

**CHAPTER VII**  
**THE PLACE OF PUNCHEON RUN**  
**IN THE WOODLAND I SETTLEMENT SYSTEM**

A. WHAT IS THE PUNCHEON RUN SITE?

Although the Puncheon Run Site was large in area and contained numerous features and many thousands of artifacts, no convincing evidence was found that it was ever occupied by a large group of people for an extended period of time. Instead, the site probably represents a series of short-term or transient occupations. The same landform seems to have been visited again and again between 3000 BC and AD 1500 by small groups of people. The great differences between the different loci of the site show that these groups did not all come for the same purpose. In some parts of the site, the same locations were visited by groups with different agendas over very long periods, leading to a mixing of remains that makes it difficult to sort out these different visits. However, because the site is spread out over such a large area, certain activity areas have remained distinct. In these areas, most of the artifacts recovered seem to derive from related groups who followed similar pursuits, with only a small mixture of material left by other visitors. Examination of these distinct activity areas was one of the main goals of the Puncheon Run project, and it has provided important information on the settlement system of Delaware's inhabitants in the Woodland I period.

1. *A Seasonal Fishing Camp: The Metate Block*

The Metate block is the remains of a series of small, short-term camps where a limited variety of tasks were performed. This area was located at the eastern end of the site, close to the St. Jones River. Much of the material was recovered from sandy soils below the plowzone. Protein residue studies suggest that one of the main functions of this site was as a fishing camp, since residues of Atlantic croaker, American eel, and striped bass were detected (see Chapter IV and Volume II, Appendix I). The block excavation covered 76 square meters and exposed four fire-cracked rock clusters, several debitage concentrations, and a number of stone tools, primarily small, narrow-bladed, stemmed projectile points and utilized flakes. Three of the fire-cracked rock features were radiocarbon dated: 3,820±70 (Beta-131115), 3,330±60 (Beta-131144), and 2,960±50 (Beta-131146) radiocarbon years BP, respectively, or 2470 to 2035 BC, 1745 to 1485 BC, and 1360 to 1010 BC. A number of similar hearths were found in the block excavations north and east of the Metate block, suggesting that the activities carried out at the Metate block were also performed in other areas. Because these three hearths, positioned so close together, seem to have been used centuries apart, they suggest occupations by small groups of people who used no more than one hearth during each visit. This area also saw a certain amount of later use, as evidenced by the presence of 24 small fragments of pottery found primarily in the plowzone, but the main occupation seems to be related to the hearths and is therefore confined to the Late Archaic or early Woodland I period.

In general, the finds from the Metate block suggest a moderate range of activities. A majority of the tools found were projectile points (N=37), and almost all of the points were small, narrow-bladed stemmed specimens made from local cobbles, the type known colloquially as "pebble points." Microscopic analysis of the blade edges of these points revealed wear probably produced by

piercing, which suggests that they had been used as spear points. Because there was little evidence of breakage in the haft areas, a characteristic of thrown spear points, the Metate block specimens may have been used as hand-held spears, possibly to spear fish caught behind weirs. There were large quantities of debitage in this area, possibly derived from the finishing or resharpening of these or other tools, which included a drill, 29 bifaces, seven utilized flakes, an endscraper, two sidescrapers, and a burin. In addition, a few of the pebble points had been reused as scrapers after their tips had broken off. Edge-wear analysis of these tools produced evidence of several distinct activities, including cutting grass, carving wood, cutting soft and medium materials, and scraping soft, medium, and hard materials. Although the spearing and drying of fish may have been the main activity performed in this area, it was far from the only one.

The large metate that gave the excavation area its name is further evidence of diverse activities in this location. Such grinding stones were used to remove husks and other inedible portions from seeds and grind them into smaller, more digestible particles. Because the metate was so heavy, more than 32 kilograms (70 pounds), it should probably be considered site furniture rather than a portable artifact. Whoever carried it to the Metate block almost certainly planned on returning to the same site. On the other hand, the stone is not really very heavily worn, so this intent was not carried out for very many seasons.

Despite a certain amount of later occupation, the Metate block is the most intact Late Archaic activity area yet investigated along the St. Jones. The evidence from this excavation suggests that small groups of people returned to the site on a regular basis. If the evidence of the protein residue is reliable, then it appears that occupations took place both in the spring (Atlantic croaker and striped bass) and in the fall (eel). The metate also suggests a late summer or fall occupation, since that is when seeds and nuts would be available. There is no obvious way to account for these remains with a simple model of seasonal behavior. The dominance of pebble points in the assemblage suggests a focus on one activity, most likely fishing; certainly the site is well placed for the exploitation of fish runs in the St. Jones. It seems unlikely that this area represents a long-term base camp, because the assemblage from such a site ought not be so dominated by a single tool type. On the other hand, the Metate block probably does not simply represent a spring or fall fishing station. It yielded evidence of occupation in both seasons, as well as tools used in a variety of other tasks—not what one would expect from a simple procurement site. Small, highly mobile groups moving opportunistically across the region seem to be the most likely residents of this part of the site. The artifacts include some traditionally associated with men (spear points) and women (the metate), so it seems likely that the residents were traveling in household groups.

## 2. *Pits and Scrapers: The Feature 30 Block*

The Feature 30 block is perhaps the most difficult part of the Puncheon Run Site to interpret. This area was located in the eastern portion of the site, about 75 meters south of the Metate block. The excavations consisted of a contiguous block of 52 square meters, excavated over three large pit features, and 12 additional 1x1-meter units nearby. Two of the pits, Features 30 and 38, were large, deep basins, with volumes of at least 3,900 and 4,500 liters. These pits were dug into very soft sand, and there was evidence that they were intentionally lined with loamy soil; there was also some evidence of steps along the sides that might have been used to support shelving. Feature 37, the

third feature, was a shallow, flat-bottomed pit measuring approximately 3 by 4 meters. This part of the site is the level area nearest to the large marsh at the confluence of the St. Jones and Puncheon Run, and the large pits were initially interpreted as storage pits for roots gathered in the marsh (Figure 67); however, no evidence of the pit contents was found.

The artifacts from the Feature 30 block included three potsherds of grit-tempered Wolfe Neck ware (700-400 BC) and three other sherds that resembled them but were thinner and more refined, possibly suggesting a date between those for classic Wolfe Neck ware and Hell Island ware (AD 600 to 1000). Projectile points included two small stemmed specimens made from local cobbles, a fishtail point (1200 to 800 BC), a rhyolite Fox Creek point (AD 400 to 900), a rhyolite Jack's Reef pentagonal point (AD 600 to 900), a side-notched specimen that may also be related to the Jack's Reef type, and a small triangular point (AD 1000 to 1600). Of the four analyzed radiocarbon samples, two yielded values before 3000 BC that seem much too early for this material, one yielded a historic date, and only one, from Feature 38, yielded a date that seemed to match any of the recovered materials, AD 615 to 895. This confusing assemblage is difficult to date, but at least the main occupation of this area probably took place in the Webb phase of the Middle Woodland period, between AD 500 and 900.



