

II. Background Research

Background research was conducted in the following repositories: New Castle County Recorder of Deeds, Historical Society of Delaware, Hagley Museum and Library, Delaware State Archives, Delaware State Historic Preservation Office, and the Delaware Planning Commission.

A. Physical Environment

Delaware is one hundred miles long and from nine to thirty-five miles wide. It is divided into three counties: New Castle, Kent and Sussex. Each county is divided into municipalities called Hundreds.

A Hundred is equivalent to ten tithing, which roughly translates to 100 acres per person or 300 acres per family (Brewer 1894). The eastern shore abounds with rivers, creeks, and streams, all eventually finding their way to the Delaware River (Scharf 1888).

The project is located in Brandywine Hundred, New Castle County, Delaware, on the Fall Line zone between the Piedmont Upland Section of the Piedmont Physiographic Province and the Coastal Plain Physiographic Province. The Piedmont Upland Section is characterized by broad, gently rolling hills and valleys and is generally underlain by schist, gneiss, quartzite, and other metamorphic rocks. The Coastal Plain consists of flat upper terrace surfaces cut by narrow, steep sided valleys and open, shallow valleys. The Delaware River floodplain is on the Coastal Plain, which is underlain by poorly consolidated sands and gravels, in turn underlain by schist, gneiss, and other metamorphic rocks (Berg *et al* 1989). The APE for this project is adjacent to Stoney Creek, within 500 feet of the confluence of Stoney Creek and the Delaware River. Elevations range from 10 feet above MSL, in the portion of the APE closest to the Delaware River, to 100 feet above MSL, in the far western corner of the APE.

The APE is located along Philadelphia Pike about 10 miles north of Wilmington, in Brandywine Hundred, New Castle County, Delaware. The Cauffiel Estate is surrounded by residential, commercial, and industrial development. Across Philadelphia Pike is the Bellevue Corporate Center constructed in the mid- to late 1980's. To the north of Stoney Creek is the Delaire Subdivision built in 1939. Governor Printz Boulevard to the east, was built c.1935. East of Governor Printz Boulevard is I-495, built in the late 1970's. Rail lines that were originally built by the Philadelphia, Wilmington, and Baltimore Railroad c.1838, and currently owned by Amtrak, are also situated to the east. Still farther east is the Delaware River, and along its western bank is Fox Point State Park. Bellevue, and the Bellevue Manor Addition subdivisions to the south, were constructed in 1949 and 1941 respectively. Immediately to the southwest of the estate is the Mount Pleasant Methodist Episcopal Church and Parsonage, which was listed on the National Register of Historic Places in August of 1998. Farther to the southwest is Bellevue State Park, which is the former estate of William DuPont. Lake Bellevue, the former site of the Bellevue Quarry, is situated to the northwest on the other side of Philadelphia Pike.

1. Climate

New Castle County has a humid continental climate which is altered by the nearby Atlantic Ocean. Generally weather systems move from west to east in the warmer half of the year, but during the colder half, alternating high and low pressure systems dominate the weather. Winds from the west and northwest are associated with high pressure systems, and bring cooler temperatures and clear skies. Easterly winds caused by low pressure systems are affected by the Atlantic, providing higher temperatures, clouds, and much of the precipitation to the county (Mathews and Lavoie 1970).

The average annual temperature in New Castle County is 54 degrees Fahrenheit, with an average daily temperature of 33 degrees in January (the coldest month) and 76 degrees in July (the warmest month). The County averages about 45 inches of annual precipitation, which is fairly evenly distributed throughout the year. In Wilmington, the growing season lasts from the middle of April to the end of October, but this varies in other parts of the county. In the western and northwestern parts it is 175 to 185 days, while it is 195 to 205 days in the eastern and southeastern parts of the county. Annually, Wilmington receives 21.4 inches of snow, but this varies greatly from year to year (from as little as 1 inch up to as much as 50 inches). Elevations range from sea level to about 400 feet above sea level in New Castle County (Mathews and Lavoie 1970).

2. Geology and Soils

The project is located on the Fall Line between the Piedmont Plateau and the Coastal Plain. This area is underlain by basic dark-colored igneous and metamorphic rock of Piedmont origin, capped with silt from the Coastal Plain. It falls within the Aldino-Keyport-Mattapex-Urban land soil association, which is described as a level to gently sloping moderately well drained, medium-textured soils, relatively undisturbed to severely disturbed on uplands (Mathews and Lavoie 1970).

Specific soils mapped within the APE include the following: Aldino-Keyport-Mattapex-Urban land complex (Am), which represents severely disturbed and/or re-deposited soils from the Aldino-Keyport-Mattapex association; Neshaminy-Talleyville-Urban land complex 0-8 percent slopes (NtB) and Neshaminy-Talleyville-Urban land complex 8-25 percent slopes (NtD) both represent severely disturbed soil groups usually found in the Wilmington suburbs; and Othello silt loam (Ot) which are poorly drained soils found on nearly flat upland areas in the Coastal Plain (Mathew and Lavoie 1970) (*Figure 2*).

3. Flora and Fauna

New Castle County was a densely forested region before Euro-American settlement. Hardwoods such as oak were the most popular tree. Tulip poplar, gum, and yellow pine were also present, but true stands of pine were probably few in number. The stands of pine that exist today were made possible by a change in the composition of soils, due to clear-cutting and farming. Only a small part of New Castle County remains wooded today, with a higher ratio of pines to hardwoods, as compared to the time before deforestation (Mathews and Lavoie 1970).

Prehistoric faunal resources within New Castle County were numerous with a wide variety over a small area. Although no megafauna, such as mammoth and mastadon, have been found in New Castle County, faunal remains from the submerged Continental Shelf and the Coastal Plains of New Jersey serve as evidence of the likely distribution of these animals into the Delaware Coastal Plain (Custer 1986). Deer, turkey, rabbits, squirrels, and other small mammals were prevalent, as well as migratory birds, fish, and shellfish. Although most of the natural habitat has been altered or destroyed, many areas (about 85%) are still suitable for woodland and openland wildlife, and 30% is inhabitable for wetland wildlife (Mathews and Lavoie 1970).

