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On the Cover: Clockwise from upper left. Painting of Wilhelmus Beeckman (Burdick); Microscopic Flake Scars on the Edge of a Corner-Notched Point from the Warwick Site (Klein); Fort Christina by Per Lindeström, 1654 (Burdick); and Bare Island, Teardrop, and Stemmed Bifaces Recovered from the Warwick Site (Klein).

THE WARWICK SITE (18CE371): A SHORT-TERM, LATE ARCHAIC SITE IN MARYLAND

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Dovetail Cultural Resource Group

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Located south of Middletown, Delaware just southwest of the Delaware/Maryland state line, the Warwick Site was excavated as part of the larger U.S. 301 project conducted under the auspices of the Delaware Department of Transportation (DelDOT). The Warwick Site, an ephemeral occupation dating to the Late Archaic and, perhaps, Early Woodland Periods, sits atop a 70-foot (21-m) terrace flanked by low-order tributaries of the Sassafras River (Figure 1). U.S. 301 crosses the channelized, western stream southwest of the site. The tributaries flow south and east to join the Sassafras, which empties into the Chesapeake Bay at Grove Point; the headwaters of the Bohemia River, also a tributary of the Chesapeake Bay, rise northeast of the Warwick Site. Less than 1 mile (1.6 km) east of the Warwick Site, low-order streams flow north and east to form rivers that meander to Delaware Bay (Mueller 2011:1).

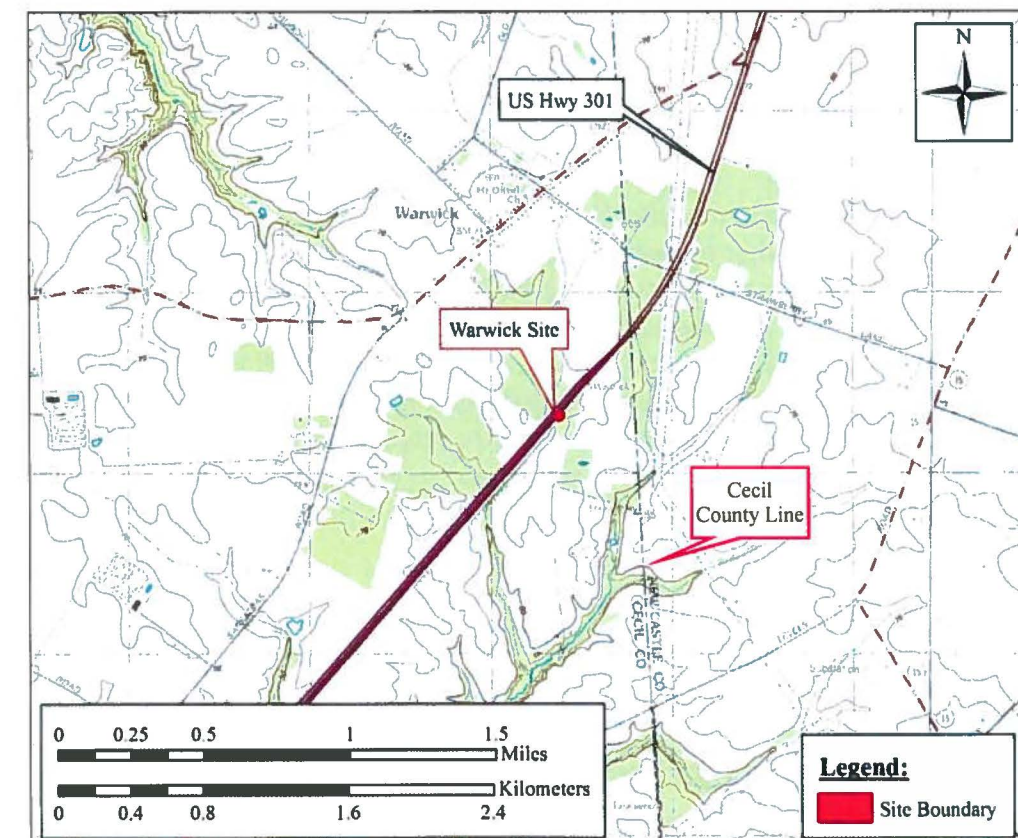


Figure 1: Location of the Warwick Site (18CE371) on the 1993 7.5-Minute Cecilton, Maryland and Middletown, Delaware Topographic Quadrangle Maps (United States Geological Survey [USGS] 1993).

EXCAVATION

During the Phase I survey, three parallel transects of shovel test pits (STPs) were excavated at 50-foot (15-m) intervals within the right-of-way (ROW). Twenty-one additional STPs excavated at 10-foot (3-m) intervals and a single 3.3 x 3.3-foot (1 x 1-m) test unit (TU) defined the boundaries and stratigraphy at the Warwick Site. The Phase I assemblage included a Lamoka point, a contracting stem, teardrop-shaped point, jasper, chert, quartz, and quartzite debitage, and fire-cracked rock (FCR) (Grossman-Bailey and Hayden 2009). Based on the site's potential contribution to knowledge of the Late Archaic and Early Woodland Periods in the northern Delmarva Peninsula, an additional 58 3.3 x 3.3-foot (1 x 1-m) TUs were excavated during the Phase II and III fieldwork (Figure 2 and Figure 3). The 25 Phase II test units were scattered throughout the site to identify spatial variation in artifact density across the entire 39.4 x 68.9-foot (12 x 21-m) site. Phase III fieldwork focused on the core of the site to maximize the number of artifacts collected and the potential for discovery of cultural features and to more fully understand the distribution of artifacts.

Most soils were screened through 0.25-foot (0.6-cm) mesh; however, during the Phase III fieldwork, soil samples were collected from Stratum II, the Ap horizon, and the upper portion of Stratum III, the B1 horizon, for flotation to recover very small artifacts (microdebitage) and botanical materials (see Figure 3; Figure 4). Soil samples were collected from a designated corner of each test unit, with the specific sample location selected to minimize the extent of disturbance within the column sample. In addition, soil samples were collected from the plow zone and upper subsoil at 32.8-foot (10-m) intervals across an area slightly larger than the Warwick Site and from each TU for the analysis soil chemistry.

One ambiguous feature, perhaps cultural, was identified. Feature 1, an olive brown (2.5Y 4/3) silt loam oval feature that measured approximately 7.8 by 6.6 inches (20 by 17 cm) in plan, was bisected along the east-west axis. The basin-shaped feature extended 2.3 inches (6 cm) into the B horizon. Flotation of the north half of Feature 1 produced four microdebitage fragments of jasper, quartz, and quartzite, as well as charred wood (Grossman-Bailey et al. 2011:4-18). In addition, the spatial distribution of FCR suggested the presence of disturbed hearths, thermal-stone scatters, or fire-related activities at the northern end of the site.

STRATIGRAPHY AND DEPOSITIONAL CONTEXT

Geomorphological analysis conducted during the Phase II fieldwork identified four soil horizons that corresponded to the distinct strata recognized by soil color and texture: Stratum I, a recently developed layer of organic matter and forest detritus (O horizon); Stratum II, the plow zone (Ap horizon); Stratum III, silty clay subsoil (B1 horizon); and Stratum IV, a well-developed subsoil (B2 horizon) (Mueller 2011; cf also Wah 2003). Artifacts, as well as most biotic activity, occurred primarily in and above the upper 3.9 inches (10 cm) of the B1 horizon. In the absence of post-occupation burial by sediments

deposited by wind, flooding, and erosion, archaeological resources cluster in near-surface soils.

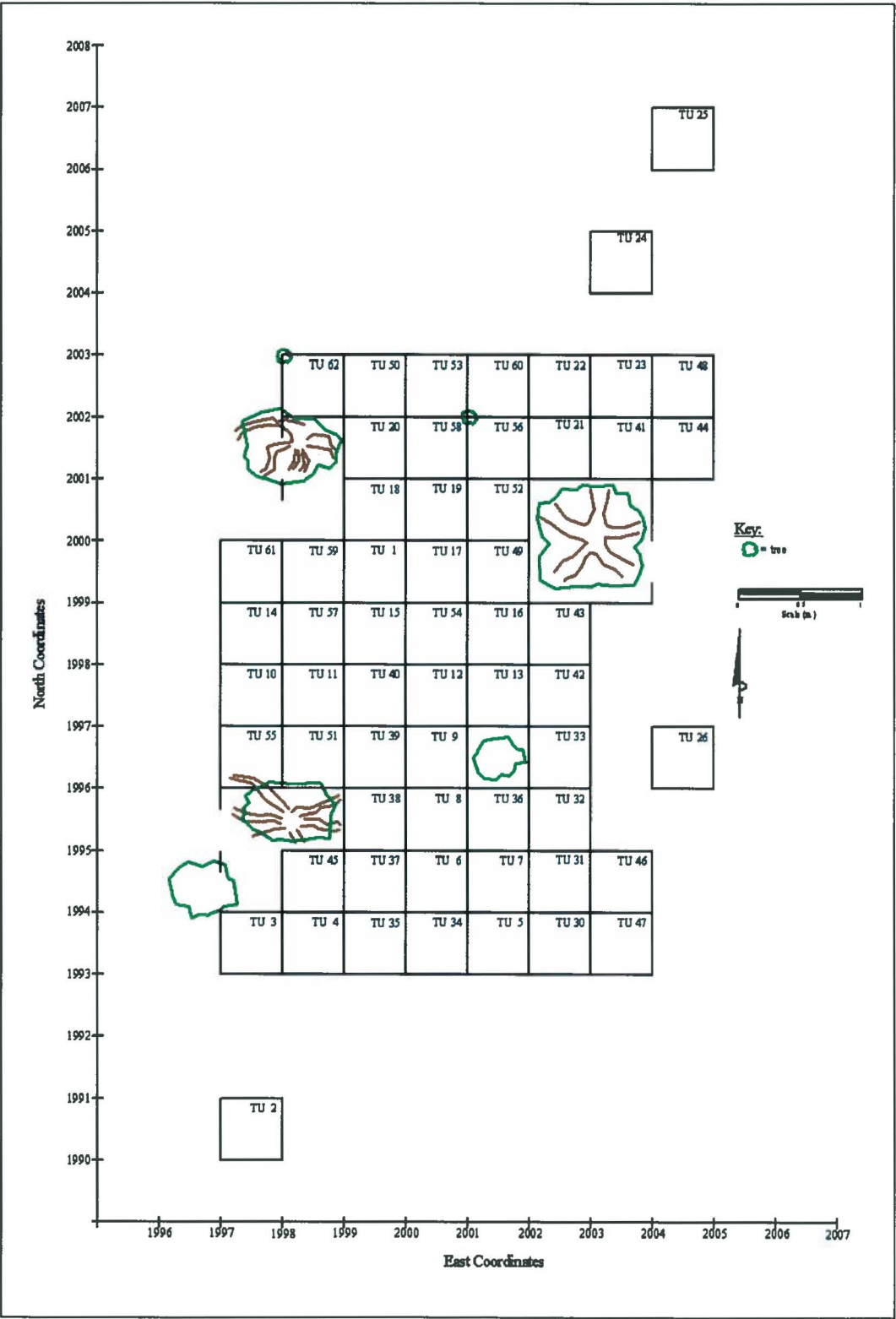


Figure 2: Plan Map of Phase I to III Test Units at the Warwick Site.



Figure 3: View North from the South End of the Excavation Block.

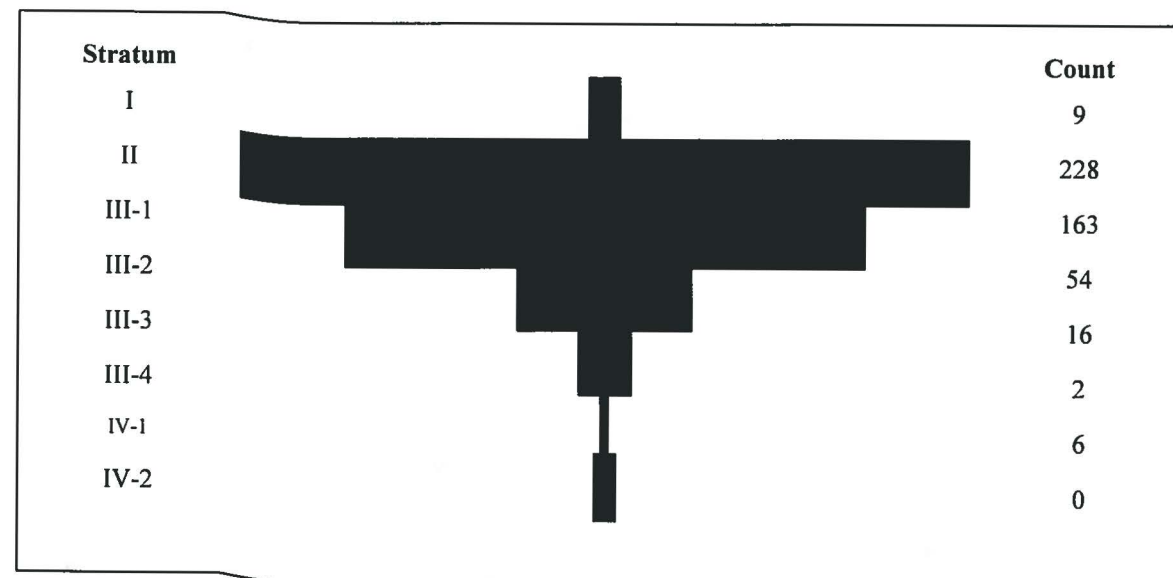


Figure 4: Spindle Diagram of Lithic Count by Stratum and Level (Phase III Data).

Figure 4 above depicts the density of prehistoric artifacts stratum and 3.9 inches (10 cm) arbitrary level. Rather than showing multiple peaks or modes, as expected if distinct soils corresponded to temporally discrete occupations, artifact density peaked in one or two levels within the comingled plow zone soils and the uppermost level of the subsoil. Below the upper subsoil, artifact frequency fell throughout the zone impacted by roots. It appears, therefore, that roots and, probably, burrowing animals, churned the soil, channeling artifacts downwards (Balek 2002). Thus, the absence of a multiple modes in artifact frequency and the similarity among artifacts recovered throughout the profiles indicate that the assemblage accumulated during the Holocene, probably after 5500 B.P.

ARCHAEOBOTANICAL ASSEMBLAGE

Sixty-six soil samples collected from the plow zone (Ap horizon) and uppermost level of the subsoil (B1 horizon) at the Warwick Site were processed at Justine McKnight's Severna Park, Maryland laboratory. McKnight identified charred wood in every sample, a total of 2,187 fragments larger than 0.1 inch (2 mm) in diameter. The charred wood scattered throughout the site indicates that the landform was fired at some point in the past, whether by natural causes or by humans. Numerous ethnographic examples from throughout the world document landscapes intentionally burned to promote growth of useful plants, remove underbrush, or create microenvironments attractive to game, among other practices (cf. Smith 2011).

The Warwick Site produced the largest assemblage of comestible nuts and seeds from a Late Archaic Period site on Maryland's Coastal Plain (Table 1). Of course, recovery of all carbonized nuts and seeds from non-feature contexts makes any interpretation tentative, since charred materials may document historic land clearing, the impact of lightning strikes and other natural processes, as well as prehistoric activity. Nevertheless, the constellation of taxa typically exploited by prehistoric peoples and the high percentage of comestible genera within the nut and seed categories indicates that the material may have been deposited during the Late Archaic to Early Woodland occupation of the Warwick Site. If so, recovery of late-summer and fall ripening fruits (sumac, huckleberry, hawthorn, raspberry/blackberry, hickory, acorn), may reflect the season of occupation. In addition, the charred nuts and seeds recovered from the plowzone, therefore, may provide information about the past environments, regardless of whether or not the charred botanical remains were consumed by the Late Archaic inhabitants of the Warwick Site (Klein et al. 2014:Appendix A).

ARTIFACT ASSEMBLAGE

Ordered by abundance, the assemblage comprised debitage, FCR, points and other bifaces, and a hammerstone fragment (Figures 5–10). The TU debitage assemblage consisted of 693 pieces of jasper, chert, quartz, and quartzite (including ferruginous quartzite/ironstone). Only 43 fragments of angular debris (6 percent) were recovered during the Phase III excavation. Tertiary flakes (72 percent) dominate the Phase III assemblage, followed by secondary (18 percent) and primary (10 percent) flakes. Debitage attributes confirm the impression late-stage reduction represents the major phase of knapping at the Warwick Site.

Table 1: Carbonized Specimens Recovered from the Phase III Flotation Samples.

Statistic	Wood Charcoal		Carbonized Nut Shells		Carbonized Seeds	
	Count	Weight (grams)	Count	Weight (grams)	Count	Weight (grams)
Mean	33.14	0.22	0.35	0.00	0.41	0.00
Standard Deviation	25.28	0.20	1.98	0.02	0.85	0.00
Median	29.50	0.18	0	0.00	0	0
Minimum	3	0.00	0	0.00	0	0
Maximum	138	1.00	16	0.19	3	0.02
Total	2187	15.53				
Number of Samples	66	66	66	66	66	66
Positive Samples	66	66	6	6	15	15



Figure 5: Sample of Debitage Recovered from the Warwick Site.



Figure 6: Sample of Fire-Cracked Rock Recovered from the Warwick Site.



Figure 7: Hammerstone, Possible Hafted Scraper (top) and Scraper (bottom) Recovered from the Warwick Site.



Figure 8: Photograph of Early- and Late-Stage Bifaces and Preforms Recovered from the Warwick Site.



Figure 9: Lamoka Points Recovered from the Warwick Site.



Figure 10: Bare Island, Teardrop, and Stemmed Bifaces Recovered from the Warwick Site.

Cortex occurs in roughly equal amounts on the major materials, chert, jasper, quartz, and quartzite, late-stage working of cobbles of all types during the occupation. Nevertheless, the predominance of chert and jasper identifies cryptocrystallines as favored materials. During the Phase I survey, fieldworkers observed cobbles in the general vicinity of the Warwick Site, though material types were not specified (Grossman-Bailey and Hayden 2009:5).

Exploitation of pebbles and small cobbles often relies on bipolar technology. Cobbles represented by the four early-stage bifaces had been produced using bipolar techniques, but very few bipolar flakes were identified. Thus, the dearth of bipolar flakes, the predominance of late-stage debitage, and the recovery of a single hammerstone indicate that most early-stage reduction of cobbles occurred elsewhere, probably near the source of the cobbles.