FIGURE 67: *The Earth's Bounty*

ARTIST: John Poreda

Only 15 formal endscrapers were found at Puncheon Run, but seven of these were recovered from the Feature 30 block. Microscopic analysis showed edge wear that probably resulted from scraping soft materials, such as hide. One utilized flake from this area was probably used for the same task. Other utilized flakes were used for carving wood, scraping hard materials, and generalized cutting. Protein residue analysis of tools from this area produced evidence of fish processing.

For a site of Middle Woodland date, the Feature 30 block produced very few potsherds, especially compared to the thousands of sherds found at the nearby Hickory Bluff and Carey Farm sites. Evidence from the historic period suggests that prehistoric pottery was used primarily for cooking and the storage of food. The small amount of pottery found in the Feature 30 block suggests that the occupants did not come for long stays.

The function of the Feature 30 block is very difficult to interpret. Although the large pits suggest storage of some food item, the stone tools do not indicate the processing of plants, but rather the scraping of hides and possibly butchering. However, the site seems an unusual spot for a hunting camp, unless the hunters were using the peninsula itself as a pen for trapping deer (Volume II, Appendix D). The scarcity of ceramics certainly argues for short-term occupations by people who used their pots somewhere else. Once again we find that a location that seemed, on the basis of its overall size and appearance, to represent a single activity area actually produces evidence of several different activities, making it difficult to assess its place in a simple seasonal round.

It is also possible that the Feature 30 block represented a ritual site. Features 30 and 38 do not look much like the food storage pits identified in other parts of Puncheon Run or at Carey Farm. They could have been used for *chiacosan*, a burial practice documented among the eighteenth-century Nanticokes. The Nanticokes buried corpses in the ground for several months or years, then dug them up and removed the remaining flesh from the bones, and eventually buried them again. The cemetery at Island Field, which dates to this period, produced evidence of many different kinds of burial practices, including the reburial of de-fleshed bones, so it is certainly possible that *chiacosan* dates back to Middle Woodland times. However, there was no positive evidence of burial or other ritual activity at the site, such as grave goods.

### 3. *An Isolated Processing and Storage Site: The Silo Pit Area*

The Silo Pit area represented another archaeological puzzle, a group of large storage features found in an area with very few artifacts. Storage pits have often been associated with village or base camp sites, which the Silo Pit area clearly was not, so their locations seemed at first to be anomalous. However, after a review of the archaeological and ethnohistorical literature on pit storage, this pit complex can be readily placed into a model of the prehistoric cultural landscape. There may indeed be a connection between food storage and sedentary behavior in a broad sense, but strong evidence is now available that indicates that storage pits were regularly dug at Woodland sites that were not extended-occupation base camps. Besides the pit cluster at Puncheon Run, a cluster of pits has been identified at Lums Pond in New Castle County, Delaware, a small site on a small, swampy stream that is a very poor candidate for base camp status (Petraglia et al. 1998), and isolated pits have been found on other small Delaware sites (Kellogg et al. 1994). Roger Moeller (1992) studied a group of Late Woodland storage pits on the upper Delaware River and concluded that they were used for

the short-term storage of food at a processing site; the stored items would have been transferred to village or base camp sites sometime after the processing expedition was finished. Rather than an anomaly, the silo pits now seem to be a good example of a widespread phenomenon, the use of storage pits in locations away from habitation areas.

It must also be emphasized that storage pits and storage are not identical. Native Americans of the sixteenth and seventeenth centuries had a variety of methods for storing food (see Chapter V). The narratives of the first Puritan settlers in Massachusetts describe their entry into settlements that had been hurriedly abandoned by the Indians, and the settlers found food in storage pits, in baskets and bags inside houses, hanging from house roofs, and hanging inside hollow trees (Cheever 1848). The *werowancs* or kings of the Algonquin Indians in Virginia and North Carolina kept their stores in above-ground granaries.

DeBoer (1988) has shown that in the ethnohistorical record pit storage is associated with concealment, especially during times when villages were temporarily abandoned. The discovery of storage pits on a prehistoric archaeological site not only indicates that storage was taking place, it also suggests that the residents had some reason to conceal their goods. People might have had many reasons for such concealment. In addition to protection of goods during periods of site abandonment, fear of attack by enemies was also commonly cited (DeBoer 1988).

Stephen Potter (1993) has emphasized the political importance of storage in the Powhatan chiefdom. He suggests that chiefs kept their goods in storehouses to display their wealth and power, while ordinary people kept theirs in pits so as to hide them from the chiefs and thus avoid expropriation as much as possible. Even without dangerous enemies or powerful chiefs to contend with, people might have had reason to conceal their goods; according to Van der Donck, the Lenape women around New York put food in pits to hide it from their husbands. Van der Donck's comments are made in a rather joking fashion, but concealment of food and other goods from relatives is well attested in many ethnographic contexts. In the 1980s, zoologist Tim Flannery (1998) paid one of his New Guinea guides in tobacco, which the man promptly hid in a bush, explaining that if he took it home he would have to share it with his family.

The simplest interpretation of the Silo Pit complex is that it represents the storage of processed food at a location that was not part of any residential site. Small groups of people visited the site, collected and processed some food item, and buried some of it in storage pits near the processing site before returning to their camp. The food left at the processing site represented a secure cache of supplies, protected by its remoteness from greedy chiefs, grasping in-laws, or enemies bent on vandalism. The desire for concealment explains why the pits were not closer to highly traveled areas, such as the St. Jones River or the possible trail in the vicinity of the Buried Plowzone area. When some of the stored food was needed, those who had cached it simply returned to the spot and dug it up.

There are difficulties with this interpretation of the Silo Pit complex. First of all, there is no positive evidence for what was stored in the pits and, in fact, there is evidence against all of the obvious candidates. The nearly complete absence of charred nut hulls or seeds from the flotation samples makes it unlikely that these items were stored on the site in any numbers. Increases in the levels of

calcium and strontium were noted in some features, suggesting some disposal of bone or shell, but these increases were not dramatic or widespread enough to indicate that animal food of any sort was routinely stored on the site. It is possible that marsh roots such as “tuckahoe” were a major part of the picture, but the phytolith analysis discovered no evidence of such plants and also no diatoms, which are very common in oligohaline marsh water and turned up in large numbers in all of the phytolith samples extracted from marsh roots for this study (see Volume II, Appendix F). Other possible candidates include dried fruits and terrestrial roots, such as American potato or jack-in-the-pulpit, but there is no evidence that these plants were important constituents of Native American diets.

The relationship between the Silo Pit area and other nearby activity areas is also not clear. The radiocarbon dates show that the main cluster of 11 pits was used and filled between AD 1 and 400, but other individual pits nearby, such as Features 41, 51, and 69, may have been used as far back as 1000 BC. Stone was quarried from the cobble deposits along Puncheon Run from before 800 BC to after AD 1000, in other words, throughout the period when the silo pits were in use. Utilized flakes found in both the Cobble Bar and Buried Plowzone areas show that some of the stone working involved the production of expedient tools intended to be used on the spot. What these tools were used for is not known, but it is certainly possible that they were used to process (i.e., slice, butcher, or shred) whatever was being stored in the silo pits. The Cobble Bar area was 100 meters from the main cluster of silo pits, but this is hardly a long distance to carry an important food item. Located at a higher elevation than the cobble deposits along the creek, the silo pits were on dry ground above the terrace edge that perhaps afforded better conditions for the preservation of foods. Removed from the creek edge, the pits would have been harder for raiding parties or tribute collectors to find.