B. Prehistoric Overview

1. Pre-Clovis (ca. 16,000 to 11,500 BP)

The presence of Pre-Clovis peoples in the Americas remains controversial, with the Chilean site of Monte Verde, Meadowcroft in Pennsylvania, and Cactus Hill in Virginia offering the most robust evidence for Late Pleistocene occupation. Accepting, for the purposes of this review, that Meadowcroft and Cactus Hill represent Pre-Clovis sites, their assemblages and dates are briefly discussed. Lithic technology from lower and middle Stratum IIa (seven dates average to 15,950 BP) at the Meadowcroft Rockshelter in Washington County has been characterized as a combination of later-stage core and biface reduction, with both local and extra-local lithic raw materials (e.g. Flint Ridge flint, Hardyston jasper) represented. Although no cores were recovered from this stratum, prismatic blades and blade fragments suggest the use of small, prepared cores. A single, unfluted lanceolate biface (typed "Miller Lanceolate") recovered from Stratum IIa was bracketed by dates of $11,300 \pm 700$ BP and $12,800 \pm 870$ BP. Floral remains from this stratum suggest that elements of a deciduous forest were present near the site. Meadowcroft's earliest inhabitants are thought to have been more generalized foragers than succeeding Clovis groups (Adovasio *et al.* 1982).

The Cactus Hill site in Virginia's coastal plain has produced blade cores, blade tools, and thinned, lanceolate bifaces with an associated radiocarbon date of $15,070 \pm 70$ BP. This occupation is vertically separated from an overlying Clovis component (dated $10,920 \pm 250$ BP) by a ca. 12 cm-thick sand stratum (McAvoy and McAvoy 1997). If the radiocarbon assays from Meadowcroft and Cactus Hill accurately date the respective artifact assemblages, the lithic technology of Pre-Clovis peoples was qualitatively different from that of Clovis peoples.

2. Paleoindian (ca. 11,500 to 8,500 BP)

Paleoindian sites are most commonly identified by the presence of distinctive, fluted bifaces. Other parts of the toolkit include formal flake tool types and large, bifacial cores. In general, Paleoindian toolkits are marked by a conspicuous use of high-quality cryptocrystalline lithic materials that often originate at considerable distances from their point of discard. The former characteristic is inferred to result from a need for durability over numerous episodes of intensive use at locations distant from sources (Goodyear 1989), while the distances from sites to source have been used to estimate maximum travel distances ranging from 75 to 400km for eastern North America (Custer and Stewart

1990). Carr and Adovasio (2002) note that while western fluted point occupations are often associated with the remains of extinct megafauna, eastern Paleoindian subsistence is more poorly understood. Paleoindian toolkits do not include the specialized tools for plant processing that became common during the Archaic period, a fact that has been interpreted to signify limited reliance on gathered foodstuffs. A greater emphasis on hunting has also been proposed on theoretical grounds (Kelly and Todd 1988, Waguespack and Surovell 2003).

Nevertheless, fruit seed and fish remains from Shawnee-Minisink suggest that more generalized foraging adaptations may have been practiced (Dent and Kauffman 1985). The Paleoindian artifact assemblage from Shawnee-Minisink is also instructive in that 91% of the lithic artifacts are composed of locally available black chert (Marshall 1985). These characteristics support Dent's recent observation that Paleoindian adaptations were likely to have been highly variable within the eastern United States (2002). Currently, Shawnee Minisink has the distinction of having produced the only radiocarbon assays for a Paleoindian component in the Delaware drainage. A date of $10,590 \pm 300$ BP was secured on wood charcoal from a hearth excavated by Kline, and a date of $10,750 \pm 600$ BP, also from wood charcoal derived from a hearth, was returned on American University's excavations at the site (McNett 1985:87). The most recently reported date is $10,940 \pm 90$ BP, run on hawthorn plum seeds from one of the Paleoindian hearths (Dent 2002:55-56).

Fluted point sites in Delaware's portion of the Piedmont/Fall Line Zones are predominantly located in close proximity to outcrops of the Delaware Chalcedony Complex and are represented solely by surface finds. Fluted point sites in the Piedmont sections of Pennsylvania, Maryland, and Delaware also appear to be correlated with poorly drained, interior swamps settings (Custer 1996, Custer and Wallace 1982). The presence of substantial primary sources of high quality lithic materials in northwestern Cecil County, Maryland, southeastern Chester County, Pennsylvania, and northwestern New Castle County, Delaware, together with a cluster of mapped fluted point find spots lead Custer (1989:105) to hypothesize that a full range of earlier Paleoindian site types are likely to be present.

Pollen data from the Piedmont/Fall Line Zones (summarized by Custer 1989:90-93) indicate that a mosaic of spruce-dominated forests and grassland settings was present during the Late Glacial climatic interval, ca. 15,000-10,000 BP. Decreases in nonarboreal pollen and an increase in pine pollen in sediments dated between 10,000 and 8500 BP suggest a decrease in the extent of grasslands and expansion of pine-dominated forests during the Pre-Boreal and Boreal intervals. The changes in the extent of these floral communities would have likely resulted in a decrease of faunal diversity as forest-edge and grassland settings were reduced. Custer theorizes that poorly-drained interior and coastal settings would have become more attractive to terrestrial game and their human predators during the Early Holocene, but that the carrying capacity within closed boreal forests was generally low (Custer 1989:93).

In contrast to more traditional chronological schemes, Custer (1989, 1984) includes notched points of the Early Holocene (Palmer, Kirk, Amos) in the Paleoindian cultural period. This reassignment was tentatively proposed by Gardner (1974, 1989) based on his analysis of the Flint Run Paleoindian Complex in Virginia's Shenandoah Valley. In Gardner's formulation, the Early Archaic is included as a subperiod within an encompassing Paleoindian period, based on perceived continuities in lithic

raw material preferences and settlement patterns. Early Holocene notched point distributions in Delaware's Piedmont/Fall line Zone, again primarily based on surface finds, are located in close proximity to both outcrops of the Delaware Chalcedony Complex and interior swamps such as Churchman's Marsh (Custer 1989:107-108). Similarly, the majority of notched projectiles continue to be manufactured on high quality cryptocrystalline materials. Together, settlement and lithic material preference data suggest that adaptations were similar in both Late Pleistocene and Early Holocene periods, with slightly greater use of newly emerged freshwater swamps (Custer 1989:119-120). Data from excavated, dated Early Holocene sites in the upper and middle Delaware drainage (i.e. Shawnee Minisink [McNett 1985], Harry's Farm [Kraft 1975], Sandt's Eddy [Bergman et al. 1994]) highlight the addition of chipped stone adzes, drills, and significant numbers of cobble tools to toolkits and serve as proxy data for a greater diversity of subsistence and maintenance activities after ca. 10,000 BP.

