RESEARCH DESIGN AND METHODS

The Maryland Historical Trust (MHT), in consultation with DelDOT, determined the Warwick Site eligible for listing in the National Register of Historic Places (NRHP) under Criterion D for its ability to reveal information about the prehistory of the northern Delmarva Peninsula. Site 18CE371, the Warwick Site, designates a small, low-density, near-surface concentration of lithic material near the headwaters of the Sassafras River located in the drainage divide between the Chesapeake Bay and the Delaware River. Research attempted to expose a large block within the core of the site to collect information on the composition of the assemblage and the spatial distribution of materials within the site.

Research Design

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. These homogeneous sites, many argued, possessed little research potential. Coe (1964:6–8), for example, believed the jumble of overlapping occupations typically encountered in the uplands precluded attempts to interpret the date, structure, and role of such sites in the regional system. The growth of Cultural Resource Management, 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.

Theoretical and Methodological Issues in the Interpretation of Small Interior Sites

Hunter-Gatherer land use results from the interplay of regional ecology, social organization, and the subsistence base of the societies under consideration. Therefore, excavations at single sites provide only partial insight into past societies (Binford 1983a, 1983b). Nevertheless, in conjunction with the regional studies, excavations at small, near-surface sites potentially address a number of theoretically important issues. Relevant issues include: the redundancy of land-use; the intensity and duration of the occupation(s) at sites; the interplay between intra-site and regional organization of activities and technology; variation in the social composition of mobile groups; patterns of movement and exchange; and the effect of historic agriculture, burning, and landscape alteration on the prehistoric archaeological record. To address these issues, requires the collection of a statistically valid sample of artifacts and the exposure of areas large enough to reveal patterns of artifact and feature distribution.

Although individual components have been identified at large floodplain settlements, broad floodplains typically represent persistent places, returned to again and again over millennia by varied groups for many different purposes. Some small sites, in contrast, formed during relatively short spans of occupation, in the archaeological sense. The assemblages, therefore, may not be affected by repeated occupation to the same extent as

persistent places. Unfortunately, it has proved difficult to distinguish single occupations from repeated ephemeral activity in ethnoarchaeological settings (e.g., Binford 1983a:231; 1983b:358).

Disentangling occupational sequences requires the analysis of multiple data sets through detailed statistical analysis. Detailed analysis of artifact attributes, for example, aided Petraglia's (1993) study of the spatial structure of a small site in Maryland, while the collection and analysis of a wide range of data supported Petraglia et al.'s (1998) reconstruction of past activities at the Lums Pond Site. Regardless of the precise statistical methods used, variation and central tendencies should receive equal consideration.

Archaeological Methods

Phase I survey associated with proposed improvements to U.S. 301 resulted in the identification of the Warwick Site. Phase II evaluation collected lithics primarily from the plowzone, though one possible pit feature contained four microdebitage fragments. The Phase III archaeological investigation collected data on spatial variation in the distribution of artifacts and ecofacts, and on the history of landscape alteration at the site. In addition, temporally diagnostic artifacts were recovered, and information on the extent of post-depositional disruption of artifact patterning was examined. To search for cultural features, the topsoil was removed and the surface of the subsoil cleaned and examined. One possible latent feature, but no intact features, was identified during the Phase III fieldwork.

Field Methods

During the Phase I survey, three parallel transects of shovel test pits (STPs) were excavated at 15-meter (50-ft) intervals within the right-of-way (ROW). The recovery of an artifact near the center of the Warwick Site prompted the excavation of 21 additional STPs at approximately 3-meter (10-ft) intervals to define the boundaries of the artifact distribution. In addition, a single 1-x-1 meter (3-x-3 ft) test unit (TU) was excavated to assess the stratigraphy.