Of course, a connection of the stone quarries and stone tools along the creek with the silo pits may be imaginary, born of our archaeological reliance on stone and ceramic. Our accounts of Indian technology emphasize the use of tools made from plants or animals, not stone, and the items stored in the silo pits could have been processed using tools that have left no trace (Plate 41). For example, marsh roots could have been dug up with a stick, sliced with a reed knife (Smith 1986:115), dried on mats, and buried in baskets or woven bags. In that case, the pits themselves might be the only evidence of the activities that went on at this spot.

The existence of the silo pits and other storage pit groups that were not part of base camps is certainly an important datum about regional prehistory. The possibility now has to be considered that some Native American groups stored their food across the landscape, close to the places where they acquired it. When and why this strategy was preferred to the storage of food within occupation sites is not yet known, but the difference between the two strategies could have implications that reach beyond settlement patterns to questions of community structure and political tension.

#### 4. *A Transient Camp: The Buried Plowzone Area*

Artifacts recovered from the Buried Plowzone area dated to all periods from around 1000 BC to after AD 1000. These artifacts included a sprinkling of potsherds representing at least 11 distinct ceramic wares, stemmed and triangular projectile points, and about 3,000 flakes derived from local cobbles

exposed in gravel bars along Puncheon Run. Edge-wear analysis of the tools suggested a smattering of different activities, none pursued intently. Although the Buried Plowzone area yielded more ceramics than anywhere else at Puncheon Run, ceramic use in this area was actually not particularly intense. Fewer than 200 sherds were recovered from excavations in this area, possibly representing fewer than 20 vessels. Such a small number of vessels from a 2,000-year period certainly does not indicate intensive use of pottery. Likewise, the few thousand fragments of debitage do not represent very intensive quarrying of the local gravel beds. The distribution of lithic and ceramic debris could be the result of a series of moderately intensive episodes of use, separated by intervals of a century or two. Such an explanation is improbable, and it seems more likely that the artifacts represent a very low level of use throughout much of that 2,000 years. People came to the site frequently, but usually briefly—perhaps for no more than a day or two—and during their brief stays they did not use their pots for activities during which they were likely to break. Of course, some did break, leaving the sherds found during the excavations.

One scenario that might generate the kind of long-term, low-level use observed at the Buried Plowzone area is to interpret the area as a way-station or camp ground along a well-traveled path. People journeying on foot to or from the mouth of the St. Jones would not have walked directly adjacent to the river, where they would have to traverse the wetland areas. Instead, they would have followed a more inland path along dry ground, where the streams were fordable. South State Street, the old colonial road, runs just 50 meters west of the Buried Plowzone area, and we know that colonial roads often followed earlier Indian trails. It is also possible that the vicinity of the Buried Plowzone area might have been the highest point on Puncheon Run that could be reached by canoe; certainly that point was probably within 100 meters of this location, providing another reason for people to pass through. With a reliable source of fresh water and other advantages, the Buried Plowzone area may have been the best camping spot along this section of the trail, attracting repeated overnight stays. The pottery found at this location may only indicate that people traveling along the river carried their pots with them and occasionally broke one in the spots where they camped.



PLATE 41: Delaware Wooden Mortar and Pestle  
SOURCE: Department of Anthropology, Smithsonian Institution,  
reproduced in Porter (1987)

Hunter-gatherers often have regular seasonal rounds, but they must also be opportunists, ready to take advantage of unpredictable bounties when they are offered. Thus, even if they were traveling from one point to another—say, from a shellfish gathering station at the mouth of the St. Jones to a hunting camp in the interior wetlands—they might have stopped to make use of any resources they encountered along the way. If game crossed their path, they might have tried to kill it, and if successful they would have paused to butcher it. They could have made the necessary tools from the cobbles available along Puncheon Run; people who needed to refurbish their toolkits may have visited the gravel bars just for that purpose. Stands of edible plants, such as cattails or seed-bearing annuals, probably grew along Puncheon Run in some periods, giving people another reason to stop and spend a day or two, and smaller animals such as turtles must have been common. The regular movement that was such a large part of the lives of hunter-gatherers ought to have left many small sites at frequently visited places across the landscape, and the Buried Plowzone area may have been one such place.

#### 5. *Stone for Tools: The Cobble Bar*

The scatter of debitage derived from local cobbles that was observed in the Buried Plowzone area extended to the east beyond that area, primarily outside the project area. In some areas the density of the scatter may have been quite high; one shovel test pit outside the final right-of-way yielded 50 pieces of debitage. Gravel bars seem to have been exposed at many places along the north bank of Puncheon Run. At a location approximately 50 meters east of the Buried Plowzone area, small-scale excavations focused on the Cobble Bar area, where a portion of the gravel bar fell within the project right-of-way.

Excavations in the Cobble Bar area recovered very few diagnostic artifacts, but they spanned the same time frame as those from the Buried Plowzone area, that is, from around 1000 BC to after AD 1000. Most of the artifacts consisted of cores, tested cobbles, hammerstones, staged bifaces, and debitage. The average size of the debitage in the Cobble Bar area was greater than any other area at Puncheon Run, indicating that the activities pursued in the Cobble Bar area included relatively little biface reduction or production of finished points. Some of the activity was directed toward the manufacture of expedient tools, such as the eight utilized flakes identified in the Cobble Bar area; it is not known for what task these flake tools were intended, but their presence shows that this spot was not simply a quarry. Much of the material seems to derive from the initial reduction of cobbles to early-stage bifaces, which were then carried along for use or finishing elsewhere. The gravel bars along Puncheon Run seem to have been a sufficiently attractive source of stone to have drawn people traveling along the St. Jones River to this spot. While there, they refurbished their stone toolkits and could have taken advantage of any other plant or animals available in the vicinity. Long-term occupation of the area is not indicated.

#### 6. *Locus 2: Camping on the Bluff*

Locus 2 encompassed the central part of the Puncheon Run Site, between the Metate and Feature 30 blocks (Locus 3) at the eastern end and the Silo Pit, Cobble Bar, and Buried Plowzone areas (Locus 1) at the western end. The only part of Locus 2 that yielded well-preserved archaeological remains was a narrow strip along the edge of a bluff overlooking the bottomland along Puncheon



Run. The surrounding forest was almost entirely composed of nut-bearing trees, particularly hickory and beech. Relatively little excavation was undertaken in Locus 2 because it was possible to avoid the area during final construction.