3. Archaic (8,500-5,000 BP)

This cultural period tracks the Middle Holocene transition to predominantly deciduous forests, which is attributed to a change from warm and dry conditions during the Pre-Boreal and Boreal climatic periods to warmer and wetter conditions during the Atlantic climatic period (Davis 1983, Delcourt and Delcourt 1994, Vento and Rollins 1990). The most widely accepted explanation for the shift in climate, proposed by Knox (1983), has to do with the final ablation of the Laurentide ice sheet. By 6,000 BP, the glacier was restricted to a small portion of Quebec Province (see maps in Jacobsen 1987). Zonal flow from the Pacific Air mass was weakened, allowing the penetration of polar and tropical systems into the Midwest and Middle Atlantic. Regardless of the causes of vegetation change at the Early to Middle Holocene transition, the development of oak dominated deciduous forests by 8,000-7,000 BP would have had obvious consequences for Native Americans. Delcourt and Delcourt (1994) indicate that chestnut, hickory, and beech were present in Ridge and Valley forests by ca. 6,000 BP. These incremental increases in the variety of mast-producing species would have increased the carrying capacity of the environment, resulting in higher terrestrial game populations. The same vegetational succession is likely to have occurred slightly earlier in southeastern Pennsylvania and the northern Delmarva Peninsula given the more favorable edaphic conditions in these unglaciated, lower relief physiographic zones. Custer (1989:47) reports an oak-hemlock pollen zone dated 7790 ± 340 BP from a sinkhole at the Mitchell site (7NC-A-2). A similar, but undated hemlock-oak pollen zone overlies boreal and tundra pollen zones at the Marsh Creek locality in the Pennsylvania Piedmont near the Delaware/Maryland state lines (Martin 1958).

The majority of Archaic sites on the Delmarva Peninsula are dated by the recovery of bifurcate-based points from surficial contexts (Custer 1989:131-132). Dates associated with bifurcate types in the Middle Atlantic region generally range from ca. 8,500 to 8,000 BP. Bergman *et al.* (1994) suggests that sites from later in the Archaic period are under-represented and Custer (1996:139-144, 1989:123-124) has argued that this may be due to archaeologists' inability to differentiate between generalized stemmed and notched projectiles whose manufacture continued between late Archaic and Woodland I cultural periods, particularly when they occur in unstratified contexts. With the spread of mast-bearing trees into interior areas, it appears that Middle Archaic groups relied more heavily on upland areas for subsistence, as indicated by the occurrence during the period of small

procurement camps and base camps associated with interior drainages of all sizes (Carr 1998b). In the northern portion of the Delmarva Peninsula, the densest concentration of sites with early Archaic (bifurcate) components are clustered around Churchman's Marsh. Bifurcate components are the earliest temporally diagnostic artifacts in close association with this now-tidal marsh complex, leading Custer to suggest that the swamp was formed by ca. 8500 BP (Custer 1989:133).

Custer (1996:149-151, 1989:128-129) lists the following additional trends for the Middle Archaic in southeastern Pennsylvania and the Delmarva Peninsula: (1) a greater diversity of stone tool forms—particularly ground stone, suggesting a wider range of tasks and (possibly) localized forest clearance; (2) flake core as opposed to biface core technology, possibly indicating more expedient approaches to tool production and use; and (3) wider range of raw materials utilized, suggesting the localization of lithic catchments and perhaps smaller territories. Custer's most current reconstruction of settlement patterns for southeastern Pennsylvania (1996:153-155), and by extension northern Delaware, includes base camps occupied seasonally by small family bands and ephemeral procurement camps characterized by few artifacts and a limited number of tool types. The repeated use of a specific landform is a common pattern in the southern portion of the Middle Atlantic, but the occupations do not often overlap, which is substantially different from the Late Archaic/early Woodland I pattern of dense, overlapping occupations over a broad portion of a landform (Stewart and Cavallo 1991, Wall *et al.* 1996).

These trends are best represented in the Middle Delaware drainage in Stratum IX at the Sandts Eddy site. Two radiocarbon dates of 7330±60 BP and 7080±70 BP were returned on carbonized hazelnut shells and an unspecified charcoal sample from Stratum IX (Bergman *et al.* 1994:164). These dates are associated with a lithic assemblage that includes few bifacial tools, although the debitage suggests that these were present. Cortical surfaces on chert debitage suggest that some of this material was collected in cobble form from the river while jasper was transported to the site from primary or near-primary sources. The majority of the lithic assemblage, however, is composed cores and debitage of non-cryptocrystalline materials such as quartz, quartzite, conglomerate, sandstone, subgraywacke, and granite, along with cobble-based tools on these same materials (Bergman *et al.* 1994). All of these latter materials could be collected from the bed and banks of the Delaware River. The behaviors represented in the Stratum IX occupation appears to have been focused on nut processing, the creation of heavy cutting and chopping tools, and the manufacture and maintenance of bifacial tools. Spatial patterning and artifact densities suggest short-term use of the site by small foraging groups (Bergman *et al.* 1994:167-168).

4. Woodland I (5,000 to 950 BP)

This period bridges the late Middle Holocene and Late Holocene environmental periods and the traditional Late Archaic, Early Woodland, and Middle Woodland cultural periods. The most significant vegetational change of the Middle Holocene was the catastrophic reduction in hemlock ca. 4,500 BP. Although Custer (1989:178) suggests that the hemlock decline is not incompatible with a change to warm-dry conditions associated with the Sub-Boreal climatic period, Davis (1981) attributes the sharp and nearly simultaneous drop in hemlock pollen throughout its range to a possible pathogen attack. More recent paleoenvironmental work in Ontario links the hemlock

decline to insect-driven defoliation (Bhiry and Fillion 1996). Prior to its recovery nearly 2,000 years later, increased oak, hickory, and beech pollen apparently filled the gap created by hemlock's decline (Delcourt and Delcourt 1994, Fuller 1998). Curry and Custer (1982) present evidence for increased aeolian deposition at Piedmont and Coastal Plain sites, which would have required unvegetated or sparsely vegetated sediment source areas, indicating some level of desiccation between ca. 5000 BP and 2500. Perhaps the most significant environmental change that occurred near the Archaic/Woodland I period boundary was a decrease in the rate of sea-level rise, which would have created more laterally stable estuarine environments thereby increasing the carrying capacity for both coastal and anadromous fish species as well as shellfish (Belknap and Kraft 1977, cited in Custer 1989:182).