Cooking over a fire, rings constructed to contain fires, boiling liquids with heated stone, generation of steam, and fires built for warmth, protection from predators, signaling, and to enhance ceremonial performance produce stone altered to various degrees by heat (Petraglia 2002). Given the diversity of potential causes and effects on how thoroughly a fire-altered stone fractures, weight likely represents a more accurate estimate of abundance than count. FCR, like other artifacts, occurred in the plow zone; no undisturbed hearths or fired-rock pavements were identified.

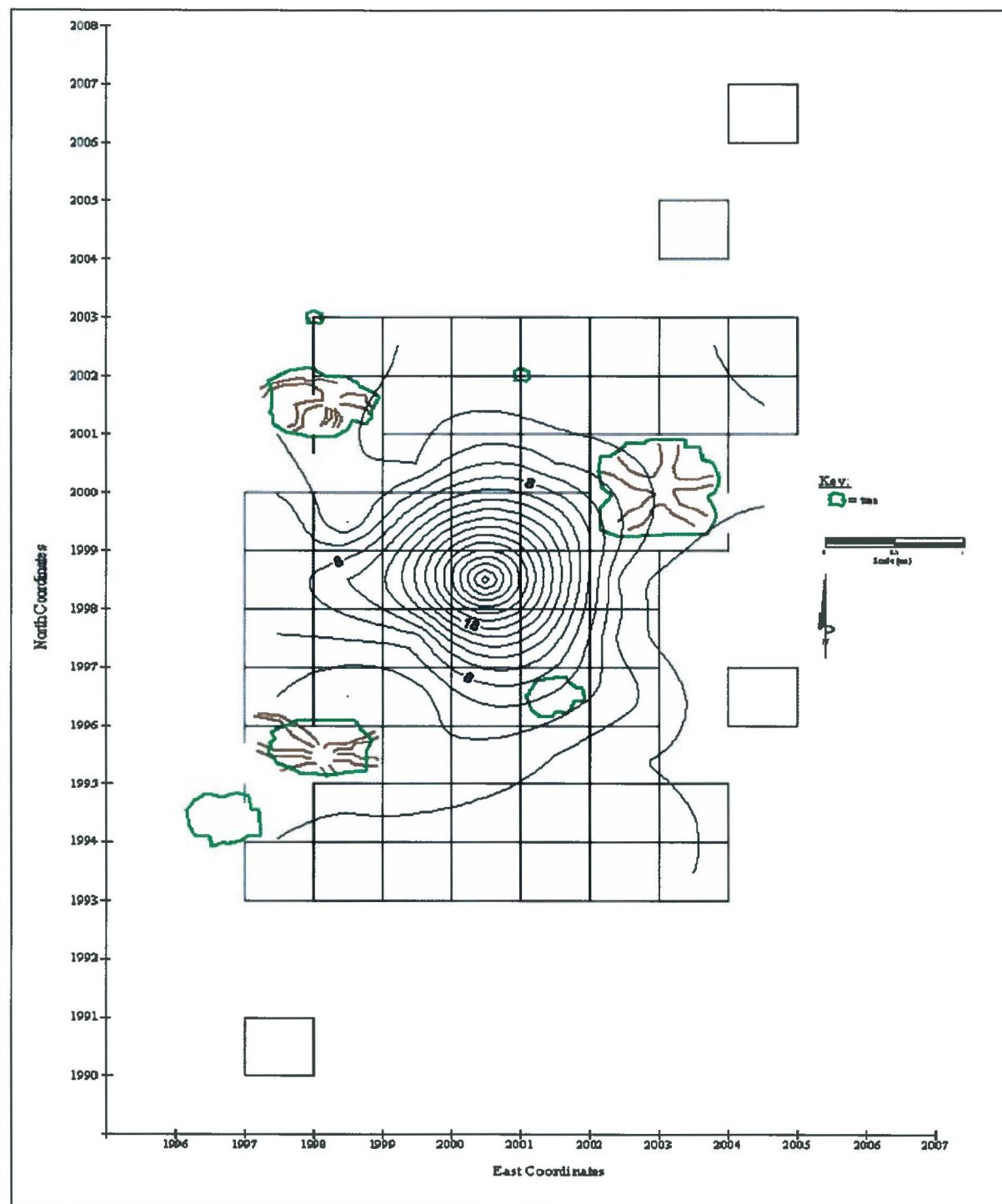


Figure 12: Contour Map of the Distribution of Microdebitage (Phase III).

The major concentration of FCR was north and east of the debitage concentration, though the two distributions overlapped (Figure 13). More than 70 ounces (200 gm) of FCR was unearthed from eight test units located between N1998 and N2003 and E2001 and E2005. In only one of the test units was more than 70 ounces (200 gm) of FCR and more than 30 pieces of debitage recovered, TU 54 (N1999/E2001; 82.6 ounces [236.0 gm]). TU 54 was located southwest of TU 41, the test unit that contained the highest density of FCR by weight.

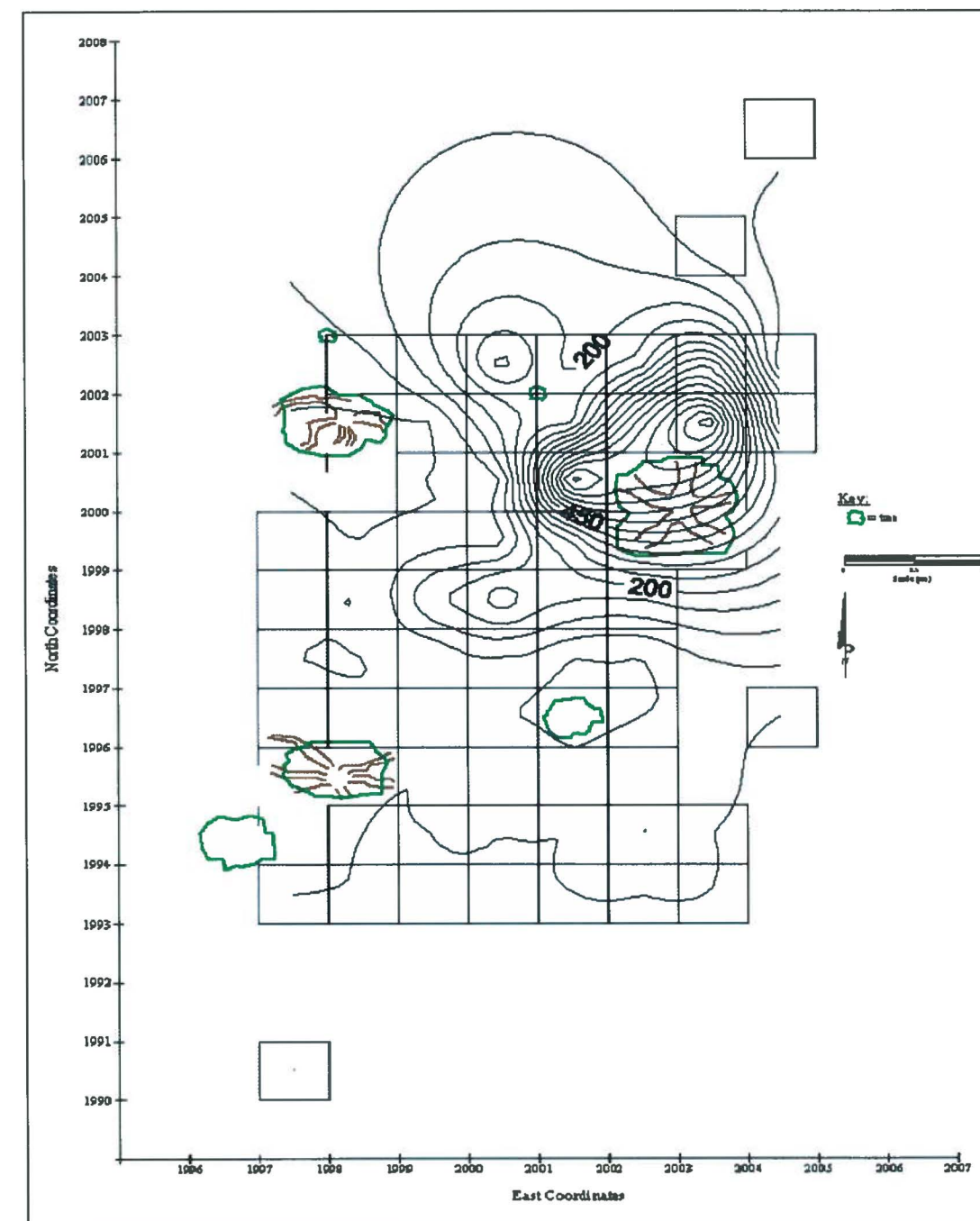


Figure 13: Contour Map Depicting Variation in the Weight in Grams of Fire-Cracked Rock by Test Unit.

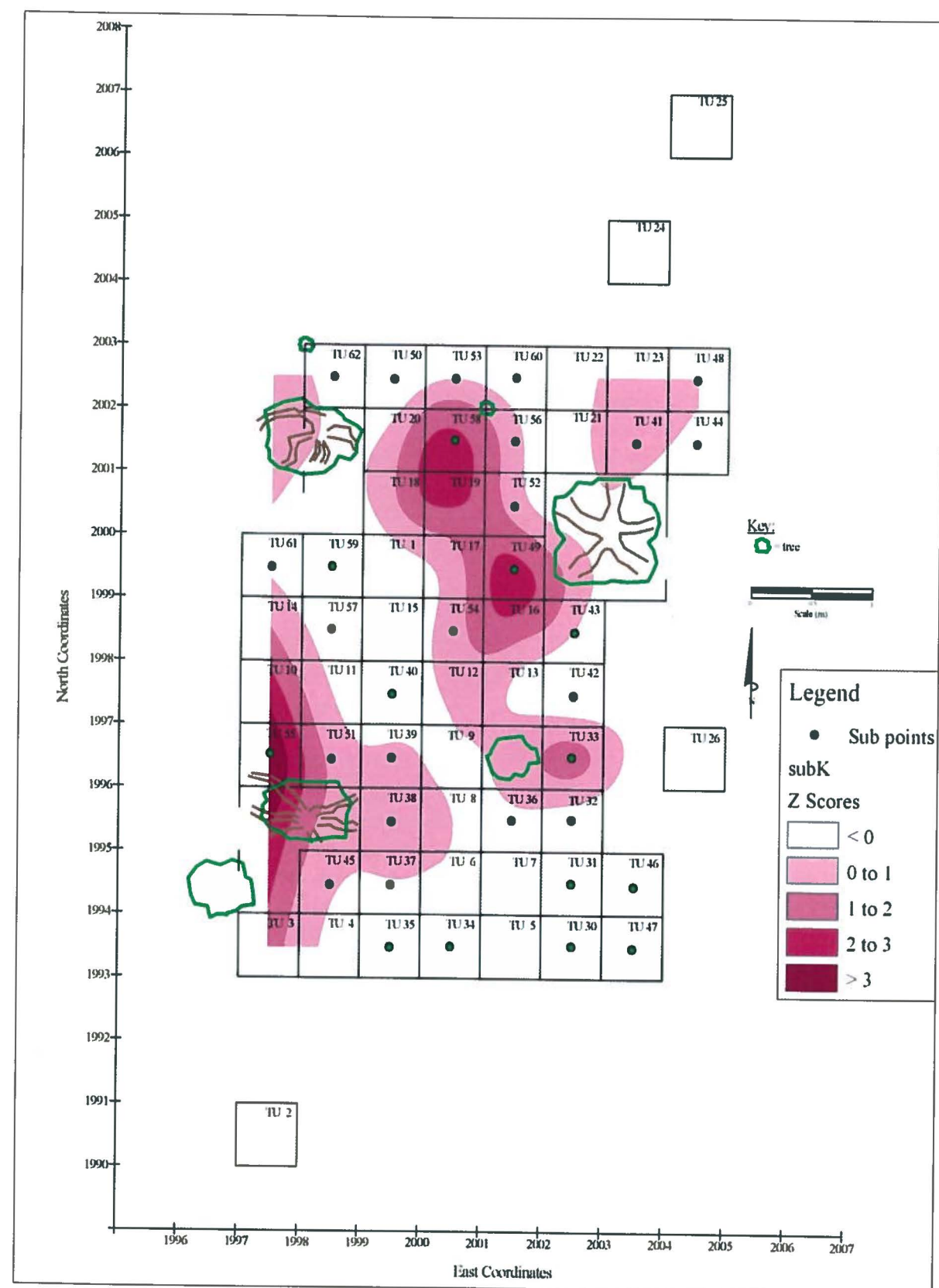


Figure 15: Distribution of Potassium in the Subsoil.

Table 2: Dimensions of Measurable Diagnostic Projectile Points Recovered During the Phase I to III Excavation of the Warwick Site.

Point Type	Length	Width	Thickness	Count
Lamoka	32.9+/-3.5 mm (1.3+/-0.1 in)	16.9+/-0.9 mm (0.7+/-0.04 in)	7.0+/-1.1 mm (0.3+/-0.04 in)	8
Bare Island	75.7 mm (3.0 in)	27.1 mm (1.1 in)	13.5 mm (0.5 in)	1
Teardrop	35.7 mm (1.4 in)	14.8 mm (0.6 in)	8.1 mm (0.3 in)	1

A single Bare Island point was recovered during the Phase III excavation of the Warwick Site (see Figure 10). The point, with a broken tip, had been manufactured of ferruginous quartzite (or ironstone). Despite the missing tip, this was the largest biface in the Warwick Site assemblage. The unfinished base was similar to the bases of many Lamoka points in the Warwick Site assemblage. Nevertheless, the rectangular base, parallel-sided blade, and size recommended classification as the Bare Island type. Radiocarbon dates associated with the Bare Island and related types range from approximately 5000 to 2400 B.P. The four dates associated with Bare Island points occur near the early end of the range (Inashima 2008:196).

Ovoid- to lozenge-shaped small bifaces with convex or rounded bases have been identified as the Rossville (Ritchie 1971) and Piscataway (Stephenson 1963) types or classified more generally as teardrop points (Mounier and Martin 1994). The Warwick assemblage included a single teardrop point recovered during the Phase I fieldwork (see Figure 10). The point was complete, with the contracting stem characteristic of the three types.

Based on C-14 assays from the Woodbury Annex Sites (28GL5 and 28GL148) in New Jersey, Mounier and Martin (1994:132) argue that "the occupation of the teardrop-related loci [at the Woodbury Annex Sites] can be dated to the first and second millennium B.C." (circa 4000–2000 B.P.). Nevertheless, manufacture of teardrop points, the authors estimate, occurred primarily between 3000 and 2000 B.P. in New Jersey (Mounier and Martin 1994:136). Radiocarbon assays, however, range in age from 4150+/-50 to 1320+/-70 radiocarbon years B.P. (Inashima 2008:244, 248).

Point Function: Ethnography, Fracture Patterns, Use Wear, and Metrics

Stone spear and arrow tips appear more lethal than alternative materials. As a consequence, stone points commonly tip spears for hunting large game and warfare. The ethnographic association with large game, Ellis (1997:63) observes, "is so strong that in prehistoric cases one can almost always assume that stone points were used in large animal hunting." Ethnographically, fishing with spears, darts, and arrows and hunting small game typically relies on organic tips or points rather than stone (Ellis 1997:50). Organic points, more likely to float, were used to impale waterfowl, small sea mammals, and fish. Throwing sticks, traps, and, organic-tipped or, less commonly, stone-tipped arrows, were used to capture small game (Ellis 1997:46).

The return from hunting large game, Ellis (1997:53) suggests, offset the higher production and maintenance cost of stone points. The sharp edge makes stone points lethal, which allows use of a lighter spear shaft, as well as suiting stone-tipped points for cutting, scraping, and sawing. Consequently, hafted stone points enhance both portability and rapid shifts between different tasks, and a lighter shaft improves throwing and firing range (Ellis 1997:63–65). Thus, even stone-tipped points designed as projectiles likely served a range of tasks. Nevertheless, the narrow bladed points recovered from the Warwick Site appear suited for use as spear and, perhaps, arrow tips. In contrast, the weight, blade angle, and, in particular, the width of broadspears may impede efficient use of broad-bladed points as spear tips, especially on spears primarily intended to be thrown.

Fracture Patterns and Use Wear

Custer (1996:176–177; cf. also 1991) argues that:

...use wear and breakage patterns for stemmed points and broadspears...indicate that stemmed points were more likely to have been used as projectile points, and broadspears were more likely to have been used as knives or generalized cutting tools. Because they have different functions, it is not unreasonable to presume that the two tool forms were used and discarded at different locations....[Therefore], a ‘pure’ stemmed point assemblage from...[circa 4500–3500 B.P.]...could be created if only stemmed projectile points were discarded at a special-function site.

Broadspear width appears to exceed the optimal size range for spearheads, a range of roughly 1.0 to 1.2 inches (25 to 30 mm); Custer (1991) uses 1.2 inches (30 mm) as the cutoff point separating narrow projectiles from broad tools typically used as knives or for other functions. The broadest point in the Warwick Site assemblage, the ferruginous quartzite Bare Island, was 1.1 inches (27.1 mm) wide, and many were well below that width. Fracture patterns appear to support Custer’s (1991) inference.

Distal impact fractures refer to breaks caused by the tip of the point striking an animal or object. Transverse fractures, or lateral snaps, “bisect the biface from one worked edge to the other roughly perpendicular to the longitudinal axis.” The difference depends largely on the location of fractures in relation to the point tip and stem. Distal fractures, “produced from stresses received by the edges and faces of the point tip,” occur primarily on the distal third of the point. Transverse fractures, on the other hand, “result from staggered stresses acting along the blade faces from opposite directions” (Truncer 1988:19). The angle of the break may provide additional information about the orientation of use, though the tendency of stone tools to fracture along imperfections in the stone weakens such inferences.

In Custer’s (1991:60) sample of 1,165 broadspears from the Middle Atlantic Region, 32 percent exhibited transverse or oblique fractures; impact fractures were observed on 6 percent of the points. In contrast, 45 percent of narrow-bladed stemmed points and 55 percent of triangular points exhibited impact fractures. Transverse fractures appeared on 12 percent of narrow-bladed stemmed points and 10 percent of triangles in Custer’s sample. Most archaeologists consider triangular forms points for arrows, suggesting that transverse

and impact fractures accurately identify the most common use of stone points in the aggregate (Custer 1991:69). Of course, the precise use or the range of uses for any individual point may be unknowable. Custer (1991:69) concludes that “as width increases so does frequency of transverse fractures. In contrast, as width decreases so does frequency of transverse fractures. The slope of the line for impact fractures is steeper than that for transverse fractures indicating that point width is a more severe constraint on projectile use than on knife use.”