The artifacts from the bluff edge included six sherds of Hell Island pottery (AD 600 to 1000) from three separate units, a small stemmed point, and a point with a ground base and serrated edge, possibly a Kirk or Palmer type point (8000 to 6500 BC). A concentration of quartz debitage was found in one unit, as well as numerous other flakes. Because of the area's very small size and long occupation span, it probably represents a very low level of activity, no more than an occasional visit by people hunting or gathering on the floodplain or among the nut trees on the bluff. The repeated visits to this particular spot indicate that it had some advantage, probably the view across the floodplain, and once established as a camp or hunting station, minor changes to the microenvironment may have made the area attractive for repeated visits. Such very small sites, which are common throughout eastern North America, illustrate the dispersion of human activity across the landscape and the repetitive use of small-scale topographical features like this 8-meter-high bluff by people with an intimate knowledge of their environments.

## B. CHRONOLOGY OF SITE USE

### 1. *Paleoindian and Archaic Periods (before 3000 BC)*

Before the Woodland I period, the Puncheon Run Site was used only occasionally. At that time the St. Jones River was a small, nontidal stream, and the rich estuaries that attracted people to its banks in later years had not yet formed. In the early postglacial period, hunter-gatherer groups would have ranged widely, following the movements of game animals, and would have become increasingly familiar with the emerging Holocene environments (Table 42). Serrated spear points, possibly Kirk or Palmer type points and in any case probably dating to before 5000 BC, were found in the Silo Pit area and Locus 2. Such points have been found in small numbers at other sites along the St. Jones, including Carey Farm and Hickory Bluff, and a hunting camp of this period was identified at the Blueberry Hill Site (see Chapter II). In the St. Jones River basin, small bands of people ranged throughout the region, camping near stands of edible plants and swampy areas where deer congregated. This pattern was seen throughout the eastern woodlands. The camps established by hunter-gatherer groups were typically located in areas of the landscape that were adjacent to wetlands that were also attractive to game animals, which provided the most important source of protein (Smith 1992). At Puncheon Run, a spot along the bluff overlooking the floodplain provided an excellent vantage point, and a nearby drainage cut provided easy access between the upland and bottomland resource zones.

### 2. *Early Woodland I Period (Late Archaic, 3000 to 1000 BC)*

The Metate block, the most heavily utilized part of the Puncheon Run Site, appears to have been occupied primarily in the Late Archaic period, between 2800 and 1200 BC. During this period use of the Puncheon Run Site seems to have been focused on Locus 3, close to the St. Jones River. There is evidence of occupation in this period all along the St. Jones River, including finds of diagnostic projectile points and steatite bowl fragments, but the Metate block is the best-preserved

activity area of this date yet excavated along the St. Jones. The Metate block appears to represent a series of camps made by small household groups in the spring and the fall. The most common tool found was the narrow-bladed, stemmed projectile point, interpreted here as a fishing spear; the numerous hearths in this area may have been used to dry fish for storage. However, the large metate, a mano, formal scrapers, and utilized flakes used for several different tasks were also found.

The Metate block differs from the best known sites of this period in the region, Barker’s Landing and Coverdale Farm. These large sites are distinguished by heavy use of imported argillite, and Custer has described them as base camps where semisedentary groups harvested and processed wild plant foods, such as wild rice. The large amount of argillite at those sites may, Custer suggests, represent a developing regional elite that used imported stone to display its status. Not only did the Metate block produce little evidence of argillite use, it seems to have been used by small, highly mobile family groups.

3. *Middle Woodland I Period (Early Woodland, 1000 to 300 BC)*

The Puncheon Run Site produced only scattered evidence of activity in the first millennium BC. A radiocarbon date of 2,480±40 radiocarbon years BP (Beta-136091), or 785 to 410 BC, obtained from Feature 33, a small basin-shaped pit, shows that some people continued to visit the eastern area of the peninsula. This pit contained a small, narrow-bladed, stemmed pebble point, and evidence from other sites in the area, especially Carey Farm, shows that these points continued to be used until after AD 500. Some of the other pebble points found at Puncheon Run may also date to this period. A small amount of Wolfe Neck pottery, generally dated to between 700 and 400 BC, was also found

Cultural Period	Pattern of Site/Landscape Use
Paleoindian and Archaic (before 3000 BC)	Initial exploration of Holocene landscape; periodic use of camp area at margin of upland in Locus 2; steep bluff provides view of bottomland along Puncheon Run; nearby drainage cut allows access between upland and bottomland zones
Early Woodland I/ Late Archaic (3000 to 1000 BC)	Increasingly intense use of terrace adjacent to St. Jones River, especially Metate block in Locus 3; periodic reuse of established camp site for seasonal (spring and fall) fish runs and plant food processing
Middle Woodland I/ Early Woodland (1000 to 300 BC)	Expanding use of landscape niches; overland trail network becomes imprinted on terrestrial landscape with establishment of camps or way-stations along trail network, at various locations, widely scattered across peninsula – occasional use of camp at Buried Plowzone area; quarrying at Cobble Bar area; earliest use of storage pits in Silo Pit area
Late Woodland I/ Middle Woodland (300 BC to AD 1000)	Intensive use of storage pits in Locus 1 (Silo Pit area) and Locus 3 (Feature 30 block); use of landscape focused on intensive harvesting and caching of seasonally available resources
Woodland II/ Late Woodland (AD 1000 to 1500)	Occasional forays by task-oriented groups (hunting, fishing, gathering parties); procurement stations widely distributed across the Puncheon Run peninsula; storage pits/resource caching areas abandoned

scattered across Locus 3. Some use of this area, possibly as a fishing and gathering camp, continued in this period.

Intriguing evidence of low-level activity in this period was found throughout Locus 1. Feature 69, a pit in the Silo Pit area that had been thoroughly disturbed by groundhog tunneling, yielded more than 100 sherds of steatite-tempered pottery (1200 to 800 BC). This pottery appeared to have come from at least two different vessels, one identified as Marcey Creek and one as Selden Island. Other, better preserved pits in the area—Features 41 and 51—yielded radiocarbon dates in this period. These isolated pits suggest some degree of food gathering and storage, possibly in conjunction with quarrying and the manufacture of expedient tools in the nearby Cobble Bar area, where a fishtail point (1200 to 800 BC) was found.

Use of the Buried Plowzone area seems to have begun during this period; Feature 14, beneath the main deposit in this area, returned a radiocarbon date of 2,920±40 radiocarbon years BP (Beta-136092), or 1260 to 995 BC. Artifacts from the Early Woodland period include Marcey Creek, Selden Island, and Wolfe Neck ceramics, and probably at least some of the small stemmed projectile points. People visiting the Buried Plowzone area probably camped for only a short time on each visit, and they were probably either procuring stone from the nearby gravel beds, gathering and processing some plant food along Puncheon Run, or just passing through.

#### 4. *Late Woodland I Period (Middle Woodland, 300 BC to AD 1000)*

Two parts of the Puncheon Run Site, the Silo Pit area and the Feature 30 block, were used primarily in the first millennium AD. The silo pits represent an area of food processing and storage that was remote from an associated occupation site, and the large pit features in the Feature 30 block may represent the same sort of activity. Continuing use of other parts of the peninsula continued, including the Buried Plowzone area and Locus 2, as evidenced by the recovery of Hell Island sherds (AD 600 to 1000). Other sites in the region, especially Carey Farm and Hickory Bluff, experienced much more intensive use in this period. It seems that during this period the Puncheon Run Site was used primarily for brief gathering forays and remote storage by people who were camped elsewhere.