An additional 58 TUs were excavated during the Phase II and III fieldwork. The 25 Phase II test units were scattered throughout the site to identify spatial variation in artifact density across the entire 12-x-21 meter (39.4-x-68.9 ft) site. For this reason, 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. Therefore, the Phase III grid replicated the alignment and grid numbering system of the Phase II fieldwork. Test units excavated during all phases of the fieldwork measured 1-x-1 meters (3.3-x-3.3 ft).

Geomorphological analysis conducted during the Phase II fieldwork identified five soil horizons that corresponded to the distinct strata recognized by soil color and texture: O/Ap (Stratum I), Ap (Stratum II), B1 (Stratum III), B2 (Stratum IV), and 2B horizons.

Test units were excavated in natural levels defined by soil color and texture; distinct strata; when stratum thickness exceeded 10 centimeters (3.9 in), arbitrary 10-centimeter (3.9-in) levels were excavated within the stratum to maximize stratigraphic control of artifact distributions. Arabic numerals added to the stratum designation identified the levels (e.g, II-1, II-2).

Most soils were screened through 0.6-centimeter (1/4-in) mesh; however, soil samples were collected from the 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. The soil samples were collected from a designated corner of each test unit; the specific location within each test unit minimized the extent of disturbance within the column sample. In addition, soil samples were collected at 10-meter (32.8-ft) intervals across an area slightly larger than the Warwick Site, and from each TU for the analysis of soil chemistry. Soil chemistry samples were collected from Stratum II (Ap) and the uppermost level in Stratum III (B1).

Cultural material was bagged according to provenience. Profile photographs were taken and scale drawings documented at least one wall from each unit. Profiles and potential features were photographed and scale drawings made in plan view. The single possible feature, consisting of three fire-cracked rocks at the interface between Strata II and III, provided no profile to document. The locations of all test units and datum stakes were documented using a Transit. The site datum, located at Grid N1997/E2008 was tied into an elevation marker adjacent to U.S. 301, as well as various points along the road.

Laboratory Methods

Stable artifacts were washed with water and rubbed with a soft brush in groups according to provenience; fragile artifacts were dry brushed. Once cleaned, artifacts were cataloged according to type, field tags were replaced with more stable and legible tags, and provenience information was recorded on diagnostic artifacts using polyvinyl acetate and an archival pigma-free ink pen. Following analysis, artifacts and associated records will be curated at the Maryland Archaeological Conservation Laboratory (MAC Lab) at Jefferson Patterson Park & Museum in St. Leonard, Calvert County, Maryland.

The artifact catalog recorded general provenience information and quantity for each artifact type. Artifacts were broken into three broad categories: historic, prehistoric, and natural. Artifact type was assigned according to generally accepted systems. Non-tool prehistoric lithics were cataloged and classified according to the general stage of reduction as primary, secondary, or tertiary (Callahan 1979; Crabtree 1972). Flakes that were partial or non-flake pieces that were still considered debris from stone tool production were given identified as angular debris (Andrefsky 1998; Whittaker 1994). Material type was recorded for all lithic artifacts. In addition, artifacts were measured and weighed.

Prehistoric lithics formed the overwhelming majority of material unearthed during the excavation of the Warwick Site. Nevertheless, historic artifacts were collected and catalogued. Historic artifacts are generally divided into material type [*Architectural*

(ARC), *Arms and Ammunition* (ARM), *Ceramic* (CER), *Glass* (GLS), *Metal* (MET), *Organic* (ORG), *Other* (OTH), and *Personal* (PER)] for basic analysis. Only glass, nails, bullets, and miscellaneous metal were recovered. Nails were recorded as hand-wrought, machine cut with wrought heads, machine cut with machine-cut heads, and galvanized and ungalvanized wire (Adams 2002; Nelson 1968). Window glass was subdivided by color, and brick was defined as either hand-made or machine-made. The *Arms and Ammunition* category included flints, bullets, bayonets, sabers, mortar shells, and other items that were used during battle activity or for personal use such as hunting. *Metal* is a form category and generally includes flat pressed metal or unidentifiable metal fragments. An attempt was made to place other metal items in a function category to aid in analysis.