Distal breaks constitute 63 percent (11 of 17) of the broken points; three fractures were classified as medial and three as proximal (Figure 16). Of the 11 distal fractures, eight were classified as impact fractures, roughly half the entire sample of points. Moreover, the length of two of the fragments in the medial category was nearly two-thirds of the projected length of the point, suggesting that either may have been from the distal third of the point. Therefore, points, as expected, likely served primarily as hafted projectiles. Nevertheless, use for cutting, sawing, and other actions that introduced stresses along the blade edge probably occurred regularly; three of the four biface fragments with multiple fracture orientations were classified as the distal end of points, suggesting multiple uses. Flake scars across the width of one bifacial proximal fragment may identify a broken stemmed point reworked to form a hafted scraping or cutting tool. Use-wear analysis supports the inferred use of the reworked point, as well as the inference that points served as multi-purpose tools. If, as seems likely, discard often leaves blades fractured during use as knives on archaeological sites, while projectiles broken during use may be more widely scattered, the data may underestimate the frequency impact fractures characteristic of particular types recovered from the Warwick Site.



Figure 16: Point Fracture Pattern: From Left to Right: Proximal Fracture, Medial Fracture, and Multiple Fractures.

Distinct tasks often leave identifiable traces on the edges and surfaces of tools. Therefore, examination of stone tools under a microscope may provide insight into the types of tasks undertaken using different tools (Odell 2000). Low-powered (10X–60X) examination of use-wear on projectile points and other tools attempted to evaluate the extent of use prior to deposition and to assess the range of tasks undertaken using different types of tools. In addition, several unmodified flakes were examined. The dorsal and ventral surfaces of each artifact were examined. Presence or absence of use wear, the type and extent of use wear, and the location of the wear on each tool were recorded. Specific traces of use wear include polish, striations, chipping, and microscopic flake scars. Use wear was recorded for: 26 hafted bifaces and late-stage blade fragments; three Stage 2 bifaces; one extensively modified flake that exhibited the steep edge angle characteristic of tools interpreted as scrapers; one large modified flake fragment; and one large flake with no macroscopic evidence of edge modification or use as a tool. In addition, examination of several small flakes suggested that intermittent edge damage potentially resulted from a range of uses and post-depositional processes.

Damaged edges identified the haft on many stemmed points, consistent with use as hafted projectiles (Figure 17). The hafting element extended over the lowermost portion of the blade. Point blades also exhibited significant amounts of edge damage and, in some cases, striations (Figure 18 and Figure 19). The combination of striations and edge damage is consistent with scraping or sawing. Not surprisingly, the data point to use of projectile points for a range tasks beyond firing as projectiles.

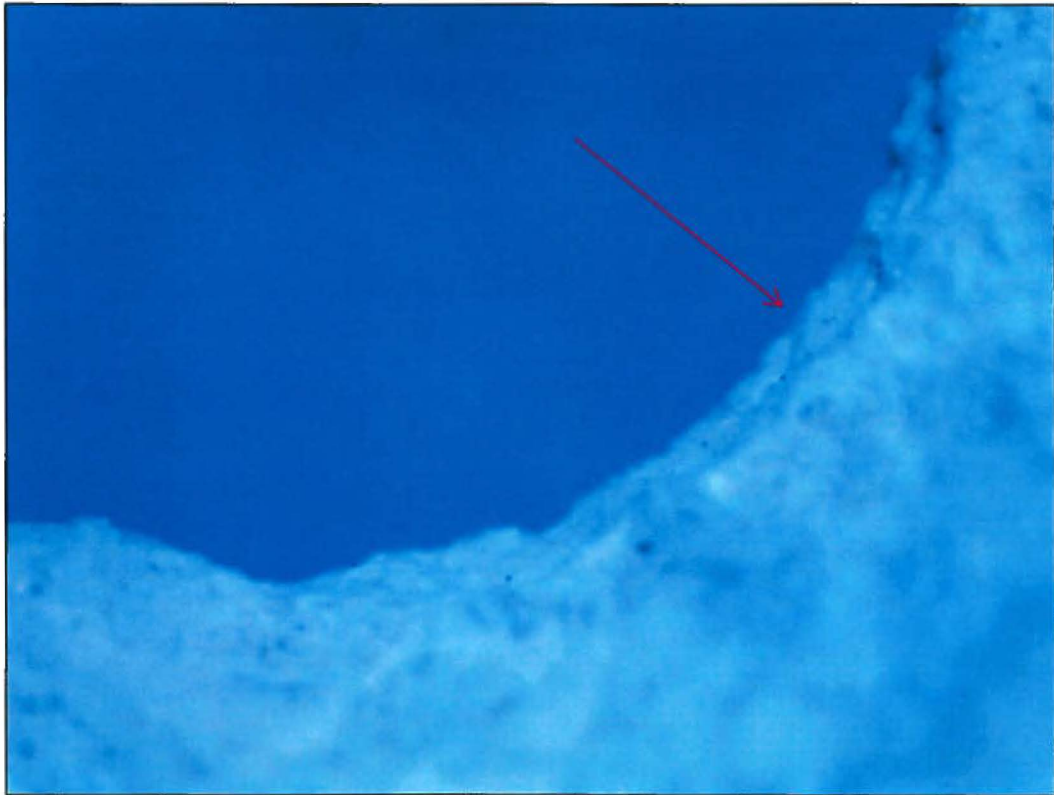


Figure 17: Example of Chipped Edges on the Stem of a Lamoka Point.

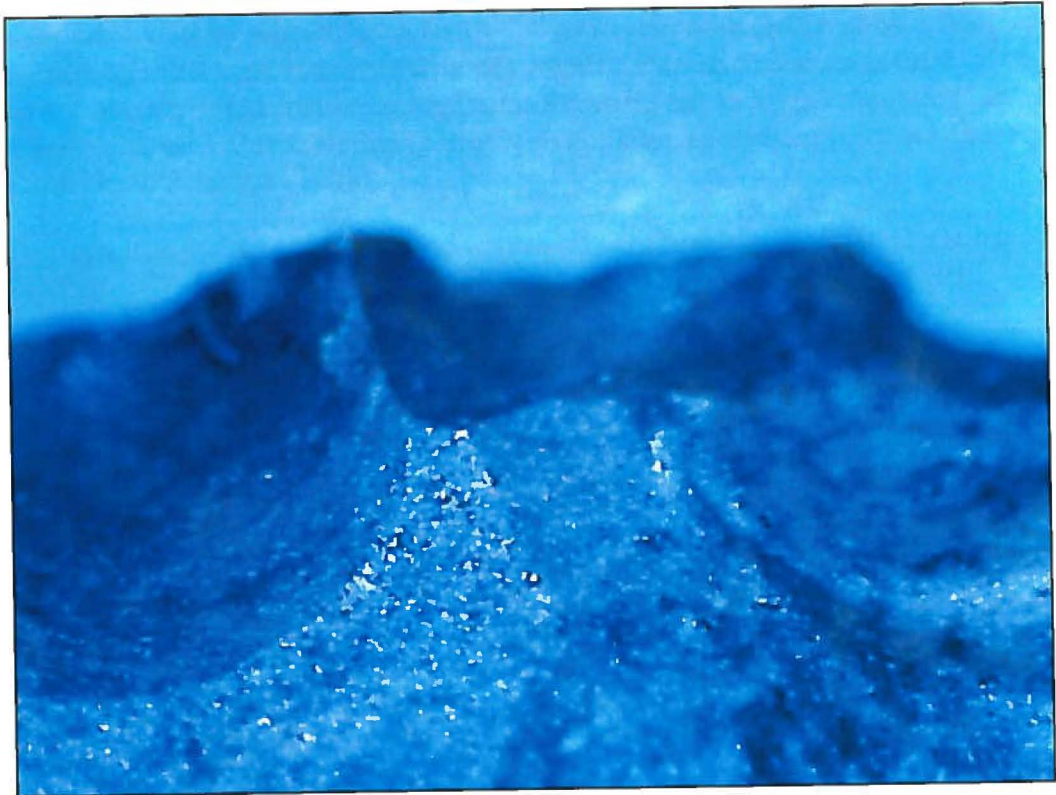


Figure 18: Example of Microscopic Flake Scars on the Edge of a Corner-Notched Point.

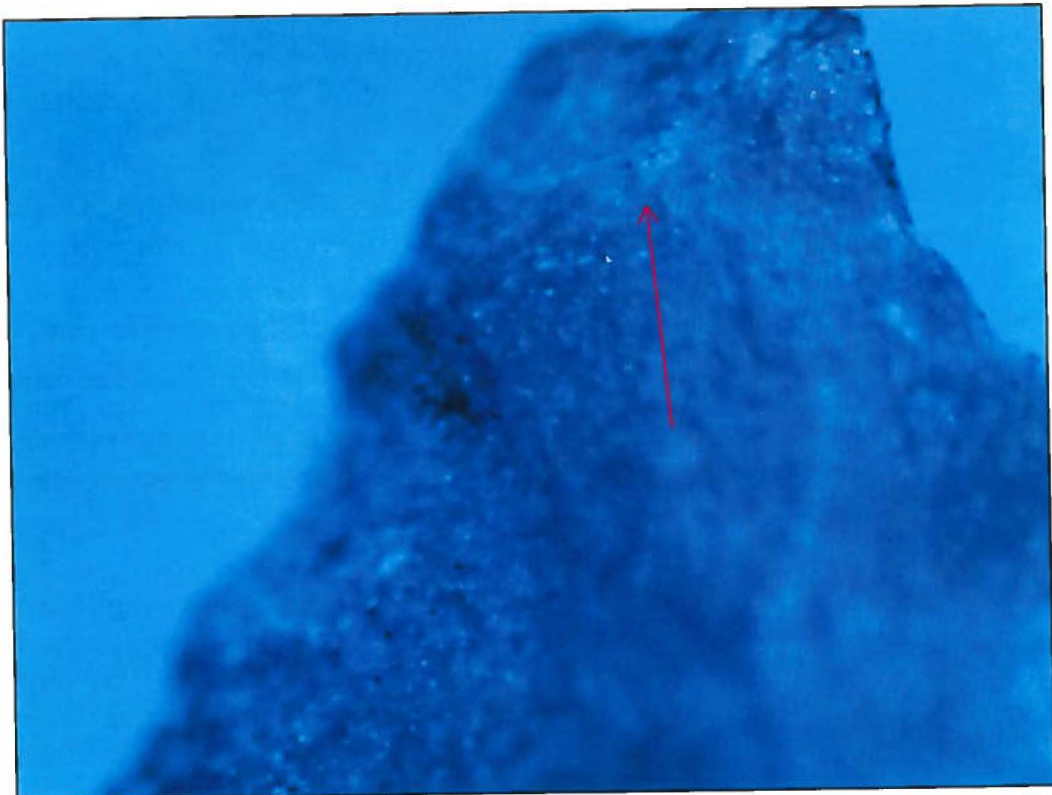


Figure 19: Example of Striation Near the Tip of a Lamoka Point.

Reworking of a broken stemmed point created an edge across the width of the point (see Figure 16). Near-continuous damaged edges identified the hafting element. Microflakes occurred on the upper edges of the blade. Rounding and polish on the distal edge perhaps indicated use on a high-silica material, like plants (Figure 20; cf. Clemente and Gibaja 1998).

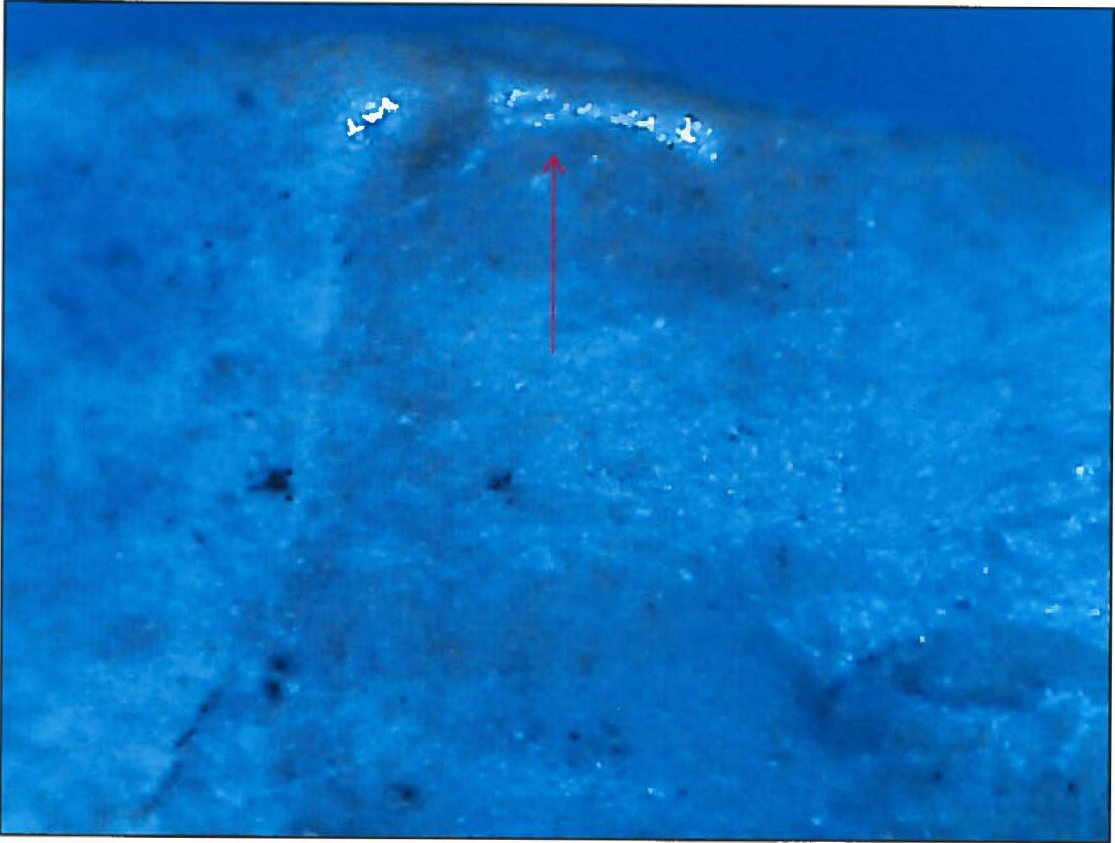


Figure 20: Example of Rounding and Polish on the Edge of a Probable Hafted Scraper.

Early-stage bifaces exhibited minimal edge damage, similar to that observed on small flakes, and few striations or polished areas. The bifaces apparently served only as early-stage tools, and were not used in that condition. Edge damage was observed on a large unmodified flake, implying short-term use as an expedient tool. More extensive microflaking, edge damage, and a few striations appeared on a bipolar flake with a steep edge angle, indications of cutting or scraping hard materials.

Projectile Dimensions: Darts vs. Arrows

The size of the stemmed points recovered from the Warwick Site also provides information about projectile technology. Regional overviews typically locate the appearance of atl-atl technology in the Early Archaic, and both focused studies and regional overviews infer the appearance of bow-and-arrow technology from the widespread reliance on triangular points after roughly 1000 B.P. (e.g., Blitz 1988; Custer 1989; Dent 1995; Shott 1993; Tomka 2013). Odell (1998) and Ames et al. (2010), in contrast, argued that arrows were used in

North America during the Archaic, while Amick (1994) and Patterson (1994) propose Pleistocene use of bow-and-arrow technology. Shott (1997) and Thomas (1978) suggest that metric attributes distinguish arrows from darts thrown from an atl-atl. Shott’s (1997:87–89) data was collected from ethnographically identified specimens curated in museums throughout North America (Table 3).

Table 3: Comparison of Points from the Warwick Site with Ethnographic Samples of Dart and Arrow Points (based on Shott 1997).

Projectile Type	Attribute	Mean	Standard Deviation	Number
Arrowhead	Length	30.6	8.3	130
	Shoulder Width	14.4	3.4	
	Thickness	3.9	1.1	
	Neck Width	9.8	2.6	
Atl-Atl Dart	Length	51.7	14	39
	Shoulder Width	23.1	4.6	
	Thickness	5.0	1.0	
	Neck Width	15.2	3.3	
Bare Island	Length (Tip Missing)	75.7	NA	1
	Shoulder Width	27.1	NA	
	Thickness	13.5	NA	
	Neck Width	21.1	NA	
Lamoka	Length (Tip Missing)	32.9	3.5	8
	Shoulder Width	16.9	1.9	
	Thickness	7.0	1.1	
	Neck Width	11.2	1.4	
Teardrop	Length	35.7	NA	1
	Shoulder Width	14.8	NA	
	Thickness	8.1	NA	
	Neck Width	11.2	NA	
Other Small Stemmed	Length	33.5	2.8	3
	Shoulder Width	21.6	1.1	
	Thickness	8.5	1.5	
	Neck Width	11.7	1.4	
All Small Stemmed Points	Shoulder Width	16.7	0.8	17

The metric attributes of Lamoka and Teardrop points unearthed during the Warwick Site excavations fall within one standard deviation of the arrow points presented by Shott in all but thickness (1997:91). The Bare Island point, in contrast, resembles atl-atl darts in shoulder width, but exceeds the upper end of the one standard deviation range in length, thickness, and haft thickness. Small, broad stemmed points resemble arrows in length and neck width, but exceed the one-sigma range of the thickness and width values. The Bare Island point, therefore, likely represents a dart/spear point or knife, while the Lamoka and

Teardrop points perhaps tipped arrows. The functions of the small, broad stemmed points remain unclear.

Length and shoulder width represent the primary distinguishing attributes. Dart length, however, varied considerably. Moreover, reliance on length eliminates a large portion of the sample (Shott 1997:95–98). Fortunately, shoulder width emerged “in all solutions as the most significant discriminator between dart and arrow points, to the extent that using a discriminant function alone produces similar results to the multiple variable solutions” (Shott 1997:99). Lumping all 17 small, narrow stemmed points with intact shoulders together produces a mean value of 0.7 +/-0.03 inches (16.7+/-0.8 mm), a median of 0.7 inches (16.6 mm), and a range of 0.6 to 0.7 inches (14.7 to 18.2 mm), very similar to the values for arrowheads. Small, narrow-bladed points, therefore, may highlight the use of arrows in the circum-Chesapeake Bay Region by at least 3000 B.P.