#### 5. *Woodland II Period (Late Woodland, AD 1000 to 1500)*

During the Woodland II period, evidence of human activity decreases throughout the St. Jones drainage, with the possible exception of some St. Jones Neck sites. All of the known village sites of this period in Delaware are in Sussex County or northern New Castle County; none have been found between the Mispillion River and the Christina River. During this period, central Delaware seems to have been used only for hunting expeditions and other relatively brief forays. At Puncheon Run, evidence of Woodland II occupation, including triangular arrow points and Townsend ceramics, was found in Locus 3, near the St. Jones, and in the Buried Plowzone area. These artifacts most likely represent brief forays by hunting, fishing, and gathering parties who maintained villages or base camps elsewhere.

## C. THEORETICAL MODELS OF PREHISTORIC SETTLEMENT PATTERNS

### 1. *Base Camps*

The general model employed by Custer (1989, 1994) to classify archaeological sites divides them into “base camps” and “procurement sites” (Figure 68). This distinction is drawn from the ethnography of contemporary hunter-gatherers, and its application to the archaeological record of Delaware raises many problems. In brief, it is questionable whether the great complexity of the archaeological record can be subsumed under these two categories. The Puncheon Run Site raises these problems in a particularly forceful way, so a discussion of this issue is in order.

To understand the concepts of base camp and procurement site we must turn to their source, in ethnography. Although anthropologists have classified hunter-gatherer peoples in several different ways, Lewis Binford’s (1980) division of hunter-gatherers into “collectors” and “foragers” is perhaps most relevant to the present discussion. According to Binford, foragers use a strategy he calls “mapping on,” which means that they take themselves and their whole community to where food is available. Collectors use a “logistical” strategy, which means that while they range widely to find food, they bring much of it back to their base camps to eat; much food is also stored at the base camp for later use. Collectors may have a single, year-round base camp, or, more commonly, several seasonal camps. Their collecting trips may last days or even weeks, in which case they will establish hunting or gathering camps away from the base camp; these satellite camps are sometimes called “procurement sites.” The boundaries between these two strategies are not absolute, and some groups may use a collecting strategy during some seasons and a foraging strategy during others. Such groups may practice the social behavior known as “fission/fusion,” that is, they may come together in large groups at some seasons but disperse into smaller groups at other seasons. The base camps of the larger amalgamations would be called, in Custer’s terminology, “macro-band camps,” while any base camps established by smaller groups would be “micro-band camps.”

Groups using collecting and foraging strategies ought to leave very different patterns in the archaeological record, when viewed at the regional scale. The record of a foraging people ought to include many small sites, each focused on whatever resources were present in the immediate vicinity of each site. Although these sites would be found in a broad variety of environmental zones, their archaeological manifestations could in most cases be quite similar. All of the sites would represent communities of the same size and composition, and all would represent short-term occupations. A wide range of tasks, including food preparation and tool maintenance, would be carried out at each site. Since the group would probably have its full range of tools and other belongings with it at each camp, any of their possessions could be lost or broken at any site. Differences in the sites could arise from differences in the type of resource being exploited. For example, some resources would require heavier use of stone tools, so the sites where those resources were acquired and processed might show more broken or lost tools and more debitage from resharpening. In other cases, heavy, specialized tools, such as metates or mauls, might be left at particular sites instead of carried with the group. However, these differences should be more relative than absolute, because all of the sites would represent occupation by the same community, living in the same way.