Lithic Analysis

Lithic analysis focused on morphological, rather than functional categories (e.g., Young and Bamforth 1990). General categories included flaked stone, ground, pecked, and pitted stone, tested cobbles, and fire-altered cobbles. The distinction between ground stone- and flaked-stone tools, evident in the type of edge wear, was thought critical for the interpretation of site function. Ground stone tools often were used to process plant foods, while points and knives are important for hunting and processing game (cf. Wilmsen and Roberts 1984).

Flaked stone included debitage and other artifacts marked by flake scars. Debitage refers to complete and fractured flakes and angular debris. Bifacial and unifacial tools designated lithic artifacts that possessed an edge flaked on both the dorsal and ventral surface (bifaces) or on a single surface (unifaces). Raw material type was recorded. Quartz and quartzite occur widely throughout the Coastal Plain. Pebbles and small cobbles of jasper and chert deposited by the ancient Susquehanna River occur throughout the northern Delmarva Peninsula. In contrast, the distribution of other materials of importance to prehistoric tool manufacture, like rhyolite, is restricted (Custer 1996:12). Therefore, raw material type may provide information on the spatial extent of movement and exchange evident at the Warwick Site. The remainder of this section describes the classification of stone artifacts by artifact categories.

Fire-Cracked Rock

Fractured cobbles, with no evidence of flake removal or use as an abrading or pounding tool, which exhibited reddening, crazing, or irregular fracture patterns were classified as fire-cracked rocks (FCR). These artifacts are assumed to reflect use in hearths or as boiling stones, though post-depositional thermal alteration remains a possibility.

Ground-Stone Artifacts

Ground stone was defined as lithic materials lacking evidence of flake removal, but possessing worn or pecked areas. Battering, pecking, or abrasion on a cobble resulted in a hammerstone designation. No other ground-stone tools were recovered.

Hafted Bifaces

Bifaces were divided into hafted points and forms lacking a hafting element. In the absence of absolute dating and ceramics, hafted bifaces represent the most important evidence for the date of occupation. The identification of temporally diagnostic bifaces, typically referred to as projectile points, relies on examination of artifact morphology. Typological classification of bifaces relies on comparison of the artifact's attributes with those defined in the regional literature e.g., (Coe 1964; Ritchie 1971; Stephenson 1963). This category also includes those bifaces which cannot be definitively categorized using the common sources for the Middle Atlantic Region, but possess a hafting element or form characteristic of broad time frames (e.g., stemmed base or triangular form). Because sharpening often reconfigures blades, typology focuses on halfting element to a large extent. For all broken hafted bifaces, fracture type was recorded. The orientation of the break, the attributes of the broken edge, and the portion of the tool were recorded.

Other Bifaces and Unifaces

Non-diagnostic bifaces and unifaces may be classified into formal tools and expedient tools based on the degree of symmetry and extent of work evident on the tool (Lurie 1990:227-32). This distinction is important for the analysis of the organization of production and provides information on the patterns of mobility (Binford 1980). Further subdivision of the biface category results from the identification of drills/perforators and bifacial cores. Artifacts were classified according to the extent of reduction, the amount of cortex, and whether the tool was worked on a single face or both the dorsal and ventral faces.

Cores

Cores contrast with bifaces and unifaces in the character and extent of flake removal. This category includes artifacts from which flakes were removed, but no cutting edge was produced. The classification assumes that controlled removal of flake-tools had occurred. Early stage bifaces with large flake scars were recorded primarily as bifaces, but the potential that the bifaces also served as cores was noted.