Custer argues that the most significant cultural changes associated with Woodland I are greater levels of sedentism, more evidence for storage and feature construction, increasing population, the appearance (and decline) of stratified societies, elaboration of exchange systems, and more complex burial patterns (Custer 1989:142), each of which is manifested at different times during the period. For the northern portion of the Delmarva Peninsula, archaeological sites from ca. 5000 BP to 2500 BP are grouped under the Clyde Farm Complex (Thomas 1977, cited in Custer 1989:185). Larger sites of this complex, interpreted as macro-band base camps, are much larger than any Archaic sites, and contain a wide variety of chipped and ground stone tool types, steatite bowls, and early ceramic types (i.e. Marcey Creek, Dames Quarter, Selden Island). A small percentage of non-local lithic material (rhyolite, argillite, steatite) are frequently recovered from these sites, indicating exchange with groups to the north and northwest. In addition to the ceramic types listed above, various broadspear and Orient projectile types are diagnostic of the complex, however, stemmed varieties such as Bare Island/Lackawaxen appear to have been used throughout the Woodland I period and have restricted value as short-term temporal indicators (Custer 1989:151-155).

In the Piedmont the largest sites are typically situated on or near the floodplains of major drainages, while in the Fall Line and High Coastal Plain, these are more frequently located at confluences of the Delaware River with the largest-order tributary streams, or extensive wetland settings such as Churchman's Marsh (1989:192-220). Excavations at the Clyde Farm site (7NC-E-6, Custer, Watson, and DeSantis 1986) revealed a feature interpreted as a pithouse together with possible storage pits and a platform hearth which was dated to 2955 ± 90 BP (Custer 1989:197-198). At the nearby Delaware Park site (7NC-E-41, Thomas 1981), similar house features were dated to 3800 ± 100 and 2740 ± 40 (Custer 1989:199). The presence of house patterns, storage features, and the large size of these and other sites suggest a greater degree of sedentism and larger populations than for the preceding Archaic period. A more extensive pattern of land use is suggested by investigations at the Lums Pond site (7NC-F-18, Petraglia et al 1998) located in the Mid-Peninsula Drainage Divide Zone near a tributary of St. Georges Creek. A portion of this site contained numerous storage features dated between 2960 ± 60 and 2660 ± 100 BP (Petraglia et al 1998:61) that are not clearly associated with the range of features that would clearly indicate a base camp occupation. One implication of the data at Lums Pond is that Woodland I land-use is much more complex than current models of settlement suggest, however, this is to be expected as more sites are subjected to a wider battery of analytical techniques, particularly those aimed at establishing tighter chronological controls between different activity areas within a single site.

Smaller sites with features and a range of tool types have been interpreted as micro-band base camps. These smaller sites are typically located along smaller tributary streams in both the Piedmont and Fall Line Zones. Even smaller sites with more limited tool types are characterized as resource procurement sites which supported both macro- and micro-band base camps. Procurement sites are common in headwater portions of drainages. The earliest Clyde Farm complex site located near the Fall Line Zone is the Hawthorn site, which returned a date of 4200 ± 75 BP and features a possible stone tent ring (Custer and Bachman 1983). Custer considers this site slightly larger than most procurement sites, but its assemblage diversity is much lower than micro-band base camps sites. It is similar in many ways to the Piedmont Hockessin Valley site (7NC-A-17, Custer and Hodny 1989:33), which yielded a single date of 5205 ± 70 BP.

In the northern Delmarva Peninsula, the Wolfe Neck Complex succeeds the Clyde Farm Complex between ca. 2500 and 1950 BP. Differences between the two complexes are mainly related to changes in pottery, projectile points, and possibly the intensification of food collecting and storage (Custer 1989:249). Quartz or other rock tempered, cord- and net-marked ceramics assignable to Wolfe Neck Ware (Artusy 1976) and Rossville projectiles are diagnostic of the complex (Custer 1989:249-250). Custer notes that the settlement system probably remained unchanged from the Clyde Farm Complex, with macro- and micro-band base camps and procurement camps comprising the most common site types (1989:253-256). The Delaware Park site provides the most convincing evidence for extensive storage and more intensive efforts toward the use of seed foods (Thomas 1981, cited in Custer 1989:254), while the Wolfe Neck site (7S-D-10 Griffith and Artusy 1977, cited in Custer 1989:254) indicates that shellfish collection had likely increased during the Wolfe Neck Complex time span.

Sites of the ensuing Carey Complex date between ca. 1950 and 1350 BP, with shell-tempered, net-marked Mockley Ware, Rossville, Fox Creek, and large triangular projectiles serving as diagnostic artifacts of the complex (Custer 1989:276). Unlike previous cultural complexes which were generally restricted to different portions of the Delmarva Peninsula, during this time frame, more obvious variability in material culture reached its lowest point, with the result that the Carey Complex encompasses the entire peninsula (Custer 1989:276). Custer notes no significant changes in settlement patterns or economic focus for the complex (1989:280). Storage pit features at the Delaware Park site dated between 1885 and 1495 BP indicate similar usage of the site from earlier times (Thomas 1981, cited in Custer 1989:277). While sites with Carey Complex components are certainly present in the Piedmont and Fall Line Zones of the peninsula, they appear to be more common in central and southern areas (Custer 1989:Table 36). Sites of the Delaware Park Complex, ca. 1450 to 950 BP are recognized by quartz tempered, fabric- and cord-impressed Hell Island pottery and Jacks Reef Pentagonal and Rossville projectiles. Excavated examples of Delaware Park Complex components are restricted to the type site, although sites with Hell Island ceramics and Jacks Reef projectiles are present in the Piedmont and Fall Line Zones (Custer 1989:289-291).