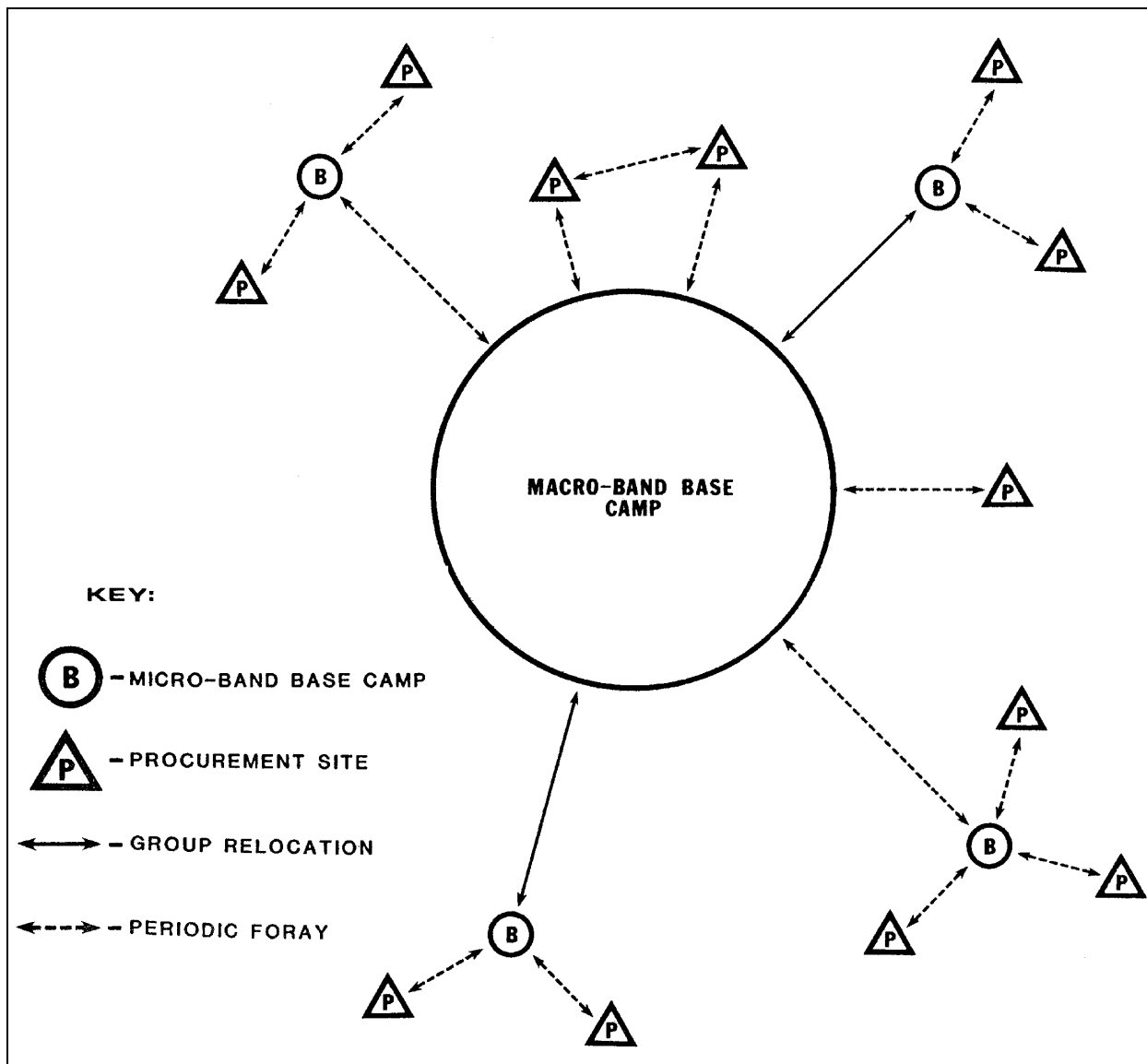


FIGURE 68: General Woodland I Settlement Pattern Model

SOURCE: Custer and Bachman 1984

The archaeological record of a collecting people ought to include two distinct kinds of sites: procurement sites, where people camped while performing some single activity, and base camps, where they lived for a more extended period. Base camps ought to be identifiable by the evidence of diverse activities, rather than the single task that was the function of each procurement site; base camps are also much more likely to have evidence of permanent housing and other substantial investments in infrastructure. A base camp, by definition, would be occupied by the entire community, whereas procurement sites might be occupied by groups drawn from a single gender or age group. In analyzing the archaeological record in Delaware, Custer has particularly emphasized a broad range of different activities at base camp sites; reflecting these diverse activities and its diverse population, a base camp should have a broad variety of tool and feature types.

However, it has proved difficult for archaeologists to put this conceptual distinction into practice. Consider the issue of tool variety. Archaeologists classify tools in different ways, so it is difficult to compare sites excavated by different institutions on the basis of a count of tool types. Most tool classifications are morphological, that is, they are based solely on the shape and size of the tool. The microscopic study of edge wear has shown that similar-looking tools can be used for a wide variety of purposes, and tools of very different design can be used for the same purpose (see Volume II, Appendix G). Because such microscopic study is time-consuming and expensive, only a rather small sample of tools from the region has been studied in this way, greatly limiting the data available for comparing different types of sites. We also know that some groups of people make a greater variety of formal tools than other groups; some groups, in fact, rely almost entirely on informal tools that might all be classified as “utilized flakes” (Parry and Kelly 1987). A site occupied by such people would not display much tool variety in a lithic analysis based on macroscopic identification of formal characteristics, and it would be greatly misleading to compare it on this basis to a site occupied by a people who manufactured a variety of formal tool types.

The lack of tight chronological control that is so common in Middle Atlantic archaeology also poses problems for determining site function. Often we do not know if the tools and features we find represent 25 years, 250 years, or even 2,500 years of use. It is possible that a richly varied assemblage of artifacts represents a series of single-purpose, short-term occupations, each separated from the others by decades. A site identified as a “base camp” may therefore be nothing more than a series of procurement sites that happen to have been in the same place. This possibility is illustrated by the excavations at Puncheon Run. The Puncheon Run Site encompasses a series of distinct activity areas spread out over a landscape of more than 8 hectares (20 acres). Identification of the distinctive characteristics of these areas is possible only because of their spatial separation. If they had been crowded together onto some advantageous landform, such as a bluff edge or a knoll surrounded by marshes, it would have been very difficult to distinguish them. In that situation, we would most likely have identified the site as a base camp, because taken as a whole the Puncheon Run Site meets all of the criteria.

The Puncheon Run Site yielded a range of formal tool types equal to that of other large sites in the region, including Carey Farm and Hickory Bluff. The tools included several types of projectile points used in the Woodland I period. Narrow-bladed, stemmed points made from local pebbles were the most common type, but side-notched, teardrop, fishtail, Fox Creek, and Jack’s Reef pentagonal points were also found. Of the types commonly identified on Woodland I “base camps” in Delaware, only broadspears were missing. Other chipped-stone tools included a drill, a sidescraper, a number of small endscrapers, and a substantial number of utilized flakes. The microscopic analysis also pointed to a wide variety of tool functions; utilized flakes from the Metate block showed evidence of wood carving, grass cutting, and generalized scraping and cutting. Cobble tools included the large metate, two cobble tools that showed wear representative of grinding tools, hammerstones, manos, abraders, and anvil stones. No stone axes were found, but the absence of stone axes from this and other large sites in the region (such as Carey Farm and Island Farm) may be the result of collecting by amateurs, who tend to pick off the largest and most impressive artifacts first. Large amounts of debitage were found in several areas, representing all stages of the tool-manufacturing process. One small part of the site, the Buried Plowzone area, contained the majority

of the identifiable ceramics. The only feature types found on sites identified as base camps are fire-cracked rock concentrations and various types of pits, and both were common at Puncheon Run.

However, none of the individual parts of the Puncheon Run Site yielded evidence of greatly varied activities. Finds in the Buried Plowzone area included ceramics and debitage from the reduction of cobbles, but a rather narrow range of stone tools and no features. In the Silo Pit area the excavations uncovered at least a dozen storage pits and one possible hearth, but there were few stone tools, very little ceramic, and a very small amount of debitage. Within Locus 3, close to the St. Jones River, the various areas and components are closer together, but they can still be distinguished. The Metate block had been partially buried, probably by bioturbation, and the main component was radiocarbon dated to before 1000 BC. This area included hearths, large amounts of debitage, a number of chipped-stone tools, and several cobble tools, including a mano and the large metate. However, there were no storage pits in this area, and the range of chipped-stone tools was not large. Large pits were found in the Feature 30 block only about 50 meters away from the Metate block, but these pits and most of the activity around them seemed to date to the Middle Woodland period. The finds in the Feature 30 block included projectile points, five small endscrapers, and other chipped-stone tools, but no cobble tools, very little ceramic debris, and no hearths were found. A shallow basin-shaped pit in this area, Feature 37, was similar to those identified by Custer (1994) and others (Liebknecht et al. 1997) as a “pit house,” demonstrating that these features, whatever their function, are not found only at base camp sites.

The various components of the Puncheon Run Site date to a long span of time, from before 2000 BC to after AD 1000. In principle, therefore, careful dating of the components could serve to keep them separate. However, many of the important tool types found on Middle Atlantic sites are not datable even in general terms. Metates, manos, anvil stones, scrapers, and flake tools could all come from any part of prehistory, and small stemmed points, which were so plentiful at Puncheon Run, could date to any time from 4000 BC to AD 500, making it impractical to separate the various components of mixed sites.

The investigations at Puncheon Run point to a way beyond the vague formulation of base camps and procurement sites, and a way to avoid the methodological problem created by large, mixed sites. Of all the sites he has excavated in Delaware, Custer has probably made the most extensive use of data from the Hawthorn Site (Custer and Bachman 1984), a small site in northern Delaware dating to circa 1000 to 750 BC. Although the site is small, almost all the material seems to date to a single series of occupations, perhaps only a single occupation, allowing analysis of that component at a level far beyond what can be done for any component of a mixed site. The discoveries at the Puncheon Run Site again emphasize the importance of datable components, and show that small sites can sometimes be sources of important information. The datable occupations at the Metate block and the Silo Pit area provide usable data on the range of activities carried out there in certain periods. By themselves, these two small areas do not define a regional settlement pattern or show how that pattern changed over time, but they do indicate that data from such datable components can provide important insights into how Native American groups lived on the Delaware Coastal Plain.