Debitage

Debitage analysis rests primarily on patterned variation in size and form (Shott 1994; Sullivan and Rozen 1985). Presence-absence attributes appear to be subject to less inter-analyst variation than non-metric estimates of the amount of difference among debitage categories. Therefore, this analysis included presence-absence attributes. Those attributes which appear both replicable and useful for anthropological study of prehistory include the presence/absence of cortex, a platform, and a bulb of percussion (Sullivan and Rozen 1985). The presence of a platform, bulb of percussion, and, primarily, an interior surface was used to define flakes. Complete and fragmentary flakes possessed a striking platform and/or bulb of percussion. Broken flakes were identified by the presence of a single interior surface. Debitage lacking a single interior surface were categorized as angular debris (cf., Sullivan and Rosen 1985; Telster 1991for similar approaches).

Reliance on metric attributes promotes replication (Fish 1978; Nance 1987). Of these, size and weight are clearly relevant for reconstruction of both the behaviors producing the debitage and the behaviors underlying the deposition of the debitage in particular locals with the site (O'Connell 1987; Shott 1994). Experiments, however, have validated the association between non-metric flake attributes and aspects of the behavior that produced them. In addition, the percentage of cortex was recorded by reference to four broad categories: cortex absent on the exterior surface, less than 25 percent cortex, 26 to 50 percent cortex, 51 to 75 percent cortex, and 76 to 100 percent cortex.

Use-Wear Analysis

Low-power use-wear analysis was conducted on a limited number of chipped stone tools from the assemblage. The selected tools were examined at low magnification (10x and 60x). Four attributes of use wear were recorded: polish, microflaking, edge damage, and striations. The dimensions of variation recorded to assess edge damage were type, amount and location of the scarring. Polish was recorded as a presence-absence attribute by location and extent. The types of scars were recorded in relation to the negative impression of the flake termination.

Soil Chemistry

Soil samples were collected at 10-meter (32.8 ft).intervals across an area slightly larger than the Warwick Site, and from each TU. Both Stratum II (Ap) and Stratum III (B1) were sampled. The analysis reported levels for phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), manganese (Mn), zinc (Zn), copper (Cu), iron (Fe), boron (B), sulfer (S), and aluminum (Al). Analysis attempted to identify areas characterized by anthropogenic soils and evidence of intense buring, as well as other evidence relevant to the formation of the archaeological deposits.

Flotation

Soil samples of at least 2 liters (0.52 gallon) from a designated corner of the unit were collected from the plowzoneplowzone and upper 10 centimeters (3.9 in) of the Phase III test units. The precise corner of each unit was selected to minimize disturbance and impediments, like roots. Provenience was recorded on the soil-sample bag and in a log. Flotation was conducted by Justine McKnight (Appendix A). Each sample was thoroughly air-dried and then individually floated and processed using a Flote-Tech flotation system equipped with 0.33 millimeter (0.01 in) fine fraction and 1.0 millimeter (0.04 in) coarse fraction screens. The Flote-Tech system is a multi-modal flotation system which facilitates the separation and recovery of organic remains from the soil matrix. Processing resulted in light (floatable) and heavy (sinkable) fractions. Floated portions were air dried.

Research Questions and Proposed Analyses

Among the research topics that can be addressed through an analysis of the subsurface remains are: 1) the date of the occupation(s) of the site; 2) the site function(s); 3) the spatial organization of activities within the site; 4) the range of materials used and the likely source, whether locally collected or acquired through travel or exchange; 5) the potential range of plants harvested; and 6) the environmental and depositional history of the site. The analyses used to address these topics include:

General artifact analysis

General artifact analysis included typological and attribute-based studies of the prehistoric artifacts recovered during the excavation. Flaked- and ground-stone tools, debitage, fire-cracked rock, ceramics, and other artifacts were returned to the lab for processing and analysis. Selected artifacts, particularly projectile points, were analyzed in greater detail using simple tools (e.g., calipers, low-powered microscope).

Time Period of the Occupation

In the absence of charred remains from secure contexts (i.e., cultural features), estimation of the dates the site was occupied relied the identification of temporally diagnostic artifacts, in this case projectile points, in concert with the analysis of the overall assemblage. In addition, an analysis of occupational intensity and duration based on artifact and latent-feature density and diversity was undertaken.

