Zone

Based on ecological and archaeological evidence, the Fall Line Transition has been presented not only as an attractive area for habitation but as an area intensively occupied revealing interaction between the coastal Algonquin and piedmont Siouan. However, traditionally the Fall Line Transition has been interpreted, in part, as a buffer zone, 25 to 30 kilometer wide, believed to be largely unoccupied due to the danger of warfare between the coastal Algonquin and piedmont Siouan (Bushnell 1937). Recently, this hypothesis has been expanded to suggest that warfare in a buffer zone was influential in preventing overexploitation of the local deer herds (Miller 1975, Turner 1978, Holland 1979). Since deer were a critical subsistance resource for the people in the Piedmont and Coastal Plain provinces, overexploitation could have been disastrous. Warfare tended to regulate and preserve in and near the buffer zone a supply of deer that could be utilized by transient hunting bands who often risked armed conflict.

In the case of the study area, where the confluence of Swift Creek, the Appomattox and James Rivers create an extraordinarily desirable environment, the archaeological and historical data suggest that occupation was intensive through time and never interrupted for long. Throughout the Archaic Period the Fall Line Transition, due to the availability of lithic material, was used as a quartzite cobble workshop for tool production, resulting in a density of lithic tools and debitage unsurpassed by Archaic sites in the Piedmont and Coastal Plain. Beginning with the Middle

Woodland Period and continuing to the time of European contact the prevalent ceramics (Mockley and Townsend Series) on sites directly at or below the fall line, found notably at the Comstock (44CF20) and Kiser (44CF14) sites, indicate strong cultural interaction with the Cheaspeake Bay region. These ceramics are recorded rarely west of the fall line. Evidently cultural influences from the coast moved up the James River as far as the fall line at Petersburg and probably Richmond. Late Woodland cultural influences from the Piedmont of Virginia and North Carolina in the form of the Hercules and Flowerdew Series extend below the fall line at Petersburg.

The best historical information concerning the distribution of Indian settlement comes from Smith's A Map of Virginia published in 1612. Villages are show evenly spaced on the James and Appomattox Rivers as far inland as the fall line. Smith did not venture beyond the falls at Richmond or Petersburg, and therefore was not directly acquainted with the distribution of Siouan villages in the Piedmont. He located 'Kings houses' at Arrohattoc on the James River approximately 12 miles below the falls (Swanton 1952: 67), at Powhatan on the north bank of the James River at Richmond, and at Appomattoc near the confluence of the Appomattox River with the James River. Three 'Ordinary houses' are situated on the north bank of the Appomattox River at Petersburg and four on the James River between the 'Kings houses' of Powhatan and Arrohattoc. John Smith described the close affinity of the Appomattox Indians who lived

near the fall line at Petersburg with the Powhatan Chiefdom. The Appomattox was one of six tribes "... which have been his ancestors, and came unto him by inheritance" (Arber 1910: 79). Smith referred to the "... Apomatuck ... [as] their great Kings [Powhaton] chiefe alliance, and inhabitants..." (Arber 1910: 348).

Therefore, in the case of the Petersburg Fall Line study area the site density, the ceramic series, and the historical map indicates that both Coastal Plain and Piedmont related Middle and Late Woodland villages were located directly at or below the fall line. Thus, the eastern portion of the area was not avoided and used as a warfare buffer zone but rather heavily settled and exploited by people from two cultural traditions who formed systems of cultural interaction.

## CONCLUSION

The White Bank Park Site functioned primarily as a lithic workshop specializing in the process of biface reduction from primary flakes. The major occupation occurred during the Savannah River period, 3000 to 1000 B.C. Its bluff location overlooking Swift Creek was ideally suited for exploiting the local fall line source of quartzite cobbles, resulting in a density of lithic tools and debitage unsurpassed by Archaic sites in the Piedmont and Coastal Plain. From this location prehistoric people could utilize the marine resources of the creeks and tidal marshes, as well as the flora and fauna of the Fall Line Transition.

The Moose Lodge and Martin sites also participated in the widespread fall line phenomenon of quartzite cobble workshops for tool production. The Martin Site, located on the bluff adjacent to White Bank Park, has a high density of quartzite debitage, attesting to its importance as a workshop for biface reduction. The Moose Lodge Site, because of it inland location has a significantly lower density of debitage, but still participated in the activity sphere of biface reduction.