## 2. *Settlement Systems on the St. Jones*

The Woodland I settlement system of central Delaware remains largely unknown for two reasons. First, any model of a settlement system must be based on an understanding of the subsistence base of the society, and the lack of detailed subsistence information for central Delaware means that this understanding cannot be attained. For example, Custer and his colleagues (1990) speculate that the high rate of dental caries observed in the Island Field cemetery, which indicates a diet high in carbohydrates, implies reliance on wild rice as a major food source. Dependence on wild rice would have important implications for where people lived, as well as other aspects of their lives. However, not a single grain of wild rice has been recovered from a prehistoric archaeological site in Delaware; therefore, the model can hardly be confirmed or even tested. Second, as has been discussed, the archaeological deposits from the large sites in the region have almost all been mixed to some degree, making it very difficult to examine in a rigorous way the occupation from any single period. Any statements about settlement systems and their evolution must therefore be tentative.

The Woodland I hunter-gatherer groups that inhabited the St. Jones River basin probably confined their normal seasonal round to the Delmarva Peninsula. They used a stone technology focused on locally available cobbles and pebbles, rather than on the primary stone that is widely available from Iron Hill northward. There is some evidence that a strong local tradition of working with pebbles developed in the region. The points from Puncheon Run generally had remnant cortex on their bases or blades, a habit which has been interpreted elsewhere as a cultural marker rather than simply a technological feature. Furthermore, these distinctive points were used for a very long time. In the second millennium BC, the small stemmed and side-notched points used in central Delaware were much like those used in other parts of the Middle Atlantic region. However, after 1000 BC, and especially after 500 BC, other parts of the region turned to other point styles, such as the Rossville, Fox Creek, and Jack's Reef types. These types were known in central Delaware but always remained rare; the large collection from the Deneumoustier Site (see Chapter II) includes only two Fox Creek and one Jack's Reef points but more than 240 stemmed specimens. An overwhelming number of points found with Mockley and Hell Island ceramics at the Carey Farm and Island Farm sites were stemmed. The major exceptions to this observation relate to contact outside the region, including both the heavy use of imported argillite and rhyolite at Barker's Landing and Coverdale Farm and the presence of more than 20 Jack's Reef pentagonal points in the burials at Island Field. Since other aspects of the material culture of the region, including the ceramics, were more responsive to outside influences in this period, the stubborn traditionalism of the stemmed-point makers stands out. Perhaps they simply found that these were the easiest types to make from small pebbles, or perhaps they attached some greater significance to these forms; in any event, such a tradition would have been unlikely to develop among people who paid regular visits to the primary quarries of northern Delaware and Pennsylvania.

The Delmarva Coastal Plain is quite a large territory, covering roughly 13,000 square kilometers (5,000 square miles), and is big enough to support several hunter-gatherer groups. Ethnographers have recorded band territories in sizes from less than 260 square kilometers (100 square miles) in certain rich tropical environments to more than 31,000 square kilometers (12,000 square miles) in subarctic and desert areas (Turnbull 1968). Given the relatively rich subsistence resource base of the Middle Atlantic Coastal Plain, territories in this area could be nearer the small number and



certainly less than 2,600 square kilometers (1,000 square miles). John Smith recorded six different groups along the eastern shore of the Chesapeake Bay. Although the Indians of the seventeenth century were agriculturalists, they still relied on wild foods to a large degree, especially for protein, and the villages of these farmers may have been substantially larger than the average band of hunter-gatherers. There certainly is no structural, economic reason why the Delmarva Peninsula could not have been home to several bands during Woodland I times.

Archaeologists working in Delaware have proposed several schematic models for possible settlement patterns on the coastal plain. The first models were proposed by Thomas and his colleagues in 1975, based on detailed analysis of the wild resources available in different environments at different seasons of the year. They suggested five possible models, representing differing degrees of residential stability (Thomas et al. 1975:62-63):

- ▶ A single year-round base camp in the Mid-Drainage Zone, with forays to the coast and to inland hunting grounds (Binford's "collector" model);
- ▶ A fall/winter/spring base camp in the Mid-Drainage Zone, with a summer camp at the coast;
- ▶ A fall/winter base camp in the interior woodlands, and a spring/summer base camp at the coast;
- ▶ A fall/winter base camp in the interior woodlands, with a summer camp at the coast and a spring camp in the Mid-Drainage Zone; and
- ▶ Four separate seasonal camps: winter in the interior woodlands, spring in the Mid-Drainage Zone, summer at the coast, and fall in a different mid-drainage location (Binford's "forager" model).

Thomas and his colleagues (1975) compared these models to evidence of seasonality from two Woodland II archaeological sites, the Hughes-Willis Site just east of Dover and the Indian Landing Site on Indian River Bay. Hughes-Willis (see Chapter II) seems to have been occupied mainly in the fall, as shown by the presence of mature antlers on some of the deer skulls and the large amounts of charred hickory nuts recovered. There was also some evidence of winter occupation in the form of deer skulls from which the antlers had been dropped. Indian Landing seems to have been a summer occupation, based on finds of bay scallop, crab, stingray spines, and a deer skull with partially hardened antlers. The authors concluded that Hughes-Willis probably represents a fall/winter woodland base camp, part of a settlement system that included either a single spring/summer base camp or seasonal camps, and that Indian Landing was a summer transient camp. Since accounts by Dutch explorers tell us that the Native Americans living in southern Delaware were agriculturalists, Indian Landing was probably visited while the corn was ripening, before the main harvest in late August (cf. Smith 1986:116).

The models proposed by Thomas et al. (1975) have been refined by Custer (1989, 1994), who has proposed several different models to describe the movements of Native Americans in Delaware at different times in the past. For the Woodland I period his models tend to emphasize residential stability; he posits a single, year-round base camp at Churchman's Marsh for groups in northern Delaware (Figure 69), and a fall/winter/spring base camp in the Mid-Drainage Zone along the St. Jones (Custer 1989:203, 278).

Figures 70 and 71 represent two possible models for Woodland I settlement along the St. Jones River, based on data from Puncheon Run and the other sites in the region. Figure 70 represents a collector or focal model with limited residential mobility. The diagram shows a base camp in the Mid-Drainage Zone (at Carey Farm or Hickory Bluff) occupied by much of the community from late winter to mid-fall, and a second hunting and nut-gathering camp (at Deneumoustier) in the interior wetlands occupied in late fall to early winter. Foraging or hunting expeditions traveled out from the base camp throughout the year to exploit the resources available at other locations: shellfish on the coast, waterfowl in the marshes, and so on. An expedition is also shown to a ceremonial site (shown at Island Field) for an important ritual, which could be either a seasonal event or something unplanned, such as a funeral.

The “base camp” model shown in Figure 70 is the one preferred by Griffith (1974) and Custer (1989:278), but the large excavations conducted along the St. Jones in the past decade have failed to confirm this model. The data from Puncheon Run could equally well represent the pattern shown in Figure 71, in which small, highly mobile groups move opportunistically through the region. Particularly for the earlier Woodland I (Late Archaic) period, the evidence for semipermanent base camps is very weak, and the data from the Metate block show that even spring fishing could have been performed by small groups operating from small, short-term camps.