Hildebrand and King (2012) recently criticized the use of ethnographic samples in the studies by Thomas (1978) and Shott (1997). Ethnographic collections, they argue, contain a much wider range of arrow-point sizes than archaeological collections of hafted arrows and the reliance on blade width introduces “the vagaries of artifact reworking” into the data (Hildebrand and King 2012:970). Neck width plus maximum thickness produces a value that Hildebrand and King (2012:790–791) believe offers a more resilient proxy for projectile point size, allowing application of the statistic to a wide range of point fragments. Based on the analysis of projectile point types thought to represent arrows and darts, a value of 0.5 inches (11.8 mm) distinguishes the type of projectile used. All of the measurable points from the Warwick Site produce values in excess of 0.5 inches (11.8 mm), with the smallest at 0.6 inches (14.9 mm) and a mean of 0.8+/-0.2 inches (19.9+/-4.9 mm).

The Warwick Site average approximates the value separating darts from arrows derived from hafted arrows in parts of the Southwest. Analysis of archaeological samples of 10 hafted darts from caves in Arizona, California, and Texas resulted in a dart-arrow index of 0.7 inches (18.5 mm); 30 hafted darts from archaeological sites in Utah produced an index of 0.8 inches (20.6 mm). Measurement of 14 hafted arrows from the site of Pueblo Bonito in Chaco Canyon, however, generated a value of only 0.4 inches (10.0 mm). Average neck width plus average thickness for 118 arrows in an ethnographic collection studied by Thomas (1978) provided a dart-arrow index of 0.5 inches (14.1 mm), which Hildebrand and King (2012:795) find unacceptably large. Yet, the small size of the archaeological samples and the absence of a description of the correlation between the dart-arrow index values with the overall size and weight of complete points in Hildebrand and King’s publication precludes simply dismissing the studies of large ethnographic samples by Thomas (1978) and Shott (1997).

Point dimensions at the Warwick Site perhaps reflect the limitations imposed by the available cobbles rather than intended function. Maximum dimensions of Stage 2 cryptocrystalline bifaces recovered from the Warwick Site ranges from 1.3 to 1.8 inches (32.5 to 45 mm), with widths between 0.7 and 1.2 inches (19 and 30.8 mm) and thicknesses of 0.4 to 0.7 inches (9.9 to 18.8 mm). Therefore, cobble dimensions perhaps limited point dimensions during the occupation of the Warwick Site. In the Middle Atlantic Region, Klein et al. (1998) and Kirchen (2001) came to similar, albeit tentative, conclusions based

on samples of teardrop points from central Virginia and North Carolina, where cobble size was not constrained to the same extent as at the Warwick Site. Moreover, Miller (1998:117) alludes to the possibility that triangular points recovered from Archaic contexts reflect use of the bow-and-arrow. Therefore, the possibility that people in the Chesapeake Bay region hunted with the bow and arrow by circa 3000 B.P. deserves further consideration.

THE SITE IN THE REGION

The dynamic of movement of both individuals and groups across a broad region, Lee (1979) suggests, is central to hunter-gatherer life. The Warwick Site occupies a low terrace near the headwaters of a low-order tributary of the Sassafras River, at the western edge of the drainage divide separating streams flowing into Delaware Bay from those emptying into the Chesapeake Bay. Eighteenth-century maps illustrate an early post road following the drainage divide from the falls of the Delaware River to the head of the Chester River, roughly the alignment of present-day U.S. 301. The post road continued south to join an eastern route that followed the spine of the Delmarva Peninsula south to the mouth of the Bay and the James River; some maps show the road continuing south from the Chester River to Kent Island. Early roads tended to follow paths previously trod by Native Americans. A pre-contact trail, therefore, likely passed through the Warwick Site environs. Geographic Information Systems (GIS) was used to examine the viewshed from the Warwick Site and to model the likely location of least-cost paths through the region.

The Local Landscape: Analysis of Viewsheds and Least-Cost Paths

To situate the Warwick Site in relation to the movement of both humans and game through the surrounding landscape, viewshed and least-cost analyses were undertaken using GIS. GIS allows for the rapid calculation of visible terrain from specified locations (Wheatley 1996). Digital Elevation Models (DEMs) consist of a matrix of cells, where each cell contains a value approximating the terrain’s elevation above sea level. The data from the cells form the basis for the calculations. When obstructed by cells with higher elevations, the target cell is not visible in the viewshed map. The resulting viewshed maps allow the analyst to explore views of the landscape from different landforms.

Analysis of viewsheds and least-cost paths was undertaken using ESRI’s ArcView GIS and a 98.4-foot (30-m) resolution DEM from the U. S. Geological Survey. Observation points were created within and adjacent to the Warwick Site. Using GIS software, center points were created to generate a comparative viewshed from the site and nearby high ground. For this analysis, we assumed that only elevation obscured the view, meaning maximum viewshed is depicted. The probable presence of forests surrounding the site and the absence of information about the exact season(s) of the occupation or occupations introduces uncertainty about the precise range and direction of visibility. Nevertheless, viewshed analysis provides a valuable starting point for establishing the relationship between the site and the surrounding environs.

Views from the Warwick Site extend north and west for a considerable distance downstream, useful if game regularly watered along the streams or if travelers and game

passed along the present-day path of U.S. 301 (Figure 21). Higher elevations to the east obscure views along the terrace, though portions of the terrace south of the site would have been visible during at least the late fall and winter. The site does not, however, provide a commanding view of the surrounding landscape, suggesting that monitoring regional movement of people and game was not the primary reason the setting was selected. If monitoring was a goal of the people who occupied the Warwick Site, views downstream and toward streams were most important.

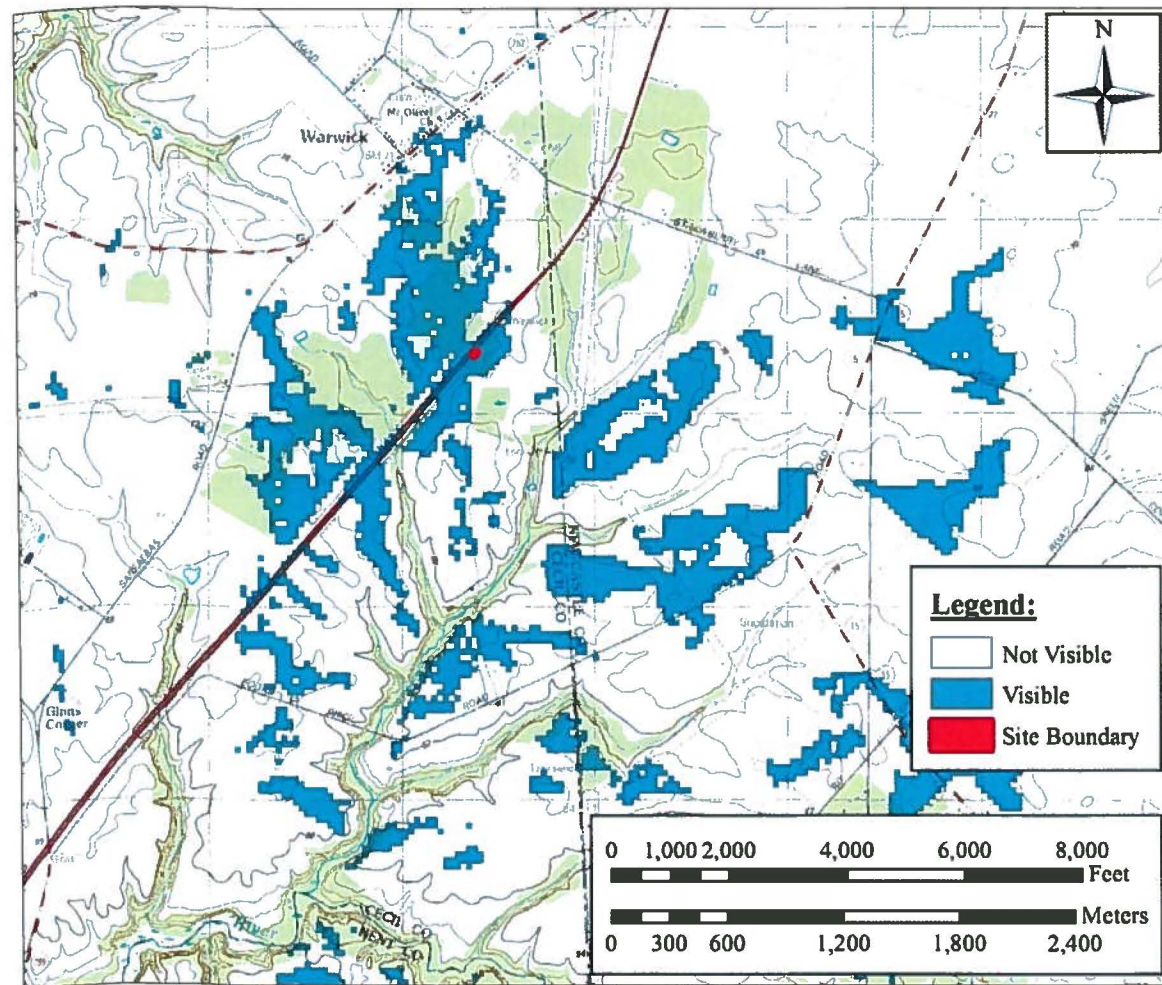


Figure 21: Viewshed from the Warwick Site.

Alternatively, the Warwick Site may have been one of a number of locations involved in monitoring the movement of game and humans during a single expedition. If so, the "notion site" perhaps impedes understanding of the relationship between the accumulation of artifacts designated the Warwick Site and the circa 5000–3000 B.P. cultural landscape (Dunnell 1992:38). Binford (1983b:117–138), for example, discusses interrelated locations that result from an integrated suite of activities associated with caribou hunts. Centering the viewshed approximately 820 feet (250 m) east atop a slightly higher terrace opens views to the northeast and east (Figure 22); multiple viewing stations on higher elevations within 1 mile (1.6 km) of the Warwick Site would incorporate much more of the surrounding

landscape. The site, therefore, perhaps occupies a streamside location surrounded by more suitable monitoring stations occupied for hours or days by one or a few individuals from the group occupying the Warwick Site. The expected archaeological signature of extremely short-term occupations would be minimal.

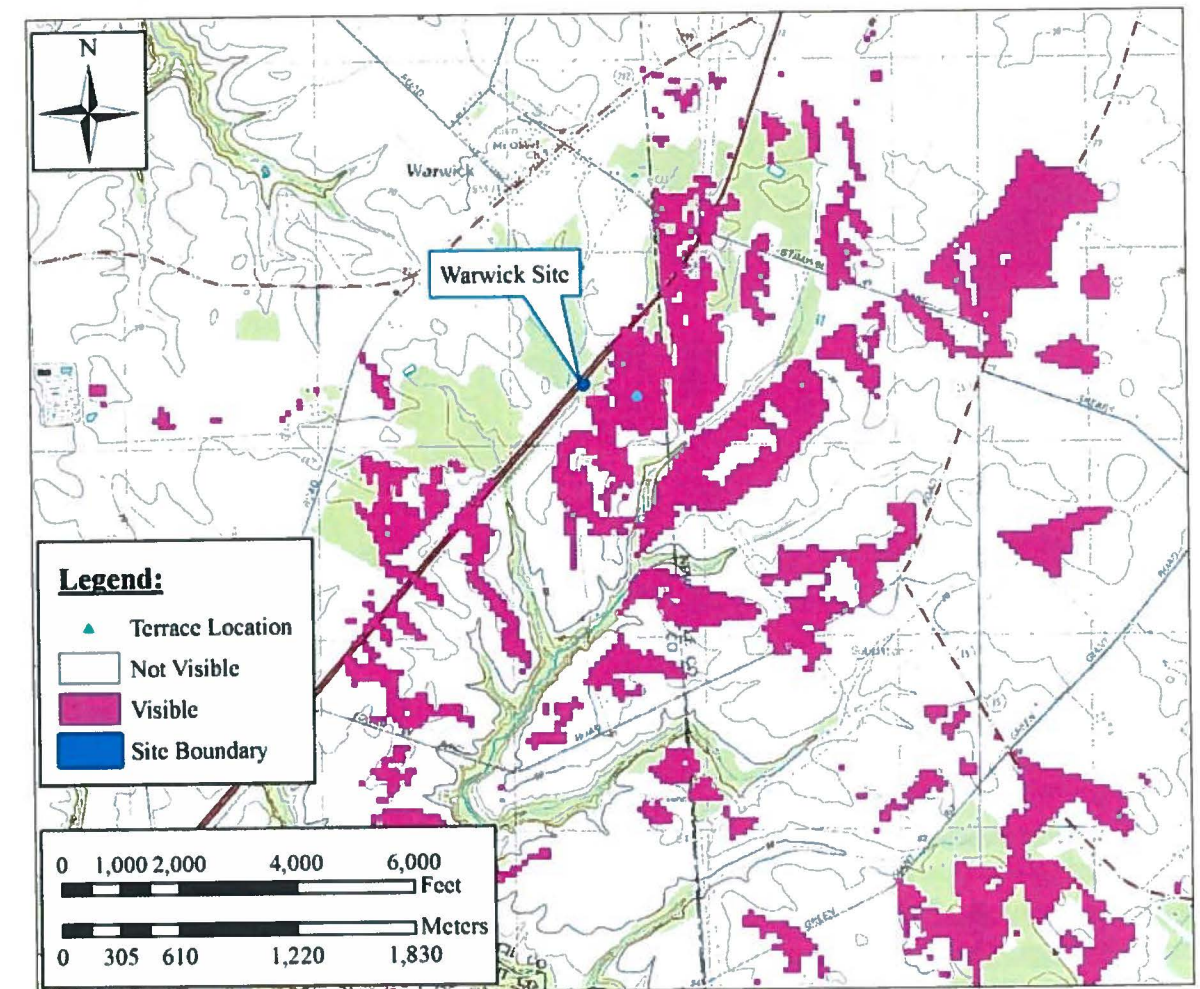


Figure 22: Viewshed from the Upland Terrace East of the Warwick Site.

Least-cost analysis of travel routes relied on digital elevation models to evaluate the most efficient route between two points. In this case, points were selected near the head of navigation for small boats to approximate the nearest location that typifies the settings of larger settlements generally found in productive fluvial settings throughout the region. Selected tributaries of the Chesapeake Bay include Little Bohemia Creek, Great Bohemia Creek, and the Sassafras River. Silver Lake and Noxtown Lake, both at the head of branches of the Appoquinimink River, and Blackbird Creek empty into Delaware Bay (Figure 23). The Warwick Site lies within 6.2 miles (10 km) of all but Blackbird Creek, demonstrating easy access from the favored location for larger settlements throughout much of the region.

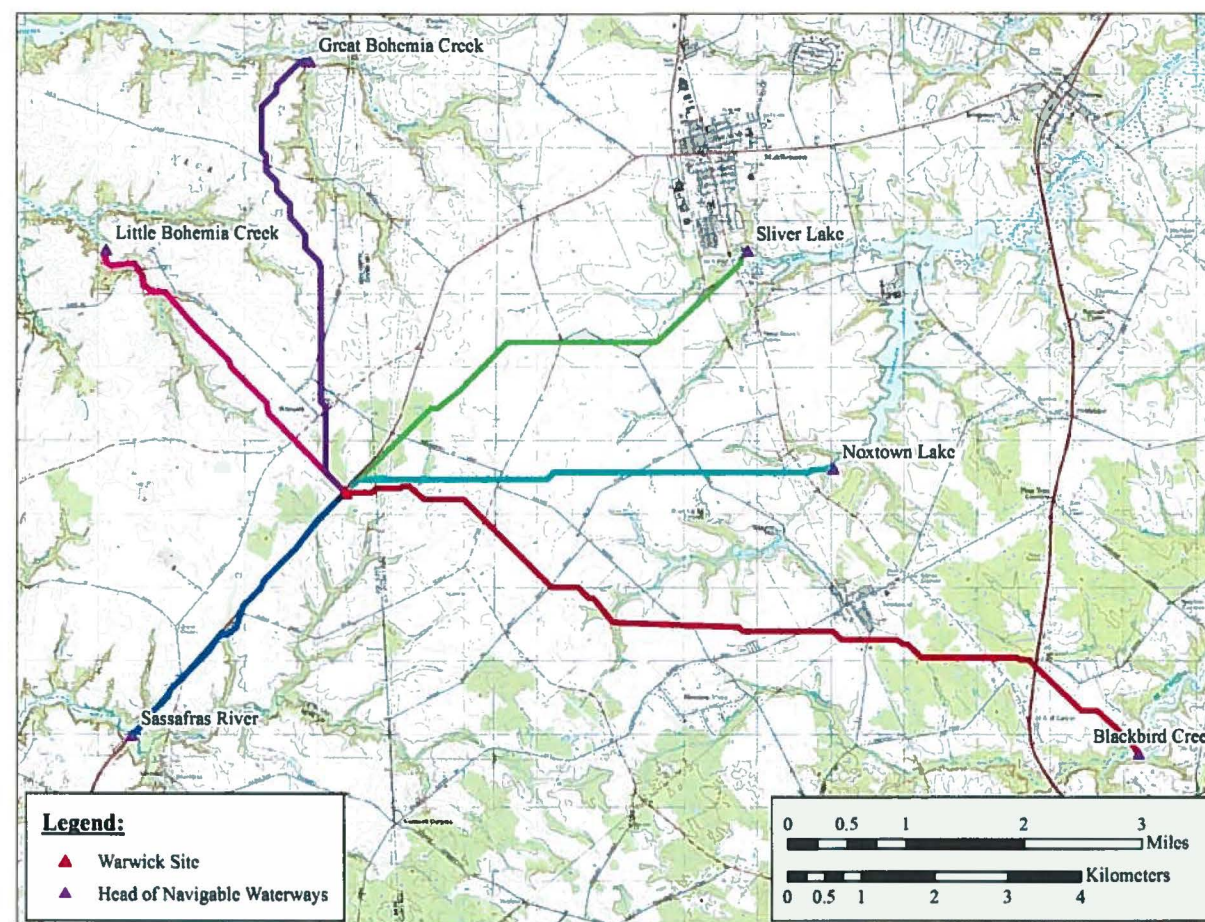


Figure 23: Least-Cost Paths from the Warwick Site to the Sassafras River (2.7 miles [4.3 km]), Little Bohemia Creek (3.0 miles [4.8 km]), Great Bohemia Creek (4.0 miles [6.4 km]), Silver Lake (4.2 miles [6.7 km]), Noxtown Lake (4.2 miles [6.7 km]), and Blackbird Creek (7.7 miles [12.4 km]).