Ceramics from the White Bank Park Site and other Fall Line Transition sites are widely diverse, showing local development and influences emenating from both the Cheasapeake Bay and the Piedmont of Virginia and North Carolina. The Prince George Series, ca. 500 B.C. to A.D. 500, illustrates local development that remained in the Fall Line Transition and Coastal Plain province of east-central Virginia. The Mockley and Townsend shell tempered series, which begin by at least A.D. 450, exemplify the rise in influence of the Circum-Chesapeake Bay on the Fall Line Transition. Hercules and Flowerdew Series, containing crushed or unmodified particles as temper, illustrate the continual Piedmont influences on the Fall Line Transition and adjacent Coastal Plain province. These ceramics suggest that the piedmont Siouan and coastal Algonquin dichotomy described by Captain John Smith may have existed by the beginning of the Middle Woodland Period and at least by A.D. 500. Apparently the two cultural groups adapted early to their own physiographic provinces and established spheres of interaction in the Fall Line Transition.

The argument for assigning the Petersburg Fall Line study area high research priority rests on inevitable destruction by industrial development of the extensive prehistoric record, and on the area's stratigic prehistoric location. Before undertaking study of cultural adaptation to local environments, of cultural influences from the Coastal Plain and the Piedmont, and of the nature of the interaction spheres, several research needs must be met:

1) A distribution and density study of lithic types and ceramic series from surface collections across the study area, especially from the Piedmont where data is lacking.

2) Test excavation at a few well-choosen sites from different physiographic provinces and time periods to recover contextually dated artifacts, and flora and fauna remains.

3) Environmental studies of past vegetation and wildlife communities. A series of plant pollen could probably be preserved for analysis in the tidal marshes below the fall line.

Once more data is recovered the following hypotheses may be tested further:

1) That Coastal Plain resources were more abundant than the Piedmont resources, resulting in more Archaic and Woodland sites located directly below the fall line than above it.

2) That Coastal Plain resources were more appealing to the Piedmont people than the reverse. Therefore, spheres of interaction occurred more frequently below the fall line than above, which resulted in more Piedmont cultural traits (notably in the ceramics) being found on the Coastal Plain than Coastal Plain cultural traits being located on the Piedmont (Daniel Mouer: personal communication).

It cannot be stated too strongly that a cultural history of the Fall Line Transition study area based on reliable stratigraphy is needed first before addressing hypothesis concerning cultural dynamics. Furthermore, the research design, goals, and specific questions asked should be explicitly stated before excavation begins in order to direct the initial research approach.

# APPENDIX A

Artifact listing, excluding flakes, for the White Bank Park Site 44CF67

| Unit | No. | Description | Stratum |
|---|---|---|---|
| 1 | 2 | biface tips | I |
| 1A | 2 | Savannah River bifaces | II |
| | 2 | biface frags. Stage 2 | |
| 1C | 2 | Savannah River biface frags. | III |
| 1E | 1 | hammerstone | III |
| | 1 | biface frag. Stage 2 | |
| 2 | 1 | triangular point frag. | I |
| 2A | 1 | biface frag. Stage 3 | II |
| | 1 | large retouched tool, 55° angle | |
| 2B | 2 | Savannah River biface frags. | III |
| 2C | 2 | biface tips | III |
| | 2 | biface frags. Stage 3 | |
| | 1 | biface frag. Stage 4 | |
| 2D | 1 | biface frag. Stage 4 | IV |
| | 2 | hammerstones | |
| | 1 | biface frag. Stage 2 | |
| 2E | 1 | biface scraper | IV |
| | 1 | biface frag. Stage 2 | |
| | 1 | large biface tool, 60-75° angle | |
| | 1 | hammerstone | |
| 3 | 1 | triangular point frag. | I |
| 3A | 3 | triangular point frags. | II |
| | 1 | biface frag. Stage 2 | |
| | 2 | biface tips Stage 4 | |
| 3B | 2 | Savannah River bifaces | III |
| | 1 | large bifacial tool | |
| | 2 | biface tips Stage 3 | |
| | 1 | Guilford biface | |
| 3D | 1 | biface tip | III |
| | 3 | biface frags. Stage 3 | |
| | 3 | biface frags. Stage 2 | |
| 3E | 2 | biface frags. Stage 2 | IV |
| | 2 | retouched flakes | |
| 4 | 1 | siliceous slate Palmer biface | I |
| | 1 | biface frag. Stage 2 | |
| 4A | 2 | biface frags. Stage 2 | III |
| | 2 | biface frags. Stage 3 | |
| 4B | 2 | Savannah River bifaces | III |
| | 1 | Guilford biface | |