The question of residential stability in the Woodland I is an important one for the history of the region. The model of cultural evolution employed by Custer (1989, 1994) and others relates the development of complex societies to increasing sedentism in this period. Besides the very limited

data pertaining to seasonality, the main evidence for the assertion that people were spending more of their time in base camp sites along the tidal estuaries and other large wetlands is the larger size of the Woodland I sites in these environments. This growth can be illustrated by a brief comparison between Woodland I and Archaic sites along the lower St. Jones with those in other nearby environments. In the cluster of small sites around a pond in the Osborne wetland area of southern New Castle County, the diagnostic projectile points recovered included seven Paleoindian or Archaic specimens (Kirk, Palmer, bifurcate, and Stanly), and seven Woodland I stemmed points (Bedell et al. 1997). The Leitzinger Site on Muddy Branch just east of Dover produced nine Paleoindian or Archaic points and 28 stemmed points (Custer et al. 1986a). In these locations around small, freshwater wetlands, the ratio of diagnostic Woodland I points to those from earlier periods may be anywhere from 1:1 to 4:1, and the size of collections is generally in the dozens. Sites along the estuarine portion of the St. Jones, however, have produced hundreds of points, and the ratio of Woodland I to earlier types escalates dramatically. Carey Farm produced 15 Paleoindian and Archaic points, 111 stemmed points, and 41 other likely Woodland I specimens; Island Farm produced three Archaic points, 40 stemmed types, and seven other Woodland I specimens. These numbers cannot be converted into population estimates in any sensible way, but they certainly show why some archaeologists have seen an increase in sedentism and an increasing focus on estuarine environments in the Woodland I period.

The findings from Puncheon Run raise questions about these models, especially the connection between an estuarine focus and sedentism. A site in the Mid-Drainage Zone of a river like the St. Jones would be within reach of many different ecological zones and food sources, and it has been

hypothesized that the larger sites in these locations represent base camps occupied during several different seasons. Since people could harvest the spring and fall fish runs, gather marsh roots from the late winter through the summer, collect seeds in the fall, and hunt a wide variety of animals year-round, all from the same site, why would they move? This question actually displays our own bias in favor of settling down. Examples of living groups who move regularly, even when they could find plenty to eat in a single locality, have been documented in several places around the world. As James Woodburn (1968:106) wrote about the Hadza of Tanzania,

The Hadza, like many other nomadic people, value movement highly, and individuals and groups move to satisfy the slightest whim. Their possessions are so few and so easily carried that movement is no problem. . . . The Hadza may move camp to get away from a site where illness has broken out, to obtain raw materials—stone for smoking pipes, wood for arrow shafts, poison for arrows, herbal medicines, and so on, to trade, to gamble, to allow the realignment of huts in a camp after changes in camp composition, to segregate themselves from those with whom they are in conflict, and for many other reasons.

The Hadza may be rather unusual in their readiness to pull up stakes and move on, but the evidence from Puncheon Run shows that some Delaware groups moved widely across the landscape, even while harvesting riverine resources. The fishing camps of the Metate block do not appear to have been part of long-occupation base camps that were also used to access other resources, even though the protein residue data suggest that they might have been occupied both in the spring (shad) and the fall (eel). The storage pits of the Silo Pit area were certainly not part of a base camp, although they must have been used to store some resource that was gathered within easy reach of the river.

The data currently available from Delaware demonstrate the difficulty in distinguishing long-term base camps from other types of sites, or semisedentary groups from more mobile peoples. Because of this problem, it is very difficult to discuss rigorously how sedentism might have developed over time. There are certainly differences between sites in the region, and these differences may reflect a slow increase in the amount of activity focused on the biggest and longest-occupied camps. The site with the best evidence for relatively lengthy, intense occupation in the region is the occupation at the Carey Farm Site in the Middle Woodland period (AD 100 to 1000). The large amount of Mockley and Hell Island pottery recovered from the site, 313 Mockley vessels (AD 100 to 1000) and 76 Hell Island (AD 600 to 1000) vessels, as well as the large number of stone tools and pit features found in association with the ceramics, implies a high level of human activity. However, there is still no solid evidence that Carey Farm was a semipermanent base camp. The cemetery at Island Field shows that the Middle Woodland occupants of the St. Jones drainage had a complex ritual life, as well as extensive contacts outside the immediate region. However, although ritual and material complexity of this kind is often associated with increasing sedentism, this is not always the case.

Moreover, the evidence from Carey Farm does not suggest a dramatic change from the earlier period. Carey Farm also yielded a large amount of the main ceramic types from the preceding 800-year period, 700 BC to AD 100, with 72 Wolfe Neck vessels and 34 Coulbourn vessels. Analysis of the Hickory Bluff finds may indicate occupations there by groups using Coulbourn and Marcey Creek (1200 to 900 BC) ceramics of similar size to the Early Woodland groups at Carey Farm.



PLATE 42: Indian Woman and Young Girl  
 SOURCE: Painting by John White, circa 1585

The Delmarva Adena phenomenon also indicates social complexity and the maintenance of contacts beyond the region. Evidence for occupations of this type by Late Archaic groups is lacking, although the collections of argillite bifaces at Barker's Landing and Coverdale Farm may indicate some sort of special sites. Overall, it seems that the size of the largest sites was gradually increasing throughout this period, perhaps as a result of a gradual increase in the degree of sedentism, or at least the amount of time spent at certain base camp sites. This trend seems to have been intensifying in the Middle Woodland period, which sets limits on how far it could have gone in previous eras.

The closer we examine the archaeological record, the more complex it seems, and the harder it is to fit our data into neat behavior models. But we should expect this difficulty, for people are not simple. A problem with all schematic diagrams of settlement patterns is that they impose a false regularity on human behavior.

In particular, hunter-gatherers must depend on resources that are much less stable and predictable than schematic interpretations sometimes make them appear. Even annual occurrences like spring fish runs and fall nut harvests vary from year to year, and hunter-gatherers must vary their movements across the landscape in response.

People may also alter their movements because of political conflicts, insect plagues, climatic events, or opportunities for trade. Some movements might have religious motivation, such as leaving the place of a loved one's death or, alternatively, returning to a burial place for further rituals or to commune with the dead. Diagrams that focus on whole communities also miss a very important dimension of hunter-gatherer behavior (also observed among Indians of the early historic period): the freedom of individuals to go where they wished (see especially Lawson 1952). A diagram following the movements of one Indian woman (Plate 42) might show her making a long journey in search of an important medicinal plant, gathering shells on the coast to make wampum for an important gift, or lingering longer in the berry patches than her relatives because she had a particular fondness for sweetened *saepen*. A young man might make long journeys to hunt, fight, or trade, to

visit relatives, or to court a woman in a neighboring band. The sites we find are amalgams of all these movements, and many others, and it is no wonder that our data are difficult to interpret in terms of simple diagrams.