Least-cost analysis of travel routes from the points on the northern and eastern rivers to the Sassafras River, the southernmost of the drainages, generally confirms the impression drawn from Bradley's (1796) map of post roads. Least-cost routes from Great Bohemia Creek and Silver Lake, the northernmost points selected, to the Sassafras River on the south pass through the vicinity of the Warwick Site (Figure 24). The southern segment of the Silver Lake to Sassafras River approximates the location of U.S. 301, while the northern section veers to the northeast. In sum, the likely travel routes for game and humans occurred in the immediate vicinity of the site, and potential locations of base camps exist with one days travel from the site.

Regional Comparison

In 1989, 441 of the 788 (56 percent) sites with diagnostic artifacts recorded in the Delmarva Archaeological Data System included narrow-bladed stemmed points (Custer 1989:147). More recently, Kellogg (1992) reviewed known sites in the U.S. 301 corridor prior to the expansion of the road. The absence of temporally diagnostic artifacts prevented assignment of 82 of the 178 prehistoric sites in the corridor to a more specific time period. The

remaining 96 prehistoric sites were assigned temporal periods using Custer's (1984, 1989, 1996) paradigm, which classifies sites occupied as late as 6500 B.P. as Paleoindian, sites dating to the traditional Middle Archaic as Archaic, and Late Archaic through Middle Woodland sites as Woodland I.

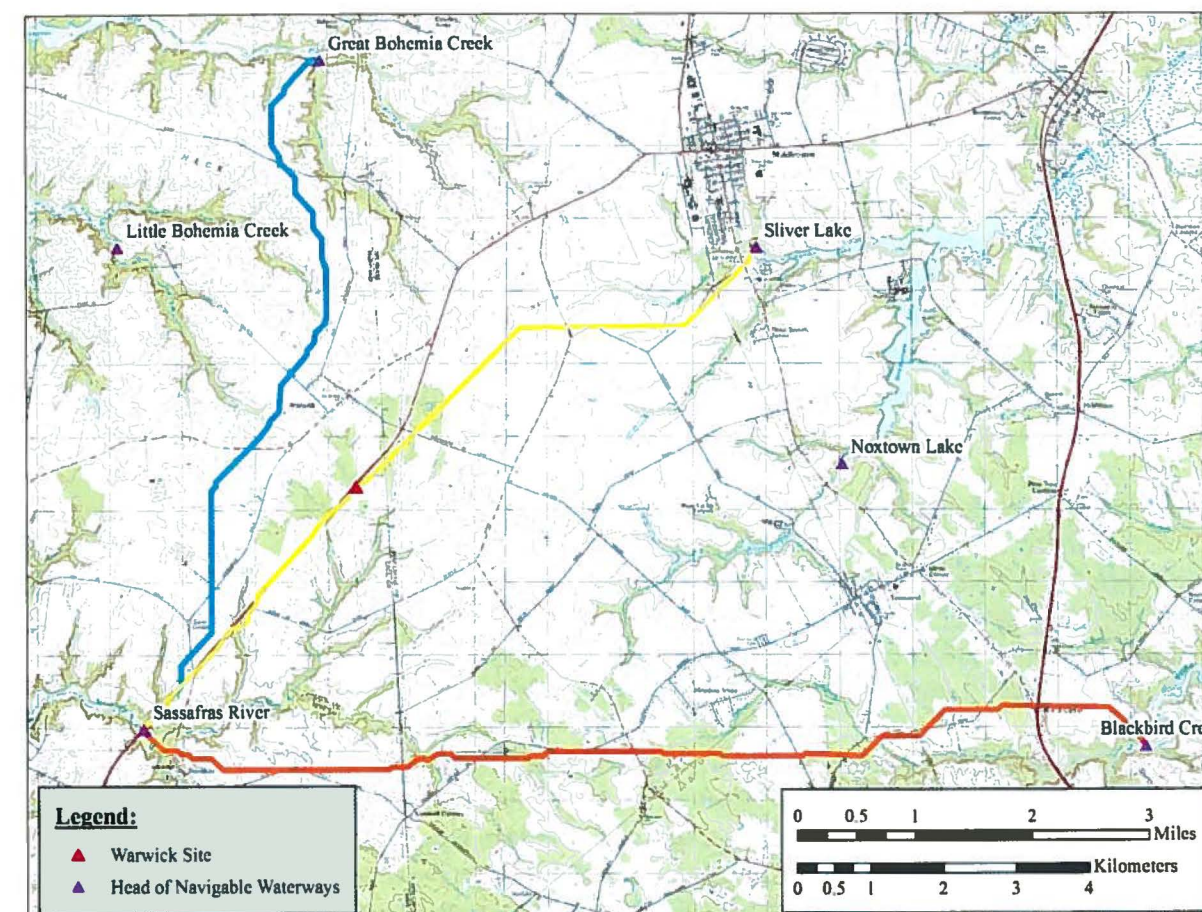


Figure 24: Least-Cost Travel Routes from Great Bohemia Creek, Silver Lake, and Blackbird Creek to the Sassafras River.

Woodland II refers to the traditional Late Woodland Period. Of the 96 sites with temporally diagnostic artifacts, seven percent dated to the Paleoindian era, 20 percent to the Archaic Period, 50 percent to the Woodland I Period, and 23 percent to the Woodland II epoch. Late Archaic and Early Woodland sites are prominent in other northern Delmarva data bases and surveys as well.

Late Archaic components appear very common in the Northern Delmarva Peninsula counties of Cecil (n=39), Kent (n=70), and Queen Anne's (n=175) in Maryland. Early Woodland diagnostics have been identified on 51 sites in Maryland's three northern Delmarva counties, constituting roughly 25 percent of all sites in the state-wide sample. The site files, unfortunately, represent an unsystematic accumulation of data collected by a wide range of individuals with varying knowledge of the archaeological record and diagnostic artifact types. Moreover, the search may not have recovered sites with, for example, Middle

Archaic through Middle Woodland diagnostics if the search term does not appear in the site file. Consequently, the precision of the data appears questionable. Yet systematic surveys of large areas in Cecil, Kent, and Queen Anne's Counties, most examining areas near the shoreline of the Chesapeake Bay and its tributaries, also suggest that Late Archaic and Early Woodland materials commonly occur throughout the region (Gibb 2003; Hoffman and Baumgardt 1992; Payne 1980; Pickett et al. 2002; Stevens et al. 1989; Wilke and Thompson 1977; cf. also Thomas and Payne 1981; Ward 1986). Extensive surface collection of plowed fields in the interior of Queen Anne's County, Maryland by Lowrey (1994) and Kavanaugh's (1979) study of exposed surfaces, primarily plowed, near the headwaters of the Chester River produced similar results. In sum, Late Archaic-Early Woodland sites commonly occur throughout the northern Delmarva landscape.

Regional Settlement Systems

Regional models of settlement patterns, including models of Late Archaic and Early Woodland settlement, emphasize the importance of highly productive, diverse riverine environments as settings for large-scale base camps, aggregation sites, and, during the Late Woodland, semi-sedentary villages (e.g., Custer 1989:186; Dent 1995:185–186, 200–214; Klein 2010; LeeDecker et al. 2005:267–268). Systematic survey and excavation in northern Cecil County, along the Elk River and near the mouth of the Susquehanna River, demonstrates the importance of riverine settings for peoples like those who occupied the Warwick Site, as does McNamara's (1985) work at the Conawingo Site (18CE14) on the floodplain of the lower Susquehanna River and numerous excavations in Delaware (e.g., Custer 1989:186; Custer et al. 1996:132–135; LeeDecker et al. 2005:267–268).

Archaeologists tend to classify accumulations of artifacts located in the interfluvial uplands as special-purpose or extractive sites. Ethnographic and ethnoarchaeological studies, however, imply a more fluid, less hierarchical relationship between the uses of different environmental settings than implied by the base camp-procurement camp dichotomy, though the latter remains useful (Versar 2012:198). Statistical analysis of the density and diversity of material recovered from a sample of Late Archaic and Early Woodland sites provides less compartmentalized view of landscape use than do typological approaches to site function.

Academic and Cultural Resource Management (CRM) archaeologists have undertaken numerous large-scale excavations of Late Archaic-Early Woodland/Woodland I sites in Delaware (e.g., Bowen et al. 2003; Custer and Bachman 1984; Petraglia et al. 1998; Petraglia et al. 2002; Thomas 1981; Versar 2011a, 2011b, 2011c). Spatially discrete Late Archaic to Early Woodland components were identified at a number of sites in Delaware. For comparative purposes, the Late Archaic component from the White Oak Point (44WM0119) shell midden, an unrepresented site type, has been included in the sample of sites used to evaluate the duration and intensity of the occupations of the Warwick Site (Waselkov 1982).

In general, the amount of debris that accumulates at different locations and during different occupations correlates with the number of people who resided at or visited a given site, though complications exist. In addition, as the duration of occupation increases, the number of tasks carried out on site tends to rise, resulting in the accumulation of an increasingly

diverse array of artifacts (cf. Gallivan 2002; Lightfoot 1984). Based on these two principles, analysis of the size and diversity of the assemblage recovered from particular locations provides information concerning the number of residents and the length of occupations represented by the features and assemblages recovered from a particular archaeological site. Regional data provide a basis for interpreting the Warwick Site data, as well as establishing a regional context for Late Archaic and Early Woodland land use. Spatially discrete deposits dating to the Late Archaic and Early Woodland Periods were examined. Sites and portions of sites that contain distinct Late Archaic-Early Woodland components include:

Lums Pond (7NC-F-18), Area 1

Area 1 of the Lums Pond Site, like the Warwick Site, primarily consists of the block excavation of a plow zone in an upland setting (Petraglia et al. 1998:45). Area 1, atop a high terrace overlooking a tributary of St. Georges Creek, dates to the Late Archaic-Early Woodland Period. Thirty-three 3.3-square-foot (1 sq. m) TUs formed the excavation block. Spatial and attribute analysis of the assemblage identified a lithic-reduction site within Area 1 (Petraglia et al. 1998).

In Area 3, located on a low-lying terrace adjacent to the tributary stream, excavation revealed a buried plow zone that contained Late Woodland artifacts separated from an underlying surface that produced Late Archaic-Early Woodland artifacts by approximately 20 inches (50 cm) of alluvium. No features were identified during the excavation of Area 3, though radiocarbon assays from a buried stratum clustered around 3300 B.P. Possible latent features, similar to the spatially discrete distributions of artifacts at the Warwick Site, included a cluster of FCR and two concentrations of debitage. Like Area 1, Petraglia et al. (1998) interpret buried Strata D/E as the remains of a lithic-reduction site.

Puncheon Run (7K-C-51), Metate Block

Situated on a peninsula between the St. John's River and Puncheon Run, site 7K-C-51 extended over approximately 20 acres (8.1 ha). This analysis focuses on an area referred to as the Metate Block by the excavators, based on the presence of a large metate near the center of the excavation block. LeeDecker et al. (2005) interpret the area as the remains of a fishing camp repeatedly occupied by small groups between 4000 and 3000 B.P. Artifacts, hearths, and the metate were identified within the excavation block. The large metate represents site furniture (Binford 1983b:295), presumably an indication of intent to return to the location to harvest and process local resources.

Black Diamond Site (7NC-J-225)

Located on an upland terrace overlooking a Bay/Basin depression, the Black Diamond Site contained short-stemmed points with broad blades and long-stemmed points with narrow blades that suggested a Terminal Archaic occupation. Artifacts occurred primarily in the first 0.35 feet inches (10.2 cm) below the plow zone, suggesting a single surface disturbed by plowing and bioturbation. Excavation revealed clusters of artifacts, large and small basins, and the post-like soil anomalies; soil chemistry suggested that at least some features

may have been produced naturally. Quartzite reduction represents the most prominent activity carried out on site. Analysis, however, identified a functionally diverse assemblage and features. Based on the assemblage, features, and well-maintained site area, Versar (2011c) described the site as an extended occupation.

Blackbird Creek (7NC-J-195D)

Site 7NC-J-195D, in the Coastal Plain Uplands overlooking Blackbird Creek, was occupied during the early centuries of the Early Woodland Period (Versar 2012). Archaeological deposits occurred in the plow zone and underlying cultural features. Features consisted primarily of deep, refuse-filled pits. While a mixed assemblage of Late Archaic through Late Woodland artifacts were recovered from the overburden, radiocarbon dates from the pits clustered around 3000 B.P. For this reason, only artifacts recovered from features were included in the analysis. A seasonal occupation for processing oil rendered from fish was inferred from the assemblage and features.

White Oak Point (44WM0119)

Data from the White Oak Point Site was included to document a short-term occupation at a shell midden from the relevant time periods. White Oak Point, in the lower Potomac River Valley, comprised spatially discrete components ranging in age from the Late Archaic through the early historic era. The site was occupied “during the spring by small groups of Indians, who established temporary camps for the primary purpose of gathering and subsequently roasting oysters” (Waselkov 1982:206). During the Late Archaic, deer hunting also occurred in the vicinity of the site, implying a group composed of men, women, and, most likely, children.

Discussion

The estimated density derived from the entire assemblage of prehistoric material recovered from 18CE371 equals 50.1 artifacts per 35.3 cubic feet (1 cu. m). The only excavation in the sample that produced fewer artifacts per 35.3 cubic feet (1 cu m) than the Warwick Site was the assemblage from features on the seasonally occupied Blackbird Creek Site (7NC-J-195D). Sole reliance on artifacts recovered from pit features to avoid the temporally mixed plowzone deposits likely reduced the density and diversity of the portion of the assemblage included in the analysis, since feature assemblages generally accumulated over a shorter time span than plowzone contexts. Artifact density, therefore, implies that the assemblage recovered during the fieldwork at the Warwick Site results from the short-term activities of one or more small groups.

Calculating assemblage diversity, a measure of the variety and abundance of artifact categories present for a given sample size, has become complex (Baxter 2001; Bobrowsky and Ball 1989). To avoid numerous zero values, calculation of diversity relied on the frequency of: debitage; cores, points and other bifaces; ground, pecked, and battered stone; FCR; miscellaneous other lithic artifacts; and the number of container fragments, whether stone or ceramic. The analysis attempted to calculate a measure of the range of activities

regularly carried out at different sites based on variation in the amount of different types of artifacts recovered. Simpson’s Dominance index, essentially an evenness measure, ranges from zero when a single artifact category constitutes the entire assemblage, to one when an equal number of artifacts occur in each artifact class.

The analysis supports the proposed interpretations of the sites, characterizing the assemblages from all but the Black Diamond Site as low density and low-to-moderately diverse (Figure 25). The dense, diverse assemblage from the Black Diamond Site appears consistent with the interpretation of the site as an extended occupation, likely a base camp. As noted earlier, reliance on only refuse unearthed from pits at the Blackbird Creek Site perhaps limited the depositional context, thereby reducing the evenness value of the assemblage. Regardless, the data appear consistent with the interpretation of the Warwick Site as a short-term occupation where few activities were carried out. The small size of the Warwick Site, even relative to other short-term occupations, confirms the impression gleaned from the density and evenness data. At an archaeological time scale, short-term possibly refers to repeated occupations over decades or centuries. Moreover, poor preservation left only lithics at the Warwick Site. Activities that relied on organic artifacts, like hunting small animals, harvesting nearby plants, or performing small-scale rituals, remain uncertain given the preserved materials.

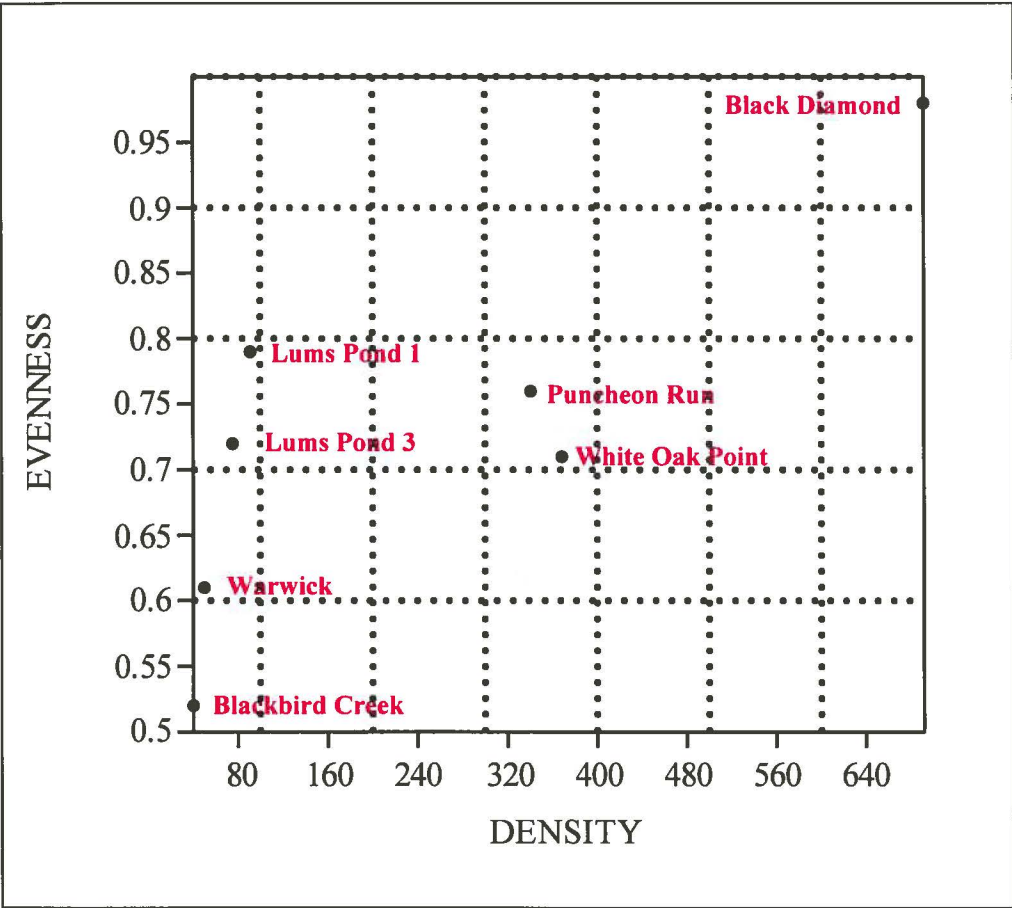


Figure 25: Graph of Assemblage Evenness by Assemblage Density Per Cubic Meter Excavated.