| | | | |
|---|---|---|---|
| 4C | 2 | large stemless biface knives | III |
| | 1 | Guilford-like biface | |
| | 1 | biface tip | |
| | 1 | biface frag. Stage 2 | |
| | 1 | biface frag. Stage 3 | |
| | 1 | biface frag. Stage 4 | |
| | 1 | large biface tool, 65-85° angle | |
| 5D | 1 | argilite point | II |
| | 1 | biface tip | |
| | 1 | large biface tool | |
| 5E | 1 | biface tip | III |
| | 1 | biface frag. Stage 3 | |
| | 1 | biface frag. Stage 2 | |
| 5F | 1 | biface frag. Stage 3 | III |
| | 1 | hammerstone | |
| 5H | 1 | biface scraper | IV |
| | 1 | large retouched flake | |
| 6A | 1 | large biface tool, 70-80° angle | II |
| 6B | 1 | biface tip | II |
| 6C | 1 | triangular biface | II |
| | 1 | retouched flake | |
| 6D | 1 | Savannah River biface | III |
| | 1 | biface tip | |
| | 1 | biface frag. Stage 2 | |
| | 3 | retouched flakes | |
| | 1 | large biface tool, 60-80° angle | |
| | 1 | Guilford biface | |
| 6E | 6 | biface tips | III |
| | 1 | biface frag. Stage 3 | |
| | 4 | biface frags. Stage 2 | |
| | 4 | large unifacial tools, angles of 55°, 60°, 70°, and 70° | |
| | 2 | retouched flakes | |
| 6F | 3 | biface frags. Stage 3 | IV |
| | 1 | large biface tool, 65° angle | |
| | 1 | small unifacial tool, 50° angle | |
| | 4 | hammerstones | |
| 7B | 1 | biface frag. Stage 4 | II |
| 7D | 1 | Savannah River biface | III |
| | 1 | biface frag. Stage 3 | |
| | 1 | biface frag. Stage 2 | |
| | 1 | retouched flake | |
| 7E | 1 | large unifacial tool, 80° angle | IV |
| 7F | 1 | large unifacial tool, 60° angle | IV |

# APPENDIX B

## Provenience of Illustrated Artifacts

Figure 12 Guilford projectile points from White Bank Park Site

Left-Right
Square 4, Unit B (Stratum III), pentagonal in shape
Square 4, Unit C (Stratum III), quartz and Guilford-like
Square 6, Unit E (Stratum III)
Square 3, Unit D (Stratum III)

Figure 13 Savannah River projectile points from White Bank Park Site

Left-Right

Top Row
Square 1, Unit A (Stratum III)
Surface of site
Square 4, Unit B (Stratum III)

Middle Row
Square 4, Unit B (Stratum III)
Square 3, Unit B (Stratum III), possible knife
Square 3, Unit B (Stratum III), possible knife

Bottom Row
Square 2, Unit B (Stratum III)
Square 1, Unit A (Stratum III)

Figure 14 Triangular points from White Bank Park Site

Left-Right

Top Row
Square 3, Unit A (Stratum II)
Square 2, Topsoil (Stratum I)
Square 3, Topsoil (Stratum I)

Bottom Row
Square 3, Unit A (Stratum II)
Square 3, Unit A (Stratum II), possibly unfinished point
Square 6, Unit C (Stratum II)

Figure 15

Top Row
Bifacial end scrapers from White Bank Park Site
Square 5, Unit H (Stratum IV)
Square 2, Unit E (Stratum IV), example show edge rounding

Bottom Row
Large stemless bifacial knives from White Bank Park Site
Square 4, Unit C (Stratum III)

Figure 17 Artifacts from White Bank Park Site

Left-Right

Top Row
Square 7, Unit B (Stratum II). Bifacial frag. of reduction Stage 4.
Surface of site. Bifacial frag. of reduction Stage 3 made from a large primary flake.

Bottom Row
Square 3, Unit D (Stratum III). Biface of reduction Stage 3 made from a large, thick primary flake.
Square 2, Unit C (Stratum III). Biface of reduction Stage 3.

Figure 19

Top ends of both bifacial choppers are flatten to form backed tools. Cortex remaining on dorsal surface. Both examples are from the surface of the White Bank Park Site.

Figure 20

All examples are primary flakes with cortex remaining on their striking platforms. All examples except one from the White Bank Park Site.

Left-Right

Top Row
Square 6, Unit E (Stratum III), utilization causing edge rounding.
Square 7, Unit D (Stratum III), utilization causing fine edge chipping.

Bottom Row
Square 5, Unit H (Stratum IV), retouching causing a rough seriated edge.
Square 6, Unit D (Stratum III), utilization causing edge rounding.
N-S profile at the Moose Lodge Site. Retouching causing a uniform edge.