5. Woodland II (950 to 350 BP)

In the middle and lower portions of the Delaware Valley, sites of the Woodland II (Late Woodland) period most commonly contain pottery ascribable to the Overpeck, Bowmans Brook, and Minguannan series, all of which display slightly different arrangements of complex incised or cordmarked decoration. The stylistic differences between these Delaware drainage pottery types and Shenks Ferry types of the Susquehanna drainage have led several researchers to view the former types as cultural markers for proto-Lenape groups (Custer 1987, Stewart 1998). In contrast to early Late Woodland Pahaquarra phase sites in the upper Delaware, Minguannan complex sites of the lower Delaware have not been shown to contain house patterns, storage features, or dense middens. Evidence for Mesoamerican cultigens is limited to finds of squash rind and possible maize kernels at the Pearsall site in Chester County (Hart and Cremeens 1991, cited in Custer 1996:288-289), which is surprising given the horticultural focus established for the Shenks Ferry complex (Kinsey and Graybill 1971, Nass and Graybill 1991). Custer notes that most Minguannan complex base camps are located on multicomponent Woodland I sites, which suggests that these groups were not shifting the focus of their primary settlements towards landforms and soils with high agricultural potential. The implication of these traits is that Minguannan groups continued a hunting and gathering settlement system from earlier times (Custer 1996:287-289). In general, Minguannan complex sites have not been as extensively excavated or radiometrically dated as neighboring Shenks Ferry complex sites. Although Shenks Ferry complex sites are most numerous in the lower Susquehanna drainage, a few of their sites are located farther east in the Piedmont in the Brandywine watershed of Chester County (Custer 1996:286-287).

C. Historic Overview

1. Contact

The Exploration and Frontier Settlement Period from 1630 to 1730 and the Intensified and Durable Occupation Period from 1730 to 1770, as described in the Delaware Comprehensive Historic Preservation Plan, were dominated by the struggle between the Swedes, Dutch and English for control of the area.

The Swedes landed on the shores of the Delaware River in 1638. Delaware, also referred to as New Sweden, was named for Lord De La Warr, Governor of Virginia. What began as a trading expedition quickly became a colony. The first permanent settlement in Delaware was named Fort Christina after the Swedish Queen Christina. This is the site of present-day Wilmington (State of Delaware Website 1999).

In 1655 the Dutch took control of Swedish interests in Delaware until 1681 when Pennsylvania was granted to William Penn. The settlers of Delaware were now under English rule. During this time, Delaware was called the Lower Counties and considered part of Pennsylvania. In 1768, when the Mason-Dixon Line was completed, Delaware became its own separate territory. In 1787 Delaware was the first of the original colonies to ratify the Constitution of the United States, thus making it "The First State" (State of Delaware Website 1999).

The Lenape Indians were living in the area of Delaware when the Swedes arrived in 1638. These Indians sold parcels of land to the new colonists. The Lenape, meaning "common people", were later called the Delaware Indians because they were situated along the Delaware River. In addition to the Lenape, the Susquehannock Indians lived north and west of the Swedish settlement in the Susquehanna Valley of Pennsylvania. The Swedish settlers traded with the Susquehannocks for fur, which had become popular in Europe (Siokalo 1988).

2. New Castle County

Formed in 1673, New Castle County is bounded by Pennsylvania to the north, the Delaware River to the east, Kent County to the south and Maryland to the west. In addition to being the most populated county in Delaware, New Castle is also the northernmost. Many of the settlers in New Castle were Dutch and Swedish descent, whereas Kent and Sussex were mostly English.

New Castle County is divided into five Hundreds, they include: Brandywine, Christiana, Mill Creek, New Castle and White Clay Creek. The Cauffiel Estate is located in Brandywine Hundred.

3. Brandywine Hundred

Brandywine Hundred is situated in the northeastern portion of New Castle County, just below the Pennsylvania border. The first occupants of this area were Swedish (Hancock 1987).

After the surrender of Fort Christina to the Dutch in 1654, many of these settlers were told to relocate to villages further inland. Alarmed with this announcement, the Swedish settlers petitioned the council and were allowed to remain on their current parcels of land. These Swedish settlers held no land titles and lived in an area of Brandywine Hundred called the "Bought", sometimes spelled "Bout" (*Figure 3*).

4. Cauffiel Property

The Bought, located above Vertrecht Hook, is thought to have been maintained by the entire colony. The land in the Bought that is now the Daniel Cauffiel Estate was owned by Olle (Wolla) Franson and Neils Neilson, and originally consisted of a parcel of land that contained 700 acres. Cara Blume, an archaeologist employed by DNREC, reconstructed the approximate locations of the early Swedish settlement of Verdretige Hook and the tracts to the north in the vicinity of what is now the Cauffiel Estate for a proposal for Phase I and II Archaeology studies (*Figure 4*). In addition, a mill was built on the south side of Stoney Creek by the Swedes in the mid seventeenth century. Several early deeds make note of the mill, including a 1673 land grant to Olle (Wolla) Franson and others (Blume 1993).

According to research, this mill was probably a "Norse Mill", consisting of horizontal stones turned by the water. There is also a deed conveying the property to Peter Baynton, a merchant from New Castle who purchased 400 acres including the mill on Stoney Creek from Olle (Wolla) Franson, Neils Neilson and Hofsee Myers on December 18, 1688 (Deed book B-1, page 77). Cara Blume drew a sketch of the metes and bounds described in the transaction (*Figure 5*). Peter Baynton sold

the land in 1693 to Ebenezer Perkins, and Perkins sold the land to Thomas Cartmell in 1725. Thomas Cartmell died on March 17, 1759, leaving the estate to his children. According to his will, executors William Cartmell (son), John Kellam (son-in-law) and George Brooks (son-in-law) were to dismantle and sell the old mill. Considering the mill was termed "old" in 1759, it is not surprising that it no longer exists in the landscape. The precise location of the mill along Stoney Creek is not known.

Evidence of the mill on Stoney Creek in documentary research is significant as an indicator of the early agricultural history of the Daniel Cauffiel Estate. The mill was most likely used to grind grain (wheat or corn) into flour, indicating that wheat, corn and possibly other crops were cultivated on this property in the mid-seventeenth century. Primarily operated to grind grain for the owner and his family, the mill probably provided flour to neighbors as well. The mill was not a major commercial operation, but rather one designed more for the survival of the Swedish settlement in the immediate area.