CONCLUSION

In concert, low artifact density and diversity, small size, and limited spatial variation in the distribution of artifacts and soil chemistry identifies the Warwick Site as a the setting for short-term occupations where a limited range of activities were undertaken during the Late Archaic and, perhaps, the Early Woodland Periods. Small, low-density concentrations of lithic material in the interior uplands constitute the single most common type of archaeological site in the circum-Chesapeake Region. The jumble of overlapping occupations typically encountered in the uplands, some argued, precluded attempts to interpret the date, structure, and role of such sites in the regional system. The growth of CRM, which drove archaeologists “out of the major river floodplains and the ‘large’ sites, which more often than not distorted our view of prehistory” (Gardner 1987:52), along with theoretical, ethnoarchaeological, and technological advances, renewed archaeologists’ interest in small, shallow sites in upland settings. Unlike some large feature- and artifact-rich sites, however, the value of a small plow-zone archaeological deposits like those recovered from the Warwick Site, necessarily emerges from the analysis of the site and assemblage in relation to the regional natural environment and archaeological record. In this case, the Warwick Site data contributed to rethinking point function and the complexity of regional settlement systems and patterns of mobility.

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THE DELAWARE DUTCH (1654-1664) SOUTH RIVER TALES: WILLEM BEECKMAN—THE COMPANY MAN AT FORT ALTENA

By Kim Burdick, MA, MPA

PREFACE

Official Dutch records of the period show that Fort Altena /Cristina served as the Dutch West India Company's regional headquarters. Its staff was both answerable to, and dependent upon, Peter Stuyvesant in New York City/New Amsterdam, and ultimately to the company's headquarters, board and directors in Holland (Greenwood 1975).

During the final decade of Dutch rule along the Delaware, two inter-related and highly competitive business entities were located within 7 miles (11.3 km) of each other (Figure 1). A very few years before, Fort Altena /Cristina had belonged to Sweden and Fort Casimir had belonged to the Dutch West India Company. By the middle of the seventeenth century, a game of musical chairs had left Fort Cristina in the hands of the Dutch West India Company, New Castle under the control of the City of Amsterdam, and New Sweden out of the game. At times, the lines of command were complicated and tangled by instructions from overseas directors and investors.

Dutch *factorijen* (forts) combined business and military efforts worldwide in what was considered to be a better business investment than colonization. The sole purpose of these *factorijen*, including Delaware's Fort Altena/Cristina, was to make money for investors (University of Groningen). Believed to have been located at Fort Christina Park on Wilmington, Delaware's Seventh Street Peninsula, the physical footprint of Fort Cristina remains elusive.

The Dutch West India Company had divested itself of its South River interests, turning them over to the City of Amsterdam the year before England captured the Delaware River and Bay. In 1667, the Treaty of Breda confirmed the takeover of all of New Netherland with the Dutch agreeing to trade their North American holdings to the English in exchange for Surinam.

HISTORICAL BACKGROUND

Wilmington, Delaware has been a company town since 1637–1638. Originally a fur and tobacco trading post known as Fort Cristina, the financial backers of Nya Sverigekompaniet (The New Sweden Company) were largely Swedish and Dutch investors. Among the six Dutch joint-venture owners was Samuel Blommaert, who had been one of the patroons of the ill-fated (1630–1632) Swanendael whaling station at Lewes. The expedition's leader,

Peter Minuit, formerly the Director of the Dutch West India Company, was well-acquainted with the South River.

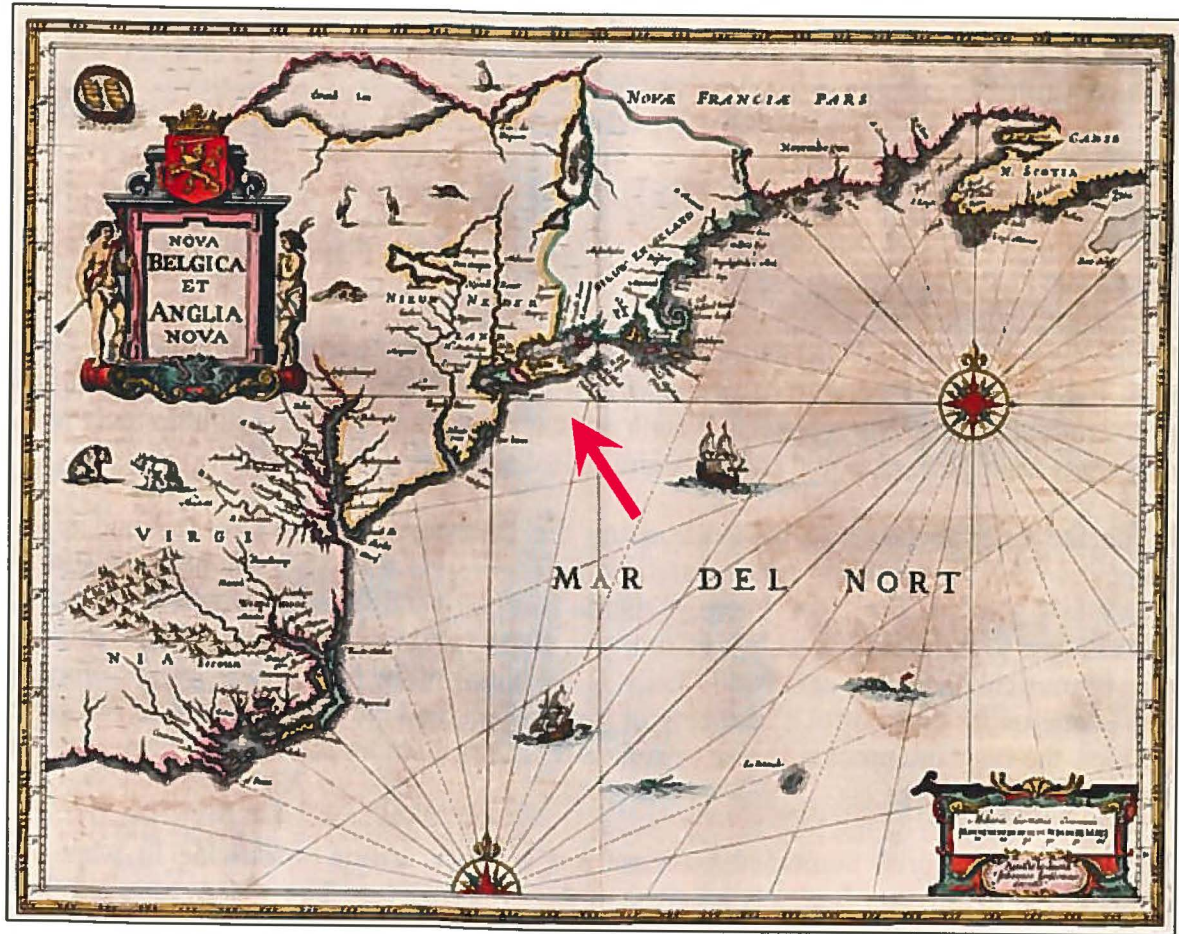


Figure 1: Map of New Netherlands showing Zuydt (South) River (Delaware River) (Jansson 1647). Red arrow notes the location of New Netherlands.

By 1642, the Delaware settlement’s anticipated revenues had fallen short, and the Dutch financiers had pulled out. The Swedes now appointed Johan Printz their Governor. Printz served in that capacity for a decade (1643 until 1653), and was briefly followed by Governor Risingh (Craig 2001).

In 1645, Andries Hudde, a Dutchman who had come to America with Governor Kieft, described Fort Cristina as follows:

In a stream called the Minquas Kil (so named because it runs close to the Minquas Country), is a fort named Kristina. The fort is situated a good half-mile up the stream and is surrounded by marshy ground, except on the northwest side where it can be approached by land and on the southwest side where the stream flows past. It has no permanent garrison but is, nevertheless reasonably provisioned. It is the headquarters for trading and also the place where the commissary keeps his residence. There is also located here the

magazine for all goods. About two miles further up on the same side begin some plantations which continue on for about one mile; but there are few houses, and these widely scattered. They extend to about Tinnekonck which is an island enclosed on the side opposite the river by streams and thickets (Gehring 1981:1; See reference for additional information on Andries Hudde).

According to the Landmark Review Task Force, Fort Cristina was partially built on, and adjacent to, a geographic landmark of Wilmington’s Seventh Street Peninsula known as the Rocks, with the fort’s south side facing the river (Figure 2). Cristina is said to have been a square, palisaded earthwork with acute-angled bastions projecting diagonally at the four corners (Figure 3). Cannons were mounted on the northwest corner and on the two riverside corners. Two log houses were inside the fort, one of which was probably used as a storage magazine, the other as a barracks and dwelling. In 1640, under the direction of Swedish Governor Peter Hollander Ridder, the earthworks were repaired and three new houses, a storehouse and barn were constructed within the fort. Small houses and tobacco farms began to appear outside the fort. Larry states that the fort’s main walls were constructed of logs, sharpened at one end and set in a trench, perhaps partially driven into the soil at the bottom of the trench. The log walls are thought to have extended upwards about twelve feet. Dirt was mounded up against the outside of the log walls with a natural camouflage of grass and other plants growing in the mounded soil (Greenwood 1975).

By 1649, a case had been made by political activist and lawyer, Adriaen van Der Donck, that New Netherland was unusually valuable and in danger of being lost due to company mismanagement by Dutch Governor Kieft of New Amsterdam. To go with his Remonstrance, van Der Donck commissioned the Jansson-Visscher map of the colony. It showed New Netherland along the original Dutch territorial claim from Cape Henlopen just south of the Delaware Bay at 38 degrees to the start of New England at 42 degrees and included drawings of typical Indian villages, wild game, and the town of New Amsterdam. Perhaps in response, The Dutch West India Company began to re-assert its rights to the South River. In 1651, in an attempt to block Swedish trade on the Delaware River, Peter Stuyvesant, new Director General of New Netherland, established Fort Casimir (named for Count Ernst Casimir, Stadtholder of Friesland, Groningen and Drenthe), less than seven miles south of Fort Cristina at the north-eastern edge of what is today known as historic New Castle. (Gehring 1981:31, 37–63)

1654 AND 1655: HOSTILE TAKEOVERS

Swedish Governor Risingh fought back. In 1654, Fort Casimir, with few men and fewer supplies, surrendered to the Swedes, almost without opposition. We know from Risingh’s official reports that only 22 houses existed at Fort Casimir /New Castle at that time. Risingh noted in his records on June 14, 1655: “The Hollanders dwelling there who took the oath (to Sweden) are now gone off to Manathes (Manhattan), two or three weeks ago. The land is now practically clear of the Hollanders. It would be well if the same thing could be said of the English. Dated Cristina in New Sweden. June 14, 1655” (Jameson 2005:158).

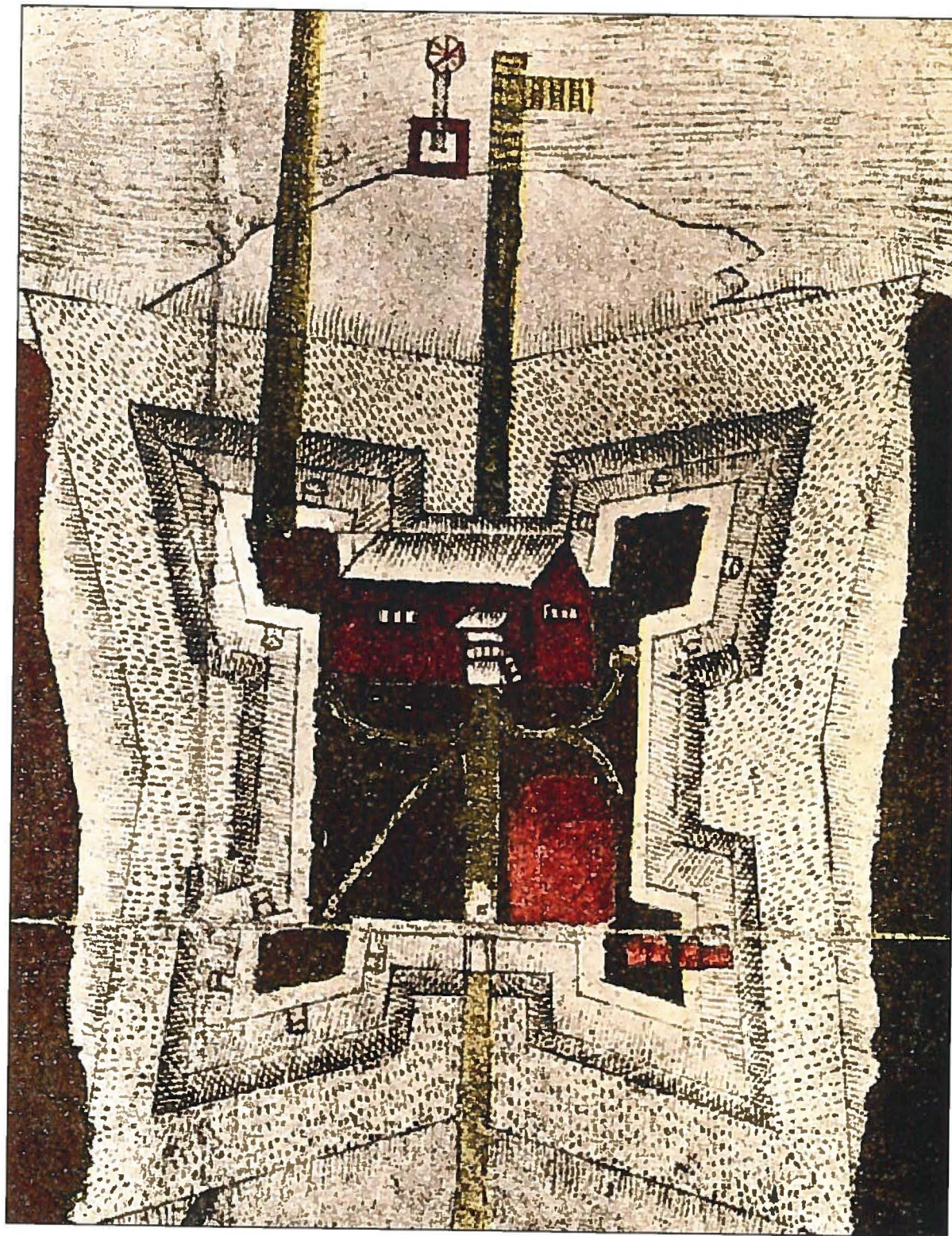


Figure 2: Detail from a map of Fort Cristina by Per Lindeström, 1654 (Yurasik 2013).

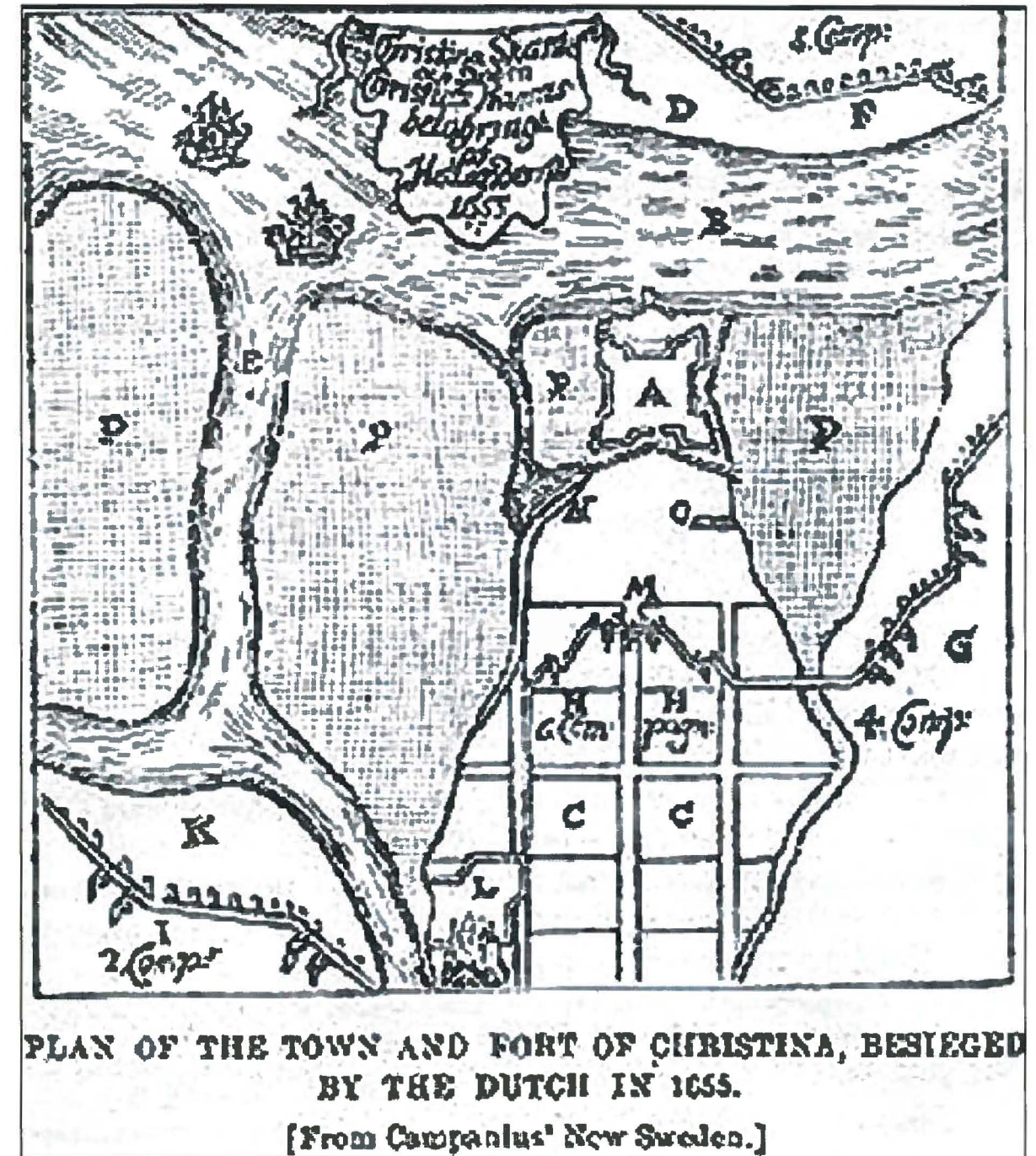


Figure 3: A facsimile of the plan of Fort Cristina at the confluence of Brandywine Creek and Christina Creek near the Delaware River (beyond right margin of map) during the siege by the Dutch in 1655 (Winsor 1884:480). The Swedish fort was a primary objective of the Dutch in their campaign to return New Sweden territory in the Delaware Bay to New Netherlands. The map is keyed to show: (A) Fort Cristina; (B) Christina Creek; (C) town of Christina Hamn; (D) Tennekong Land; (E) Fiske Kil (now Brandywine Creek); (F) Snake Battery, of four guns; (G) Gnat Battery, of six guns; (H) Rat Battery, of five guns; (I) Fly Battery, of four guns; (K) Timmer Öland (Timber Island); (L) kitchen; (M) position of the besiegers; (N) harbor; (O) mine; (P) reed flats; and (Comp) companies of Dutch soldiers.