Figure 21 Artifacts from the White Bank Park Site

Left
Right side of both unifacial tools are flatten to form backed tools. Cortex remaining on ventral surfaces.
Square 7, Unit E (Statum IV)
Surface of site with green paint on artifact

Right
Both hammerstones are from Square 6, Unit F (Stratum IV)

Figure 22 Artifacts from White Bank Park Site

Left-Right

Top Row
Square 6, Unit B (Stratum II). Wicker fabric impressed.
Square 5, Unit D (Stratum II). Loose knotted net impressed.

Bottom Row
Square 5, Unit C (Stratum II). Tight knotted net impressed.
Square 2, Unit A (Stratum II). Cord impressed.

Figure 23

Left-Right

Top Row
Square 7, Unit B (Stratum II) at the White Bank Park Site. Wicker fabric impressed.
44JC51 (James City County). Knotted net impressed with a deep stick (reed) punctate producing a bump on the interior surface.
44CF1 (Chesterfield County). Knotted net impressed with deep opposing finger impressions on both the exterior and interior surfaces.

Bottom Row
Square 1, Unit B (Stratum III) at the White Bank Park Site. Cord impressed with shallow opposing finger impressions on both the exterior and interior surfaces.

Figure 24 Artifacts from White Bank Park Site

Left-Right

Top Row
Square 3, Unit A (Stratum II). Plain to slightly brushed surface.
Square 3, Unit A (Stratum II). Cord impressed.

Middle Row
Square 3, Unit A (Stratum II). Knotted net impressed.
Square 6, Unit B (Stratum II). Knotted net impressed.

Bottom Row
There is less shell and more fine sand in the paste of these three examples.
Square 1, Unit A (Stratum II). Knotted net impressed.
Square 6, Unit B (Stratum II). Knotted net impressed.
Square 1, Unit A (Stratum II). Cord impressed.

Figure 25 All artifacts except one from White Bank Park Site

Left-Right

Top Row

Square 5, Unit A (Stratum II). A fine wicker fabric impressed, incised. Very small amount of shell in paste.

Square 2, Topsoil (Stratum I). A fine wicker fabric impressed. Very small amount of shell in paste.

Bottom Row

Square 5, Unit A (Stratum II). A fine wicker fabric impressed, incised. Very small amount of shell in paste.

44CF14 (Kiser Site) Feature 39. A fine wicker fabric impressed. Large amounts of fine shell in paste. Folded wicker fabric was used to make diagonal impressions along interior of rim.

Figure 26

Left-Right

Top Row

44SN24 (Southampton County). Simple stamped (2.5 mm. diameter). Fine sand in paste.

Square 1, Unit A (Stratum II) at White Bank Park Site. Simple stamped (1 mm. diameter). Rounded granules in paste.

Bottom Row

44SN29 Simple stamped (2.5 mm. diameter). Rounded granules in paste.

44PG1 (Prince George County). Simple stamped (1.2 mm. diameter). Numerous rounded granules in paste.

Figure 27

Left-Right

Top Row

44CF14 (Kiser Site) Feature 85. Interior view of sherd. Angular quartz with mica plates in paste.

44SN22 (Hand Site) Feature 82. Medium wicker fabric impressions.

Bottom Row

44CF14, Feature 57. Medium wicker fabric impressions.

44SN22, Feature 82. Medium wicker fabric impressions.

44CF14, Feature 85. Medium wicker fabric impressions.

Figure 28 Artifacts from White Bank Park Site

Top Row

Surface of site. Cord impressed and incised with lip notching.

Bottom Row

Square 3, Unit B (Stratum III). Cord impressions.
Surface of site. Cord impressions.

Figure 31

Left-Right

Top Row

44CF64 (Martin Site), Square 2, topsoil. Piscataway point, quartz.
44CF79 (Moose Lodge Site), Feature 8. Savannah River projectile point, siliceous slate.
44Cf64, Square 3, topsoil. Rossville point.

Bottom Row

44CF79, from N-S profile. Guilford projectile point.
44CF79, surface of site. Savannah River projectile point.
44CF79, surface of site. Bipointed biface.

Figure 32

Left Left-Right

Top Row

44CF64 (Martin Site), Square 3, Unit A. Wide wicker fabric impressed with large amount of granules in paste.
44CF64, Square 3, topsoil. Cord impressed with large amounts of granules in paste.

Bottom Row

44CF79 (Moose Lodge Site), Square 2, .3 to .6' deep. Loose knotted net impressed with a small amount of granules in paste.
44CF79, Square 1, topsoil. Tight knotted net impressed with no temper in paste.
44CF79, surface of site. Tight knotted net impressed with medium sand in paste.

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