Site function

Analysis of site function considered the composition of the assemblage, the spatial distribution of artifacts of different types, and patterned variation in the attributes of artifacts. The analysis attempted to infer the range of activities carried out on site and spatial structure of the site.

Exchange and Mobility

The type, variety, and attributes of raw materials recovered from the site, in particular lithic material, provides insight into mobility, exchange, and production strategies. Quartz and quartzite are widely available, and a range of materials may occur as cobbles, but outcrops of some materials, notably felsites and cryptochrystallines, occur to the north and west, and ironstone (ferruginous quartzite) outcrops near the head of the Chesapeake Bay. Analysis of the production stage of tools and debitage by material type and extent of and type of cortex, as well the type of materials used as formal and expedient tools, shed light on patterns of movement through the region, considered evidence for exchange, and isolated procurement strategies represented by the Warwick Site lithic assemblage.

Plant Use and Site Structure

Soil samples were collected from the 33 Phase III excavation units for flotation. Justine McKnight conducted the flotation analysis, identified the plant remains, and prepared a report on the results. Flotation also produced material for the study of microdebitage, critical for the evaluation of site structure.

Geomorphology and Taphonomy

Analysis of the soils at the Warwick Site during the Phase II fieldwork identified a circa 100-year-old deflated plowzone (Ap) overlying B horizon soils. The analysis of artifacts and flotation samples built upon this insight. In addition, soil cores were collected and submitted to the University of Delaware to collect data on soil chemistry. Andrew Wilkins of the University of Tennessee analyzed the soil chemistry data, which provided information on the formation of the archaeological record at the Warwick Site. The flotation analysis also contributed to the evaluation of the processes involved in the formation of the archaeological context.

CULTURAL CONTEXT

Maryland's Native American prehistory typically is divided into three main periods, Paleoindian, Archaic, and Woodland, based on changes in material culture and settlement systems. Recently, the possibility of a human presence in the region that pre-dates the Paleoindian period has moved from remote to probable. Temporally diagnostic artifacts identify a Late Archaic to Early Woodland occupation at the Warwick Site.

Archaic (10,000 to 3000 B.P.)

The Archaic began with the northward retreat of periglacial environments and the appearance of archaeological assemblages lacking fluted points. In addition, in contrast with the broad similarity among Paleoindian point forms, distinct style zones developed during the Early and Middle Archaic (10,000–8500 B.P.). The Atlantic Coast/Southeastern stylistic sequence was not characteristic of the Midwest (Ford 1974:392). In addition, increased use of locally-available lithics occurred between 10,000 and 8500 B.P. (Custer 1990:36; Sassaman et al. 1988:85–88). The reduction of the size of style zones and the focus on local lithic materials implies contracting social networks and incipient territories, possibly a reaction to population growth (Anderson and Hanson 1988:271).

Despite changes in patterns of mobility and point form, numerous archaeologists argue on environmental (Custer 1990:2–8) and subsistence (Smith 1986) grounds for continuity in social dynamics between 8000 and 4000 B.P. From this point of view, Dalton through LeCroy populations exhibit "general similarities and regional habitat-related variation in settlement-subsistence patterns and material culture assemblages" (Smith 1986:10). Band-level social organization involving seasonal movements corresponding to the seasonal availability of resources and, in some instances, shorter-interval movement characterized Archaic societies.

Reliance on ground-stone technology increased during the Archaic period. New tool categories associated with the Archaic include celts, net sinkers, pestles, pecked stones, and axes. Archaic knappers produced chipped-stone versions of celts and axes and, near the end of the Late Archaic, labor-intensive vessels carved from soapstone quarried in the Piedmont formed an important segment of assemblages (Custer 1989; McLearen 1991).

Late Archaic (5000 to 2000 B.P.)