On September 10, 1655, Stuyvesant sailed down from Manhattan with a fleet of seven ships. He easily recaptured Fort Casimir from the Swedes, whose 50 soldiers were now divided between two fortresses, his own Fort Casimir at New Castle and the Swedish Fort Cristina, located 6.5 miles (10.5 km) to the north. (O'Callaghan 1858:588–591). This time, it was the outnumbered Swedes who surrendered without a fight. Captain Sven Skute's surrender of Fort Casimir was quickly followed by the surrender of Fort Cristina.

Stuyvesant described the scene to the Council on September 12, 1655:

With 50 men drawn from our companies, we occupied the roads to Cristina. The Swedish commander, Skute, was warned by a second message that in order to prevent bloodshed and other grief he should not await the attack of our troops which will be covered by our cannons...After this the troops advanced to the marshland in sight of the fort...and the fortress was summoned for the last time. The following morning the commander came out and surrendered to us under the conditions sent herewith. About midday our force marched in; and today we offered insufficient thanks at our first church service. God's hand has been visibly with us; in weather, good success, and the weakening of our opponents. Yesterday about midday, during the deliverance of the fortress, the factor, Elswyck, came down from Fort Cristina. He amicably requested, in the name of the director, the reasons for our coming and the orders of our superiors. "To take and hold what belongs to us," was our answer (Gehring 1981:14, 38–39).

Swedish reports were somewhat more dramatic.

The Dutch now began to encroach upon us more and more every day. They killed our cattle, goats, swine and poultry, broke open houses, pillaged the people outside the scone of their property, and higher up the river they plundered many and stripped them to the skin. At Gothenberg they robbed Mr. Papegoija's wife of all she had, with many others, who had collected their property together in the Hall there. They daily continued to advance their approaches to Fort Cristina (which was a small and feeble work and lay upon low ground and could be commanded from the surrounding heights) and threw up two batteries besides those on the opposite bank and on Timber Island and hoisted their flags on all of them as well as on our ship in Fish Creek (Brandywine Creek near Fort Cristina), all which hostile acts, injuries, and insults we were, to our great mortification, compelled to witness, and suffer, being unable to resist them by reason of our want of men and of powder, whereof our supply scarcely sufficed for a single round for our guns (Jameson 2005:174).

In October, Swedish Governor Risingh, apparently forgetting his own take-over of Fort Casimir the previous year, wrote to Peter Stuyvesant:

The old alliance and union between his Royal Majesty in Sweden and the High and Mighty Lords of the States-General of the United Netherlands,

which you mention, have really been little respected by you considering the invasion, siege and finally the seizure of all the lands and fortresses in this part of the world belonging to my most gracious lord and king... Your people have ravaged us as if they were in the country of their archenemy... what happened around Fort Cristina; where the women were, sometimes with violence, torn away from their houses; buildings dismantled and hauled away; oxen, cows, pigs and other animals slaughtered daily in large numbers; even the horses were not spared but wantonly shot, the plantations devastated and everything thereabouts so ill-treated that our provisions have consequently been mostly spoiled, taken away and otherwise consumed (Gehring 1981:18, 44).

JACOB ALRICHS

Largely due to economic woes in Brazil, the Dutch West India Company's stock plunged to a new low. In 1654–1655 a proposition was made that the City of Amsterdam take over Fort Casimir and Santhoeck as partial payment of the debt owed to the City:

The Dutch West-India Company, sole Possessors of the Delaware Territory for some time, are then compelled, for financial Reasons, to surrender Part of their Lands there to the City of Amsterdam, who establishes a new Colony." In an extract from a letter of the Company's Directors to Stuyvesant, "the negotiations regarding a division of the Delaware territory have resulted in the surrender Of Fort Casimir (New Castle) and the land south of it to the City of Amsterdam; the new Colony is to be called New-Amstel and Jacob Alrichs is to be the City's representative there. 19 Decbr. 1656 (Brodhead 2013; Weslager and Dunlap 1987:158).

Finally official attention began to focus on Altena. On November 29, 1657, Jan Juriaen Becker, a Dutch resident of the Fort Altena/Cristina area, was named as temporary commissary of the Dutch West India Company by the governing council. Becker's duties included taking delivery of company goods when they arrived at the port and providing raw materials such as nut-wood, tobacco or beaver pelts for the return voyage (Pearson 1918).

The following spring, Peter Stuyvesant came down from Manhattan to look at the Dutch lands. At Fort Altena/Cristina, he laid out lots for additional colonists and inspected the battered fort (Weslager and Dunlap 1987:171). We find a reference to projected land use in early New York State Records:

...his Honor had laid out near Fort Altena some lots, the single ones at 30 feet, the double ones 60 feet breadth, and one hundred feet deep. Under condition that on the double ones two dwellings should be built on them and if the first owners or occupants should fail to build on them, they shall by order of the Director-General and Council be transferred to others who are more ready to build provided that the first owners may demand one hundred guilders and not more for fencing and other expenditures therein (O'Callaghan 1858:213).

We know very little about the exact locations of these boundaries and property lines. Few maps of New Netherland specifically identify what the Dutch did with their land. In this respect, Dutch social and cultural norms of the seventeenth century seem to have differed from their Anglo-American counterparts. The Dutch produced only a handful of specialized cadastral maps, which show such things as property boundaries, the layout of cities and settlements, or the location of buildings. Historian Donna Merwick has suggested that it may have been considered an invasion of privacy to be forced to make one's property holdings publicly known, much less to produce maps of them (Allen 2011; Merwick 2013).

On September 5, 1658, Vice-Director Alrichs requested an order of Fort Orange brick and says about a recently received shipment: "I have given them out mostly to the inhabitants to make chimneys, also between seven and eight thousand for the building or the masonry in Fort Altena." Accordingly, the ship New Amstel sailed to Fort Orange and returned to Fort Casimir laden with bricks and 250 boards. Approximately 8,000 bricks were given to the commandant of Fort Altena to use in rebuilding the fort. In early October 1658, Alrichs wrote to Stuyvesant: "Jan Juriaen, the Commissary at Fort Altena, has again, de novo, demanded eight thousand bricks for necessary buildings there, which I have partly delivered to him." (Scharf 2001:858; Weslager and Dunlap 1961:193).

WILLEM BEECKMAN

On October 8, 1658, Stuyvesant appointed 35-year old Willem Beeckman (1623–1707) to serve under him as Commissary and Vice-Director of the Fort Altena colony and north into what would later become Pennsylvania (Figure 4). Beeckman had come from Holland on Stuyvesant's ship in May 1647 and had been one of the principal players in the construction of Wall Street, which had been designed to protect Manhattan from English invasion. Beeckman, a husband and the father of many children, was the grandson of two prominent Biblical scholars and translators, the most prominent of which was Baudartius, a Flemish scholar of Hebrew, and one of the officially appointed translators of the *Statenbijbel*, the official Dutch-language Bible. In later years, Beeckman's daughter Maria (baptized June 26, 1650), would marry Peter Stuyvesant's son (Geni 2015).



Figure 4: Painting of Wilhelmus Beeckman, Circa 1645 (Biography of Ancestors and Others 2015).

Whereas the service of the Company urgently requires, that a suitable person be engaged and sent as Commissary to the South River, and considering the qualifications and good conduct of Willem Beeckman, a citizen and old inhabitant here, the same is engaged, commissioned and appointed as such, for which the same salary and emoluments is allowed him, as the former Commissary, Jacquet, has received there, to wit fifty guilders per month and 200 guilders annually for commutation of rations. It is resolved, to send the same there with the proper commission and instruction by the first suitable opportunity. Date as above, 28 of October, Monday, 1658.

Arrived at the South River he shall for the present, as the Company has not reserved a house or a lot in the Colony, and provisionally take his quarters in the buildings in Fort Altena, but since he must reside frequently in or near New-Amstel, especially upon the arrival and discharging of ships, he shall on the first opportunity look about for a suitable room or house there and try to rent the same for the term of one year at a reasonable price, to be charged to the Company.

Upon the arrival of City' s or other ships, yachts or vessels, of whatever nation they may be, he shall endeavor always to be at or near Fort New-Amstel in time and before their landing or at least before their breaking cargo, that he may closely watch the cargo and the unloading and by no means is he to allow, that any merchandises or goods shall be unloaded or put on board the ships or loaded, unless they have been previously inspected by him and he is satisfied, that the lawful dues thereon have been paid in the Fatherland or are to be paid here at the Customs office of the Company, so that the Company may not be defrauded of her revenues. In order that this may be carried out more effectively and all smuggling prevented, he shall place a guard of the Hon. Company's military either under his own command or under a sergeant or other suitable officer of the Company on board of such ships, barks or yachts, while they discharge and load. Upon discovery and seizure of any contraband goods, he shall seize or arrest them in the quality of Auditor, conform to the published placates of the Director-General (Brodhead 2013:219).

Beeckman was invested with authority over Fort Altena and the land northward to the Schuylkill but was instructed to allow the Swedes to administer justice through their own officers until such a time as circumstances required a change. Jacob Alrichs, the Director of the City of Amsterdam's colony at today's New Castle, would remain in charge of New Amstel/Fort Casimir and the land southward to Bombay Hook. Beeckman would be in charge of the Company's soldiers and freemen, administering law and justice in both civil and military cases, and minor criminal cases, was to maintain the Dutch Reformed Church, and make certain that no goods were laden or unladen without paying tariffs to the Dutch West India Company (Weslager and Dunlap 1987:172–173).

In the transfer of New Amstel to the City of Amsterdam, the West India Company was a guarantor of any loss suffered by the City due to encumbered deeds, and Beeckman, as a Company official would be obliged to come to the City Colony's assistance as needed.

1659

By 1659, New Netherland's leaders and investors on both sides of the ocean, had very real concerns about Lord Baltimore's men who were actively claiming that the Delaware River lands had been theirs since the days of King James I. Stuyvesant and Alrichs decided that Beeckman, representing the Dutch West India Company's Colony headquartered at Altena, and Alexander d'Hinoyossa, representing the City of Amsterdam's Colony at New Amstel, would go together to the Delaware Bay to buy land from the Indians and acquire a legal document showing that the Dutch had a legal title to that property. Writing about the troublesome Swedes and English on the Delaware River, Stuyvesant explained to Amsterdam that his policy had been a "lenient method of governing, to win their hearts to divert their thoughts from a hard and tyrannical form of government." Stuyvesant let it be known that he depended on Willem Beckman, his vice-director in charge of the Company's Delaware Colony, because Beeckman was "a person of peaceful character." (Merwick 2013:31; Weslager and Dunlap 1987:172-174).

In 1659, Stuyvesant had recorded the "scatter of his men; 50 at Esopus; 15 or 16 at Altena along the Delaware River and the same number at Beverwijck; 8 or 10 at Harlem; and only 50 others on Manhattan Island." From the Company's perspective, the soldiers were simply objects whose wages were a costly drain on its treasury and the men knew it (Merwick 2013). They were paid employees of the Dutch West India Company with little food, supplies or equipment. Their loyalty was tied to the Company's loyalty to them. On September 12, 1659, Beeckman wrote to Stuyvesant, "My Lord General, last week Abraham Eskels, soldier, deserted us; we now have 13 men together with the sergeant". On the 20th, Beeckman again wrote to Stuyvesant, adding in a marginal notation: "My Lord, I request that 3 or 4 small cannons be sent to me so that we may also have something to defend (....) fort and honor" (Gehring 1981:64, 155).

Cecil Calvert now appointed Josias Fendall the new Governor of his Maryland territories. By Fendall's reckoning, all the territory now comprising the State of Delaware had been included in the grant King James I had made to the Calvert family years before. In his mind, the City of Amsterdam's Colony at New Amstel, the fort at Hoerenkil, and the Dutch West India Company's Fort Altena were all squatting on Maryland territory. Fendall and the Maryland Council ordered Colonel Nathaniel Utie to go to New Amstel and persuade the Dutch to either become Maryland subjects or vacate Lord Baltimore's property. With Jacob deVrint (alias Young) as his Dutch interpreter, Utie demanded an official audience with Director Alrichs, who hurriedly sent a messenger to Fort Altena urging Beeckman to come at once. In the conference that ensued Utie repeated his warnings and added if the Dutch leaders refused him he would not be responsible for any spilled blood, because the charter empowered Lord Baltimore to make war against trespassers. Alrich's military forces at New Amstel then consisted of eight soldiers, two cadets, and one sergeant; Beeckman's defenses at Fort Altena amounted to 21 soldiers—and insignificant army to protect the colony against

an invasion of a rumored army of 500 soldiers, a much exaggerated figure. Objection was also made to the form of the instructions held by Utie, which were simply signed by Philip Calvert, Secretary, but contained neither place nor date; Utie paid little attention to this. The particulars of the affair were forwarded at once to Stuyvesant. (Scharf 2001:111; Weslager and Dunlap 1987:175.)

On September 12, 1659, Beeckman wrote to Stuyvesant:

Mr. Alrichs urgently requested my attendance at this meeting to hear the colonel's demands and proposals; saying also that I on behalf of the honorable Company had more to defend than he, because the City had a guarantee from the Company against any loss, since unencumbered land was sold and conveyed to them. The colonel first handed a letter to Mr. Alrichs...telling us that the land we had settled on and possessed here in the South River was in Lord Baltimore's jurisdiction, and for this reason he told us to depart at once or to declare ourselves subjects of the same Lord Baltimore...told me in particular that since he had heard that I was the commander at Christina, I must depart as well, because I was also within the aforesaid 40 degrees. I replied if he had anything to say to me, he should come to the place where I had my residence. He retorted that he considered it sufficient to have said it here (Gehring 1981:63).

Stuyvesant now wrote a chastising letter, dated September 23, 1659 to Alrichs and Beeckman.

Noble, Honorable, Wise, Prudent and Very Discreet Lords:

With no less regret than astonishment have I seen in the latest transmitted letters and enclosures the frivolous demands of Nathaniel Utie, and your further dealings with him upon such capricious and fabricated instructions...Worse yet you allowed the aforesaid Utie to sow the seed of sedition and mutiny among the commonality for four or five days..(He) deserved to be treated as a spy (Gehring 1981:67, 158).

Several years later, in December 1662, Utie was still threatening the Delaware Dutch. Beckman wrote to Stuyvesant: "About three weeks ago Mr. Kip was at Colonel Utie's place and he asked whether you were still angry with him because he had previously asked New Amstel to surrender, saying in addition that Lord Baltimore had obtained from the present king new patents under which the colony fell, and the aforesaid lord intends to enforce this patent to the fullest extent" (Gehring 1981:67).

JAN JURIAEN BECKER

Upon returning to Altena with his sergeant, Beeckman wrote to Stuyvesant:

I found most of the soldiers drunk. I was told that Jan Jurian Becker has frequently offered the men brandy on credit, which I have forbidden.

Yesterday, one hour into evening, Jan Jurian's neighbors came to complain of the violence of drunken Indians. I sent the sergeant there with three men. He found six (Indians) totally drunk near Jan Jurian's house. They resisted so that they could not be brought to the guardhouse, running finally into the woods. They came back quietly to the houses about an hour later, stealing two blankets from Sander Boyer's bed and a musket belonging to the Company, which I shall try to recover. There are no Swedes here presently who have brandy so that it must certainly be Jan Juyrians' liquor by which the Indians become so aggressive.

In a seeming non-sequitor, he added: "One-third or seven persons of our garrison living outside the fort are married.

After numerous similar transgressions, Jan Juriaen Becker was brought to trial, briefly imprisoned, and later, having obtained a liquor license, became a tavern keeper.

FEVERS AND POXES

The marshes that bordered the South River were a breeding ground for mosquitos. In June 1658, Jacob Alrichs wrote a letter to Peter Stuyvesant describing a fever raging in New Amstel. The labor force was reduced to such an extent that very few were still able to work. Jacob Alrichs' wife was among the dead, and Alrichs himself was sick.

A serious general sickness has been raging here again for some time among many of the settlers. I have been in poor health myself for some days but am now, thank God, somewhat better. Jacob Alrich to Stuyvesant. 5 August 1658 (Gehring 1981:44, 126; Tantillo 2011:72).

On December 13, 1659, Beeckman wrote to Stuyvesant:

Domine Welius was buried yesterday. He passed away on the 10th day of his sickness. Last Monday night I once again suffered an attack of burning fever and pressure in the chest with heavy pains in the sides, so that I am very miserable. For the first three days and nights I discharged nothing but bloody phlegm which was horrible to see. It weakened me so much that I could hardly walk. I hope that God may grant me some life for the sake of my wife and little children (Gehring 1981:78, 183).

A month later, on January 14, 1660, Beeckman again wrote to Stuyvesant.

My Lord, since my last letter by the galliot, we have lost at New Amstel the Lord Director Jacob Alrichs who passed away on 30 December. His death is producing a great deal of turmoil in the colony, principally among the officials and the heirs. According to the enclosed last will of Mr. Alrichs, deceased, his choice for a successor is Mr. d'Hinosse who, as I am told, has already established himself somewhat sternly and harshly. The inhabitants

desire to see you in the spring in order to restore order and appoint another director (Gehring 1981:79, 184).

On the February 1, 1663, Beeckman wrote to Stuyvesant:

Claes de Ruyter tells us that the smallpox is drifting down the river with the Indians, against which we are preparing ourselves, and since I have not had the pox I humbly request that you send as soon as possible some theriacal mithradate, senna leaves as well as other purgatives and cooling medicinals useful thereto as we are burdened with eight children and we would suffer much misery in that case with them. You would oblige me greatly because no medicinals can be found here (Gehring 1981:71).