The Swedish settlers would have also built a very specific style of log/stone house in the seventeenth century. Several sources describe the design, including Amandus Johnson in *Swedish Settlements on the Delaware* (Vol I, 1911, p.345-349 and Vol. II, 1911, p.536-541) and Hugh Morrison in *Early American Architecture* (1987, p.504-505). Constructed of rounded logs that are notched with protruding ends, the interior of the house consists of a three-room plan. The *Stuga*, or main room, had a distinctive corner fireplace with a protruding smoke hood. The interior of the log portion of the Sarah Brooks house has been altered and gives no clues as to its origin, but the exterior does have some of these elements. However, due to the application of board and batten siding, the exact date of construction is not known. This house could be a significant contribution to the study of early Swedish log construction, if it is from that period and can be reverted to its original form. Determining the origin would require physical removal of the board and batten siding, removal of the interior alterations, and tree ring analysis on the logs.

New Castle County boasted some of the best farmland in the state. Farmers in this area had better soil, more meadowland for grazing, and closer proximity to markets than their southern counterparts. By the end of the eighteenth century, many farms that were previously 700 acres or more had been subdivided and were smaller 100- to 200-acre parcels. Wheat was the principle crop in New Castle County. In addition, many farmers kept livestock, raised other grains such as rye and barley, and planted orchards of apple and peach trees for making brandy (Delaware 200 Years Ago, 1987, p.50-51). The planting of orchards indicates a shift from subsistence farming to commercial agriculture. Orchards are mentioned in deeds and wills that relate to the Daniel Cauffiel Estate as early as 1693, when the land was sold by Peter Baynton to Ebenezer Perkins. The deed specifically lists housing, fencing, orchards, and gardens on the property. Thomas Cartmell's will of 1759, in which he leaves part of his property to his daughter Sarah Brooks, also mentions orchards on the property.

Sarah Brooks died on February 12, 1789, willing her tract of land in Brandywine Hundred, including the log/stone house, to George Cartmell, son of her nephew Thomas (Delaware Public Archives, 1789). At the time George Cartmell owned the land, there is evidence of buildings other than the log/stone house existing on the property. The 1849, Rea and Price, New Castle County Atlas shows

a cluster of four buildings near Stoney Creek along Philadelphia Pike with the name G. Cartmell associated with them (**Figure 6**). One is the log/stone house, another building, closer to Stoney Creek, is most likely the present day former residence/office building, and the remaining structures were most likely outbuildings. On November 1, 1850, Thomas Cartmell, who inherited the land from his father George, sold 51 1/2 acres and 4 2 perches to William McCullough (Deed book D-7, page 490). This land is currently parcel #06-124-144 and can be seen on the site plan. The 1868 Atlas by Beers shows *Wm. McCully* as owner of the log/stone house, while the house that is currently an office building was owned by *W. Bright* (**Figure 7**). The small parcel of land with the former residence/office building is shown on the site plan as parcel #06-124.00-143, but was originally part of #06-124.00-141.

During the time of Cartmell ownership, Thomas and George Cartmell each sold a portion of the land to Dr. Gideon Jacques in 1829 (Deed book I-4, page 343). According to deed research, this parcel extended from Philadelphia Pike to the Delaware River (Parcel 06-124.00-141). In 1830, Dr. Jacques also purchased 400 acres from Joseph Carr (Deed book M-4, page 54). This parcel, west of Philadelphia Pike, became the site of the Jacquet & Carr Quarry Company, owned by Dr. Gideon Jacques and Joseph Carr. The quarry, eventually called the Bellevue Quarry Company, produced Brandywine bluestone. When the Cartmell brothers conveyed the property to Dr. Jacques, the deed included a provision to construct a canal. This canal would aid in transporting the stone to the Delaware River, where it was shipped by barge to various construction sites. No evidence that a canal was actually constructed could be found. The 1849 New Castle County Atlas (**Figure 6**) shows a place name of *Quarryville* near the intersection of Philadelphia Pike and Stoney Creek. The Philadelphia, Wilmington and Baltimore Railroad traversed the east end of the property, along the Delaware River. Completed in 1838, the railroad was a catalyst for the Quarry Company to build a branch railroad. Running parallel to Stoney Creek, the branch served as an improved method of shipping the stone. The 1893 Baist Atlas of New Castle County shows the Bellevue Quarry Company property and the branch railroad (**Figure 8**). Remnants of this railroad bed and a relic bridge abutment are visible along Stoney Creek on the Cauffiel Estate. A large proportion of the stones mined from the Bellevue Quarry were used to construct the Delaware breakwater. Early in the twentieth century, the Bellevue Quarry Company went out of business and the quarry pit filled with water. This parcel was acquired by the Wilmington Suburban Water Company in 1932, and used as a reservoir (Delaware Today, 1973, p.55). The water-filled quarry is now known as Lake Bellevue.

Charles B. Lore acquired 51 3/4 acres and 4 1/2 perches (parcel #06-124.00-144) from William McCullough through a sheriff's sale in 1876 (Deed book U-10, page 168). Mr. Lore was a noted lawyer; Attorney General of Delaware from 1869 to 1874; a United States Representative from 1882 to 1886; and Chief Justice of the Delaware Supreme Court from 1893 to 1909 (U.S. Congress Web Site, 1999, Biographical Directory of the U.S. Congress). He lived and worked in Wilmington, while using the Cauffiel property as a country retreat or summer house. In a 1913 biography about Lore, written by James Pennewill, a description (p.19) of how he worked in the orchards on his farm was written: "...[He] would gladly have lived upon his beautiful little fruit farm in Brandywine Hundred on the Delaware River. During his latter years he spent there many, many happy hours, among the trees which he had planted years before and tenderly and fondly cared for during the

intervening time. He liked to put on overalls and a broad brimmed hat, and work upon and among those trees as the farm hand would ordinarily do." Charles B. Lore died in Wilmington in 1911.

A distinctive shift in the purpose of the Daniel Cauffiel Estate with regard to its agricultural use occurred when Lore purchased the farm. It was permanently transformed into a place for farming as an avocation, rather than operated for subsistence or commercial purposes, as with previous owners.

Most of the buildings currently on the Cauffiel Estate were constructed while Lore owned the property. These buildings include the Pennsylvania Barn, the tenant house, the pump house, the carriage house and the chicken coop. Mr. Lore also constructed an early Victorian style house that has since been destroyed. Lore owned the buildings and cultivated the lands for over thirty years before selling to Daniel Cauffiel on February 28, 1910 (Deed book P-22, page 566).