Stemmed and notched knife and spear point forms, including various large, broad-bladed stemmed knives and projectile points (e.g., Savannah River, Susquehanna, Perkiomen points), rank among the most distinctive and securely dated Late Archaic point forms (Coe 1964; Dent 1995; Justice 1995; Ritchie 1971). Marked increases in population, and, in some areas, decreased mobility appear to characterize the Late Archaic throughout eastern North America. Sites dating to the Late Archaic occur frequently throughout Maryland and the Middle Atlantic region. Late Archaic sites occur in greater numbers

and in a wider range of environments than sites associated with the Early and Middle Archaic Periods (Klein and Klatka 1991).

Mouer (1991a:262) believes it likely that “at least intensive harvesting of wild seeds,” if not the beginnings of domestication, characterized Transitional through Early Woodland times (circa 4000–2500 B.P.) in the Chesapeake Bay region, as it did in the Midwest. The process, however, did not proceed at an even rate across the Eastern Woodlands or the Middle Atlantic Region (Stewart 1995:184–5). Yarnell (1976:268), for example, states that sunflower, sump weed, and possibly goosefoot may have been cultivated as early as 4000 B.P. In the lower Little Tennessee River valley, the remains of squash have been found in Late Archaic Savannah River contexts (circa 4450 B.P.), with both squash and gourd recovered from Iddins period contexts of slightly more recent date (Chapman and Shea 1981:70). Experiments with domestication in the Mid-Continent indicate the possibility, even the likelihood, that the inhabitants of the Middle Atlantic cultivated small grains and other plants (Hodges 1991:228–230; Mouer 1991b:259–263). Nevertheless, “scant” evidence for early cultivation appears in the archaeological record from Maryland and the wider region (Mouer 1991a:259; see also McKnight and Gallivan 2007).

Soapstone bowls are a well-known feature of Late Archaic exchange systems. In addition, Stewart (1989:52) argues for broad-based exchange of "artifacts made from jasper, argillite, rhyolite, ironstone, soapstone, midwestern lithics, obsidian, marine shell and copper" throughout the Middle Atlantic region during the Late Archaic. Thus, Late Archaic society clearly differed from that of earlier times. The production and widespread exchange of utilitarian and ritually important, labor-intensive goods does not fit the expected archaeological signature of highly egalitarian foragers. Rather, a social order exhibiting some sort of status differences among individuals or groups (Mouer 1991a:265) and somewhat restricted group movement (Stewart 1989:57) likely existed.

Excavation at several sites in Delaware identified posts and pits that may represent Late Archaic to Early Woodland dwellings (Artusy and Griffith 1975; Custer and Hodny 1989; Custer and Bachman 1984; Thomas 1981; cf. also Custer 1989). In the Piedmont Uplands of northern Delaware, Custer and Hodny (1989:27) identified a hearth, a basin-shaped feature, and postmolds at the Hockessin Valley Site (7NC-A-17). Features at the Hockessin Valley Site also appeared beneath layers of fill from road construction and slope wash. A radiocarbon assay from a charcoal found in a hearth located near the center of the 7.0-x-5.0 meter (23.0-x-16.4 ft) postmold pattern returned a 5205 +/- 70 B.P. date. Additional assays, however, that provided dates of 3255+/-100 RCB.P. from a shallow, oval, basin-shaped feature and 2915+/-115 RCB.P. from a larger basin-shaped feature place the occupation near the Archaic-Woodland boundary. Custer and Hodny (1989:46–48) argue that the younger dates represent a later occupation based on the spatial association between the hearth and the ring of postmolds.