ALEXANDER D'HINOYOSSA

Beeckman was in charge of the revenues of the West India Company from all the settlements in Delaware but Jacob Alrichs's successor, d'Hinoyossa refused to cooperate, saying he did not answer to Stuyvesant and was accountable only to the commissioners of the City of Amsterdam. As the Dutch West India Company insisted upon a collection of the revenues, D'Hinoyossa seemed to grow in power while continually evading all taxation. On March 18, 1662, Beeckman wrote to Stuyvesant:

I have been paying proper attention to the unloading; I go daily to and from the ship and have the supercargo record what goes ashore in each boat. On shore I once again make a record. I immediately found some parcels marked A.D. H., to Mr. d'Hinoyossa. When I received the general manifest, I did not find them there but instead they were [listed] in the pilot's records, as you can see by the papers sent...After it was reported, the director and council claim not to have known that I did not have a manifest, which is untrue because...I met the schout, Van Swearingen, on the beach and told him about it. Have also learned from various people that the schout, Van Swearingen, has said that he had nothing to do with the Company nor with its administration; stomping his foot on the ground at the same time. Also, that they only had to inform their masters in Amsterdam that they needed the entire river and it would be given to them immediately; then the Company would have to desist from everything (Gehring 1981:23).

1660

The year 1660, was a difficult but busy one for the settlers and soldiers at Fort Altena. On January 25, Beeckman wrote to Stuyvesant:

Some farmers, who arrived on the Vergulde Meulen and settled here opposite our fort as a village, have complained to me lately that they have no more provisions because they harvested little from their land last summer. Their seed grain from Mr. Alrichs came late, and it was English grain which

ripened very late. Consequently most of it froze in the fields so that they have little or no provisions. These farmers have sown a considerable amount of winter wheat, yet some say that if they receive no assistance, they will have to run away before the new grain comes up because they have already sold their surplus clothing last winter for provisions.

The ice broke up two days ago so that we shall shortly have open water.

My Lord, we urgently need a drumhead because we can no longer use this one. Farewell.

On March 15, 1660, Beeckman wrote to Stuyvesant:

My Lord, there are rumors here that Lord Baltimore is in Maryland and that he is to descend upon us in three or four weeks with 500 men; but such news is uncertain, I request that you be pleased to send me orders and instructions about how I am to act in such an event (God forbid it); and whether it is not necessary that the decayed batteries be built up with sod or beams. I have them here at hand from the dilapidated house on Cuyper's Island, of which some have been used here for a small bakehouse in the fort. We have few muskets or musket balls in store here and no shot at all for the cannon (Gehring 1981:82, 190).

A little more than a month later, on April 18, 1660, Beeckman reported to Stuyvesant:

We are busy fitting the fortress with gabions and shall cut the decayed points down obliquely. We urgently need a guardhouse of about 12 or 15 feet in size. The guard is now held in the quarters and the returning sentinels can often undress and lay down in their bunks because we have no guard-bench; we cannot put one in because the house is too small. Therefore, a guard house is urgently needed. The men also have frequent arguments over the fire: first it's the guard's wood, then it's the quarter's wood so that there is always a dispute. We have enough squared timbers for construction of one from the dilapidated house on the island. Therefore, the only expense would be for the chimney and the roof (Gehring 1981:84, 194).

Stuyvesant was having his own problems with the managers of the Dutch West India Company. Far away and blissfully safe from the rawness of the New World, they had no clue what life was like on the frontier and assumed Stuyvesant was hiding profit from them. When ordered by the company to pay all the debts and salaries of officers out of New Netherland's own revenues that year, Stuyvesant replied that he could not do it. The realities, he explained, were "low market prices, war with the Indians, fear of invasions by our neighbors, complaints of the military and other burdens." Concerning the soldiers along the Delaware he wrote, "(they) make many marches now and are completely without socks, shoes, shirts and other pieces of necessary clothing." He reminded the directors that the men faced being massacred on the treacherous overland march from Manhattan Island to the Delaware River (Merwick 2013:50).

That summer, Beeckman kept the men busy, laying out a little town called Cristinaham west of Fort Altena and lots were granted to settlers, among whom were John (Anderson), Jacob Vanderveer, Paules Jansen and Tymen Stidham (Scharf 2001:899). Beeckman's letter to Peter Stuyvesant written from Altena in the summer of 1660 gives us a window through which to look at this project and we can also note his links to the Sussex County operation:

Noble, Honorable, Highly Esteemed, Wise and very Prudent Lord: My Lord, the most welcome letter from the honorable council of New Netherland was duly delivered to me by Skipper Jacob Janssen Huys on the 12th of this month, together with 20 skipples of peas, two barrels of meat and one barrel of bacon. The buoys have been delivered to Mr. D'Hinojossa.

After the galliot was unloaded, it sailed further on above to take on the clapboards. They were not in the state of readiness which Mr. Van Gezel had pretended they were. They had to be fetched by raft at least a quarter of a mile or more in the Oplant's Kill. Harvest time and much rainy weather also delayed matters. If the skippers here had had some foreknowledge, they could have made preparations. The galliot will be able to receive the next loads in two or two and a half days since we are now making preparations for it, and it will all be watered wood; this shipment is unwatered wood.

I was up there myself prodding the sailors. They claim to have earned a barrel of beer because the wood lay some distance from the river's edge. I promised to inform you of it in order to have Mr. van Gezel do the honors (Gehring 1981:91).

On August 7, 1661, Beeckman wrote to Stuyvesant.

I am not happy to hear that a conflict is feared between the Netherlands and England because it would fall heavily on us here, since we are exposed to the English as if we were standing before a door. I shall act according to the tenor of your letter....I also need two anckers of brandy or distilled liquor to use in exchange for corn next month for the garrison, because it is more easily obtained for liquor than for other goods. I have been informed that our Lords-Mayors are sending a ship with farmers. They would like us to mix some of them among the Swedish and Finnish nation here. 17 June 1660. Last Saturday I distributed the last of our meat. I have left about one ration of bacon and 200 lbs. of stock fish. I request that you be pleased to send us some bacon and meat at the first opportunity. Beeckman to Stuyvesant (Gehring 1981:88, 204).

The official records are full of Altena's requests for food and basic supplies. Even the most basic items seem to have had to have been ordered from the company warehouses in Manhattan:

- August 13, 1660, Beeckman wrote to Stuyvesant: “My Lord, we require before winter some more matches because much is consumed” (Gehring 1981:92, 208).
- September 4, 1660, Beeckman wrote to Stuyvesant: “My Lord, today I distributed our last bacon for a month’s ration. I have no more than 50 lbs. of meat in stock” (Gehring 1981:94, 210).
- September 9, 1661, Beeckman wrote to Stuyvesant, “I reported to you the needs of our garrison here in my last letter. Our peas and bread-grain are depleted. I only have enough bacon and meat until about November. There are, praise God, enough provisions here if we only had some Osnaburg linen, distilled spirits or brandy and duffels to buy them with. For the soldiers I need some clothing, stockings, shoes and shirts, as well as some sewant for expenses incurred in repairing the buildings here” (Gehring 1981:12, 240).
- September 17, 1661, Beeckman wrote to Stuyvesant: “My Lords, before closing this I wanted to remind you of the needs of the garrison here, which I mentioned in my previous letter. We also need a quantity of salt for buying bread-grain, because presently we can obtain one skipple of grain for one skipple of salt (Gehring 1981:12, 241).
- September 8, 1662, Beeckman wrote to Stuyvesant: “I also await the requested merchandise for the purchase of foodstuffs for the garrison, since we have very little in storage. I have expended Mr. Decker’s sewant and more for the purchase of bread grain because we had none left in storage; therefore, I request that 2 or 300 guilders worth be sent for daily necessities because I have had six or seven sick soldiers for three weeks now who are still sick, and because I also incur various expenses during the slaughtering season. Also, I request 20 or 30 skipples of salt and about 20 ells of clothing material and woolen cloth because some of the men and myself need it against the cold weather” (Gehring 1981:60, 306).
- September 14, 1662, Beeckman wrote to Stuyvesant: “I take this opportunity to remind you of our garrison’s needs. Merchandise is hard to come by here and I shall also need a dozen pairs of shoes for the soldiers before winter” (Gehring 1981:61, 307).

1662

Communications continued, and numerous records from 1662 recount activities and conditions. In regards to the Native tribes, it was recounted: “The Sinnekus are still at war with the Minquasen. These river Indians are in such a state of fear that they have not hunted as usual, causing a poor trade. From Altena” (Gehring 1981:22, 262–263). Additional letters provide detailed information on daily existence.

- September 8, 1662, Beeckman wrote to Stuyvesant: “My Lords, we expect a sloop any day now with the minister whom I requested for reasons stated in my previous

enclosure. Yesterday my wife gave birth to another son so that I now have two unbaptized sons” (Gehring 1981:60, 306).

- September 20, 1662, Beckman wrote to Stuyvesant: “Mr. d’Hinoyossa declared that in six or eight weeks he was going to leave for the fatherland by way of Virginia in order to inform his superiors in detail of the status of the colony and the necessity to acquire the river for their Honors. In addition he said that if he did not return, then everyone would have to look for refuge. I wish to remind you of our needs which I mentioned in our last letter. I also request that the positions of the deceased and Elias Routs be filled; and if you deem it necessary, send a few more since I have only five or six healthy men, the others are suffering from the second and third day fever, I am being brief because our soldiers are ready to accompany the bearer...PS Please remember to send 20 or 30 skipples of salt” (Gehring 1981:63, 308).
- October 24, 1662, Beeckman wrote to Stuyvesant: “Please keep in mind that this is a bad place, because the men can earn little or nothing on the outside and are barely able to live on the rations, making it necessary to charge things occasionally...I hope you will accept my debt in the account book, because everything ordered from Manhattan carries such large freight costs and other expenses” (Gehring 1981:65).
- November 24, 1662, Beeckman wrote to Stuyvesant: “I wish to remind you of our need of provisions for the magazine and elsewhere, because presently everything is gone...Apparently we shall have to receive all our bread-grain from Manhattan this coming summer, because presently all the grain is being brought up by merchants and sent there. The farmers say that the grain is yielding only half as much as last year” (Gehring 1981:67).

1663

On February 8, 1663, a Resolution was passed in Holland by the Directors of the Dutch West India Company, Chamber of Amsterdam transferring Altena to the City of Amsterdam.

The Commissioners over New Netherland having been in conference with the Lords-Mayors of this city, pursuant to the resolution of last Monday, submitted a written report...the Company is willing to give up and surrender Fort Cristina to you ...You shall not be at liberty to alienate the colony by sale, transfer or otherwise, either in whole or in part, on pain of forfeiting the exemptions granted by this resolution...The jurisdiction and propriety of the country must extend upwards, as far as the river reaches (Gehring 1981:83).

In May 1663, Beeckman, perhaps not yet hearing of the business decisions that had been made in Holland, petitioned for a piece of “marshland and six morgens of upland or woodland, bordering on the said marsh, which is situated on the westside of Fort Altena and measures by guess about eight morgens. He would inclose it with a dike, if your Honors consent to it, and turn it into arable land. Expecting your Honors' favorable decision, Your Hon' Worships' obedient servant WiLH. Beeckman” and “The foregoing request was

received and read and the following decision was made after due consideration: After the land and the marsh mentioned above have been surveyed, a patent in due form shall be given to petitioner” (Brodhead 2013).

- July 23, 1663, Beeckman wrote to Stuyvesant: “Two different people have told me that according to the River Indians we might be attacked by some renegades here at Altena because we are compatriots of the lord director-general. My Lord, there are only 10 to 12 pounds of musket balls in the magazine and no flints at all. I request that you please send us some shots and flints as soon as possible; they are needed all the more because most of the men have snaphances” (Gehring 1981:79, 325).
- August 4, 1663, Beckman wrote to Stuyvesant: “My lords, I request that you advise me whether I shall have to supply this garrison here for another year. I would like to know as soon as possible so that I can regulate myself accordingly, because Mr. van Sweringen will have to care for over 100 people. Altena.”
- August 15, 1663, Beeckman wrote to Stuyvesant: “We are destitute of almost everything” (Gehring 1981:84).
- September 1, 1663, Beeckman wrote to Stuyvesant: “Recently the governor of Maryland assisted the Minquas with some powder and lead as well as with two small pieces of artillery and four men to handle them. My Lords, this also serves to inquire whether you deem it necessary that some repairs be made on the fort since the palisade and everything else are in decay. I would also like to inform yo that almost all of our provisions are depleted. I have contracted for some grain so that it is necessary to be sent some Onasburg and Flemish linen as well as duffels and other things in order to replenish our magazine. We also urgently need for the soldiers before winter two dozen shirts and two dozen pairs of stockings and shoes, together with cloth and lining for four or five men’s shirts. We also require here some shot and flint for snaphances.”
- December 5, 1663, Beckman wrote to Stuyvesant: “When I arrived in New Amstel yesterday morning with two or three men to go aboard the ship, his honor (d’Hinoyossa) immediately sent Costurier, a member of the high council, to tell me that no soldiers were to be sent on board and that he would show me something from the directors, of which letter I am sending you a copy. It is said hear that the whole river is to be transferred to the Colony; therefore I humbly request that you be pleased to employ me elsewhere in the service of the Company” (Gehring 1981:89, 338).
- December 6, 1663, Beeckman wrote to Stuyvesant: “I have been informed that Mr. d’Hinoyossa has supposedly said that he will not tolerate me here this winter; therefore, I want to protest to you about the impossibility of a departure during the winter with my large family and the movement of livestock for sustenance. May you be pleased to bring these matters to his attention so that I might remain in my lodgings until a more favorable opportunity? I hope that you will be able to find some other employment for me elsewhere. PS. I have decided that I could not live

here on the river as a freeman because d’Hinoyossa would allow me no peace. Therefore, I humbly request that you take me in your paternal care and offer me advice” (Gehring 1981:90, 339).

- December 28, 1663, Beeckman wrote to Stuyvesant: “Eight or ten days ago d’Hinoyossa asked me through Messrs Kip and Costurier whether I was inclined to continue living in Fort Altena, and to take on some marshland nearby for cultivation; he would provide me with five or six or more laborers. I declined because I saw no profit in it; moreso, because in the future no freemen would be allowed to trade with the English or the Indians, and that the tobacco and fur trade would be reserved for the City.” “I cannot see, that much profit can be derived from valleys in three consecutive years, as the expenses for making dikes, ditches and floodgates and the cutting down of knolls run too high, besides 2 or 3 pairs of oxen are at least required for each plough, to break up the land, so that I think, it is not advisable for common or poor people to take up bottomlands. I prefer good woodland, to get immediately a profit” (Brodhead 2013:451; Gehring 1981:91, 340–341).
- December 28, 1663, Beckman wrote to Stuyvesant: “Mr. d’Hinoyossa is to make his residence on the Appoquinimink Kil where he intends to build his major city and establish trade with the English, in addition he has diked a considerable amount of marshland in the area. I foresee much opposition from the Indians when the lands here and there are claimed, especially up here on the river. The fur trade has been given over to Mr. Pieter Alrichs for which purpose he brought over 200 pieces of duffel, blankets and other goods. Alrichs shall trade at New Amstel; the Councillor, Israel, at or near Passajongh, and someone else for the City at the Hoere Kil. In sum. Within or after one year and six weeks no private person shall be allowed to trade in either tobacco or furs. ..Goods now coming here from Manhattan will be subject to a tax as well as peltries and tobacco going there. I would like to live elsewhere because I would not be able to trust him when I become a freeman. “If one wants to beat the dog, a stick is easily found, says the proverb, so that I shall find myself obliged, to remove my family to Maryland, in case your Honorable Worships should have no occasion to continue me in the service, which, however, I hope” (Brodhead 2013:451; Gehring 1981:91).
- January 12, 1664, Beeckman wrote to Stuyvesant: “On the 5th of this month, when all the Swedes and Finns were summoned to Altena, (although none appeared), I resigned my office and then was informed by the councilors of New Amstel, who were commissioned to come here, that according to your instructions, I was to occupy my present lodgings until spring and that an agreement has been made to evacuate the soldiers quarters within fourteen days, which will be done.

On the 9th of this month, the Swedish magistrates with many of their nation and the Finnish nation appeared here. After I released them from their former oath (at the proposal and request of Mr. d’Hinoyossa), so that they could take a new one, they went on the 10th to New Amstel and said, “If we have been sold, then we are handing ourselves over.” On the same day they were administered an oath by the director and council in my presence, which they unanimously refused to take until

they had in writing those privileges of trade and other things which they had enjoyed under the Company's administration. ..I have learned from various sources that they would rather break up and come under your government.

Thank you for the favorable letter of recommendation to Mr. d'Hinoyossa as well as for your strong desire to continue me (in the service). I hope that the opportunity will present itself in the meantime...This letter is coming with the risk that the bearer may be able to get through. I dare not venture presently to return the garrison overland (three of the men are too sick to march), partly because of the changeable weather and partly because I have received no definite order from you concerning this" (Gehring 1981:92, 341-342).

England's Charles II gave all of New Netherland to his brother, James, Duke of York. In May 1664, James dispatched Colonel Richard Nichols to seize the colony of New Netherland. Three hundred soldiers from four warships went ashore on Long Island in August and moved west to Brooklyn. On September 8, 1664, Peter Stuyvesant formally surrendered New York, the Hudson Valley and the Delaware River to the British.

IN THE END

From the abandonment of the town of Cristinaham, in 1664 until 1731, no attempt was made to found a settlement or lay out a town on the river north of New Amstel within the limits of Delaware. D'Hinoyossa would return to Holland. Beeckman, moved back to New Amsterdam, becoming the Sheriff of New York City in 1664 and a Lieutenant in the militia in 1673. In 1674, Beeckman was elected Burgomaster and retained his office when the English gained control of the city following the second Anglo-Dutch War. Beeckman would become Mayor of New York City and live to see his oldest daughter marry Peter Stuyvesant's son in 1671.

The territory that had been Fort Altena /Cristina was reconfigured into five large tracts that came into the possession of John (Anderson), Dr. Tyman Stidham, Jacob Vanderveer, Jean-Paul Jacquet, and Pieter Alrich who had all been residents under Dutch rule, either at New Amstel or at Fort Altena. Today the search for Fort Altena continues unabated.

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