Mr. Cauffiel was the manager of the real estate division of the DuPont Company. He surveyed and purchased sites for new DuPont divisions all over the country. His career began as a real estate agent in Johnstown, Pennsylvania, after having worked in the coal mines (*Wilmington Morning News*, January 13, 1930, p.1). According to correspondence at the Hagley Library, he was involved with purchasing land containing coal and other natural resources, as well as factory sites, in order for the company to diversify. Cauffiel's correspondence with the DuPont Company began c. 1900. He moved to Wilmington, Delaware c. 1908, where he worked exclusively for DuPont until his death in 1930. Cauffiel owned a residence at 506 Delaware Avenue in Wilmington, and acquired the estate from Charles B. Lore in 1910 as a second home.

The DuPont Company began manufacturing high quality gun powder in 1802, and by the early 1900's was facing strong competition. Rather than going out of business, the company restructured and moved into the areas of textiles, fabrics, and chemicals (DuPont Company Web Site, 1999, A Brief History of DuPont Company). Daniel Cauffiel played a vital role in this restructuring. Letters at the Hagley Library generally consist of correspondence between the executives/owners of the DuPont Company (usually Pierre S. DuPont) and Cauffiel, requesting approval for the purchase of real estate on behalf of the Company. A series of documents from 1921 details the sale of the old powder mills and property on the Brandywine River. The site along the Brandywine is now the Hagley Museum and Library. The correspondence at the archives also details aspects of Daniel Cauffiel's personal life, including invitations to garden parties at "Longwood", purchase orders for ponies, pigs, cattle, feed, fruit trees, and fertilizer for the farm, in addition to his daughter's school records from Darlington Academy.

A personal letter from Daniel Cauffiel asking his old friend Dorsey Baldwin of Johnstown, Pennsylvania to manage his farm, is another interesting piece of correspondence. Dated February 21, 1910, the letter reads: "I want to talk to you about a little place I just purchased... and prefer you to run the farm to any body else. It has a very good house on it, one I think that would suit you, nice orchard, not very much farm, ...There are three houses on it. One I expect to occupy myself, and one other would be occupied by the farmer, the other by the help...The street car is only about 300 ft. from the house, the main line of the P.W. & B. Railroad about 900 ft. from the house, and the Delaware River about 1200 ft. from the house, the view is excellent and location all right."

This letter is significant because it describes the property and the socioeconomic climate in which it was purchased. Cauffiel is obviously impressed by the accessibility of the property and the views provided by the Delaware River. The fact that he hired someone to run his farm is an indication that he was not involved in the day-to-day operations and was, in fact, a gentleman farmer. The three houses Cauffiel describes are the Sarah Brooks log/stone house, the tenant house (formerly a barn), and the Lore house, which has since been destroyed. The Wilmington-Darby Trolley that once bisected the Daniel Cauffiel Estate from west to east, is also mentioned. Built c. 1900 by the Wilmington and Philadelphia Traction Company, the line connected Wilmington, Delaware to Darby, Pennsylvania, where travelers could transfer to lines that continued to Philadelphia (Diamond State Trolleys, 1991, p.23). Serving as a means for the gentry to travel between their country residences and the city, this early form of commuting facilitated the modern suburban lifestyle by providing convenient transportation to and from the workplace. Remnants of this trolley line exist in the landscape of the Cauffiel Estate in the form of bridge abutments and footings for trestle piers.

Other correspondence at the Hagley Library provides evidence that Daniel Cauffiel intended to maintain and expand the orchards. Among this documentation is a price quote dated January 31, 1911 from Eagle Nurseries in Rochester, NY for 102 apple trees, 48 standard pear trees, 28 cherries trees, 32 plum trees, 98 peach trees, 4 apricot trees, and 6 quince trees, as well as grape vines and currant bushes. A 1939 aerial photograph of the Daniel Cauffiel Estate shows orchards to the east of the house on a low rise of land between the house and the Delaware River (*Figure 9*).

In 1928, Daniel Cauffiel had a Colonial Revival mansion built on his estate. Until that time, the Cauffiel's occupied the Lore house. A Delaware Cultural Resources Survey form (N-9554) prepared in 1983 states that the Lore house was moved to accommodate construction of the Cauffiel House. The Lore House was eventually torn down in the 1940s. Daniel Cauffiel hired a Wilmington architect named Clarence R. Hope, whose office was in the DuPont Building, to design the Colonial Revival house. According to research conducted at the Athenaeum of Philadelphia, Clarence Hope worked on the Nurses Home in Wilmington. Specific drawings by Clarence Hope on file at the Athenaeum include designs for sills, cornice, porch trim, and ashlar coping using O.W. Ketcham terra cotta for The Nurses Home, as well as drawings of columns and pilasters, also using O.W. Ketcham terra cotta, for a residence in New Castle. Plans for the Cauffiel House are not on file at the Athenaeum, but specifications are in the archives at the Delaware Department of Natural Resources and Environmental Control in Dover.

On January 12, 1930, Daniel Cauffiel died, willing his estate to his children: Luella K. Cauffiel, Daniel W. Cauffiel, Chalmer Cauffiel, T. Coleman Cauffiel, DeWitt T. Cauffiel, Beatrice Hall and Hazel Lickle (Deed book T-39, page 481). Daniel Cauffiel's obituary, accompanied by a story of his life, appeared on the front page of the *Wilmington Morning News*. According to the article, he worked in the coal mines in Johnstown when he was young, and was proud of his working-class background.

In 1993, the State of Delaware obtained parcel 06-124.00-144, including the Cauffiel House, and outbuildings from the heirs. The State of Delaware also acquired the parcel with the trolley and

railroad remnants (06-124.00-141) in 1991. Both parcels are now considered an extension of Bellevue State Park. Parcel 06-124.00-143, with the former residence/office building, is privately owned.

5. Waterways and Early Transportation

The industrialization and early urbanization period from 1830 to 1880, was characterized by an increase in rail construction, in addition to continued milling practices in the area.

As the chief means of transportation for early settlers, natural waterways determined the location of the first settlements, which eventually grew into villages and towns. The Delaware River carried the majority of traffic along the coast of Delaware and Pennsylvania. In addition, the Brandywine River supplied much of the power needed to run the many mills in New Castle County.