Work at the Clyde Farm (7NC-E-6A), Lepsic (7K-C-194A), Pollock (7K-C-3), and other sites resulted in the identification of possible pithouses throughout Delaware (Bowen et al. 2003; Custer and Silber 1994; Custer et al. 1996; LeeDecker et al. 2005; Petraglia et al. 2002). Dated features interpreted as pithouses appear as early as 5000 B.P., but occur

on Woodland sites as well. The features, generally D shaped, typically include a shallow, basin-shaped area that forms the majority of the feature, with a smaller, deep, irregularly shaped pit interpreted as a sub-floor storage pit. Not all agree that the features reflect the construction of pithouses. Egghart (2005:83–85) refers to the aforementioned interpretation as the degraded pitshouse model, which contrasts with the interpretation of the features as culturally induced tree throws. In support of the latter interpretation, Egghart (2005:84) cites the general absence of postholes and other features surrounding the basins.

The Delaware Park Site (7-NC-E-41), located in the High Coastal Plain of Delaware just east of the Fall Line, appears different. Thomas (1981) identified large, shallow basins interpreted as pithouses (Thomas 1981). The basins lacked the deep pits at one end that make other pithouse-like features controversial. At Delaware Park, feature size ranged between approximately 2.0 and 4.0 meters (6.6 and 13.1 ft). Radiocarbon dates recovered from 21 of the 173 features ranged from 3800+/-100 to 1310+/-155 B.P., the Late Archaic to Middle Woodland Periods. Radiocarbon assays of 3800+/-100 and 2740+/-65 B.P. on two of the four possible pithouses suggest that pithouse use may have spanned the Late Archaic and Early Woodland periods (Thomas 1981:IV-38; Appendices K and L).

A U-shaped pattern of stones measuring approximately 5.0-x-2.0 meters (16.4-x-6.6 ft) interpreted as a tent ring was identified at the Hawthorne Site (7-NC-E-46), located in High Coastal Plain Province. Charcoal from a pit feature was dated to 4200 +/-75 (UGa-5378). The tent ring, pit, and *in situ* artifacts occurred below fill deposits, colluvial wash, and a plowzone. Custer and Bachman (1984:44) also recovered stemmed and teardrop-shaped points similar to those recovered during fieldwork at the Warwick Site, along with broadspears and corner- and side-notched points. The surface buried beneath the plowzone contained soils an estimated 5,000 to 3,000 years old; Custer and Bachman (1984:62) place the occupation of the Hawthorne Site at circa 3000 to 2700 B.P., the time range when the various point styles and Wolfe Neck ceramics potentially overlapped.

Woodland Period (3000 to 300 B.P.)

Increasing use of ceramic technology, a growing dependence upon horticulture, and a shift toward greater sedentism all characterize the Woodland period. Most researchers divide the Woodland period into three sub-periods (Early Woodland, Middle Woodland, and Late Woodland), based primarily on stylistic and technological changes observed in ceramic wares and projectile points, as well as shifts in settlement patterning (e.g., Gardner 1982). Not all researchers agree with this tripartite subdivision, however (e.g., Custer 1989).

Early Woodland (3000 to 2500 B.P.)

The onset of the Woodland Period traditionally correlates with the appearance of ceramics (Willey and Phillips 1958:118). Early theorists linked ceramics with agriculture, though few continue to support this position (cf. reviews in Egloff 1991; Hodges 1991).

Rather, the evolution of subsistence and technological systems (e.g., Gardner 1982) and various aspects of pan-Eastern interaction (e.g., Egloff 1991; Klein 1997) currently are believed to underlie the evolution of ceramic containers.

The steatite-tempered Marcey Creek type and variants containing other mineral inclusions appear to date between 3200 and 2800 B.P. (Egloff 1991:244–245). Though friable sand-and-grit-tempered Accokeek Creek and Elk Island ceramics appear stratigraphically subsequent to Marcey Creek, associated C-14 dates range from 3100 through 2500 B.P. Klein and Stevens (1996) cite regional data to support the proposition that, while the thickness, amount of temper, and size of temper in quartz/sand-tempered, cord-marked ceramics shifted over time, similar pots continued in use into Middle Woodland times.

Radiocarbon dates recommend placement of the Calvert and Fishtail points in the Early Woodland (Inashima 2008). Ovoid to lozenge-shaped points, classified as Teardrop Points, have been dated to 2900 to 2000 B.P. in the Northeast (Mounier and Martin 1994). Similar points have been recovered from Middle Archaic through Middle Woodland I contexts in North Carolina and Virginia (Kirchen 2001:53–69). One site 44NN7) provided three shell-based dates of 2375 +/- 65, 2090 +/- 65 and 2075 +/- 65 associated with the Potts Corner-Notched point type (Inashima 2008:242). For the Vernon point type, Inashima (2008:265) reports only the two dates from the Jeffrey Harris Rockshelter (44LD17); the association and context are poor (Klein et al. 2002:6–8). The Claggett point type has been dated only through stratigraphic context or association with early ceramics (Gleach 1985; Stephenson 1963). Similarly, a variety of small stemmed and side-notched forms of assumed association with the Early Woodland period lack definitive temporal assignment (Dent 1995:227–228).

Small bifaces and expedient tools such as drills, perforators, scrapers, and utilized flakes regularly appear in Early Woodland assemblages. Other lithic artifacts reported on Early Woodland sites in the Chesapeake region include bipolar flakes possibly used as knives or scrapers, hammerstones, net sinkers, mortars, and pestles (McLearen 1991). Also noted on sites in the region are tools of bone, and projectile points manufactured from antler, bone, turkey spurs, and shark's teeth (Waselkov 1982).

The increased number of sites dating to the Early Woodland, coupled with the recognition of structures, features, and activity areas at some sites, suggests rising population size in the Chesapeake region (e.g., Mouer 1991b:38–39; Stewart 1995:183). In contrast, noting that the addition of pottery to stone adds temporally diagnostic artifacts to the archaeological record, Fiedel (2001:106–107) observes that more sites are expected to appear in the archaeological record during Woodland times. Furthermore, the various Broadspears, dating to the Terminal Archaic (3000–1000 B.P.), represent a curated technology (Barber and Tolley 1984), while replication experiments suggest stemmed bifaces similar to Early Woodland types rank among the easiest forms to produce using quartz (Bourdeau 1981). Therefore, a shift from a curated, hence less commonly discarded biface form, to points easily produced from a ubiquitous material accompanied the appearance of ceramics. Thus, the absence of a dramatic swell in the number of sites, coupled with decreased representation of diagnostic point forms,

indicates a demographic trough or at best a flat demographic curve characterized the Early Woodland Period.

In general, sparse concentrations of artifacts characterize Early Woodland sites (Mouer 1990:160–174; Stewart 1998a:2). At several sites in the central Potomac River valley, however, notably Accokeek Creek (18PGO8), dense accumulations of artifacts and midden soils have been described (Stephenson 1963). The rare occurrence of similar sites, combined with the data provided Mouer (1990) near the falls of the James River, may indicate that multi-band aggregations occurred near the falls of the major rivers. Mouer (1990), however, interprets the James River fall line sites as evidence for the appearance of village life during Early Woodland times. Regardless, the preservation of an extensive accumulation of Early Woodland artifacts suggests the existence of a unique geomorphological, and probably social, setting. Elsewhere, the data appear to indicate a return to the mobile, egalitarian social organization characteristic of Early and Middle Archaic times (Klein 2003a). Even at large Early Woodland sites post-dating 2800 B.P., very limited evidence of long-distance exchange or the manufacture of labor-intensive artifacts comparable to the soapstone bowls of the Terminal Archaic appears.

The use of subterranean features such as storage pits, refuse pits, and cooking hearths is also associated with the Early Woodland Period. At the White Oak Point site, in the outer Coastal Plain of the Potomac River Valley, hickory nuts, and various species of shellfish, fish, and deer were recovered (Waselkov 1982). During the preceding Late Archaic period, increased exploitation of oysters as a food source began at White Oak Point (44WM0119).

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