The first "road" in this region was an Indian trail cum bridle path along the Delaware River. Another, more defined highway was the Kings Road, currently called Philadelphia Pike. The Kings Road was also originally an Indian path, which eventually became a common link between Philadelphia and Baltimore (Scharf 1888).

The Philadelphia, Wilmington and Baltimore Railroad traverses the property to the east. This Railroad Company was a merger formed from the Baltimore and Port Deposit, the Delaware and Maryland, the Wilmington and Susquehanna and the Philadelphia and Delaware County Companies. On January 15, 1838, all portions of the railroad were complete and it was officially opened. The total cost of the line was \$4,185,511. The railroad was owned by three different companies until 1881, when the Pennsylvania Railroad Company bought them out at eighty dollars per share (Scharf 1888).

The Wilmington-Darby Trolley bisected the property from west to east. It was built c. 1900 by the Wilmington and Philadelphia Traction Company. This trolley line connected Wilmington, Delaware to Darby, Pennsylvania, where travelers could transfer to lines that continued to Philadelphia. Serving as a means for the gentry to travel to their country residences from the city, this early form of commuting facilitated the modern suburban lifestyle by providing convenient transportation to and from the workplace.

6. Agriculture

New Castle County boasted the best farmland in the state. Farmers in this area had better soil, more meadowland for grazing and closer proximity to markets than their southern counterparts. At the end of the eighteenth century, many farms that were previously 700 acres or more had been subdivided and were 100-200 acres. Wheat was the principle crop in New Castle County. In addition, many farmers kept livestock and planted orchards (Hancock 1987).

Charles B. Lore, Attorney General of Delaware from 1869-1874 and a United States Representative from 1882-1886, owned the parcel and enjoyed working in his orchards (Pennewill 1913). Mr. Lore

acquired 51 acres and 42 perches from a sheriff's sale in 1876 (Deed book U-10, page 168). He owned this parcel and cultivated the lands for over thirty years before selling to Daniel Cauffiel on February 28, 1910 (Deed book P-22, page 566).

Daniel Cauffiel was the manager of the real estate division of the DuPont milling empire on the Brandywine River. He surveyed and purchased sites for new DuPont divisions all over the country (*Wilmington Morning News* 1930). According to correspondence and purchase orders, Daniel Cauffiel acquired horses, cattle and pigs, in addition to apple, pear, cherry and peach trees for his country residence, "Lore Farm". This is the present site of the Cauffiel Estate (*Photographs 1, 2, and 3*).

7. Industry

The urbanization and early suburbanization period from 1880 to 1940 was a time of great advancements in the various industries of New Castle County.

Milling was prominent in New Castle County because of the many rivers and streams in the area. According to deed research, a mill was built on the south side of Stoney Creek as early as c. 1673. This gristmill was built by the Swedish settlers in the Brandywine Hundred. In addition to grain milling, paper mills, slitting mills, and [gun] powder mills were also located along the Brandywine and its branches (Scharf 1888).

The production of flour and cornmeal in mills along the Brandywine in New Castle County was the most important commodity in the state. This area became the center of flour production in the country (Hancock 1987). Brandywine Hundred became known throughout the world for its production of superfine flour (Wilmington 1876).

The manufacture of gunpowder in New Castle County played a significant role in the Industrial Revolution. Eleuthère Irénée DuPont de Nemours emigrated from France and built his black powder mills on the Brandywine in 1802. By 1827, it was the largest powder yard in the country. Manufacturing 800,000 pounds of gunpowder per year, the mill's 140 workers were housed in nearby villages with their families. In 1909, DuPont began investigating synthetic fibers, as well as experimentation with chemicals along with the continued manufacturing of explosives. The powder yards closed in 1921 (Wilmington 1876).

Daniel Cauffiel worked as an independently contracted Real Estate Officer for the DuPont company from 1907 until 1930. Mr. Cauffiel surveyed and purchased many sites around the country for DuPont. This expansion helped lay the foundation for the development of many new branches of the DuPont company. From its beginning as the DuPont Black Powder Mills, the international DuPont conglomerate of today is responsible for many of the products that we use on a regular basis (DuPont Website 1999).

The quarrying of Brandywine blue stone was also of great interest in the region. Bellevue Granite Quarry Company operated adjacent to the area of potential effect, employing as many as 200 men.



Photograph 1: Cauffiel Estate, main house and related buildings, facing south.



Photograph 2: Cauffiel Estate main house, front (east) façade, facing west.



Photograph 3: Cauffiel Estate main house and stone wall,
north gable end, facing south.

The close proximity to the railroad was advantageous, and eventually a railroad spur was constructed that formed a direct link with the main line.

8. Nearby Cities

Since the 1800's, Wilmington has been considered one of the largest and most prosperous cities in the state. Originally known as Willington, it is located approximately four miles from the Cauffiel Tract. In 1739, William Penn established the borough of Wilmington with a population of 600. The borough officially became a city in 1832 by a legislative act. It evolved into a very important port town along the Delaware River, with many ships exporting goods to Philadelphia, and even Europe (Wilmington 1876).

Primitive tan yards for leather manufacturing were some of the earliest colonial industries in Wilmington. Leather making became a major industry in the late 1800's, with the finished products being shipped to Philadelphia and New England shoemakers. In addition, leather was used for carriage, railroad car and ship interiors. Beginning as early as c. 1700, carriage making was another important enterprise in Wilmington. Though few people could afford them, carriage companies flourished in the late nineteenth century. Finally, shipbuilding became prominent in the Wilmington area due to its location on the Delaware River and the readily available iron and coal for steam ships. In the 1870's two Wilmington companies manufactured more ships than all other American shipbuilders combined (Wilmington 1876).

9. Religion

New Castle County was home to more Quakers and Presbyterians than the other counties. The Quakers founded Wilmington and continued to be an integral part of the economic and social foundation of New Castle County. Presbyterians became stronger in number after the Revolutionary War. The Methodist denomination also grew in popularity after the war.

The Mt. Pleasant Methodist Episcopal Church is located adjacent to the area of potential effect. This church was constructed in 1838 and completely renovated in the summer of 1883. It is situated on the west side of Philadelphia Pike. The parsonage on the adjoining lot became church property in 1878. The Mt. Pleasant Methodist Episcopal Church is currently on the National Register of Historic Places (Scharf 1888).