CHAPTER I
INTRODUCTION

A. BACKGROUND

Puncheon Run is a small stream that flows into the St. Jones River just south of Dover, Delaware, on the Atlantic Coastal Plain. The Puncheon Run Site occupies a peninsula defined by a bend in the St. Jones and Puncheon Run itself (Figure 1; Plate 1). The Puncheon Run Site has been officially designated a single archaeological site, but it is not a single locus of activity. It is a group of habitation sites and activity areas spread out across a landscape of roughly 10 hectares (24 acres). Prehistoric artifacts, mostly lithic debris, are scattered widely throughout this large area in mostly low quantities, with concentrations of artifacts and features present near the St. Jones River and at certain locations along the banks of Puncheon Run, extending as far as half a mile inland. Most of this material dates to between 2000 BC and AD 1500. At many archaeological sites of this age in the Middle Atlantic region, the record of various occupations and uses over thousands of years is mixed together, making it difficult to distinguish the material left behind during specific occupational periods or episodes. But use of the Puncheon Run Site was sporadic and spread out across the whole peninsula, so that the remains of individual camps and processing stations are in some cases distinct, providing an opportunity to examine the activities of each area in isolation.

The Puncheon Run Site was excavated in 1997 to 1998 by The Louis Berger Group, Inc. (Berger), on behalf of the Delaware Department of Transportation (DelDOT). The project began with a broad survey of the peninsula, which was followed by extensive testing; the project concluded with intensive excavations focused on several of the more distinct activity areas. The excavations were planned to investigate the activities that occurred at those areas and to relate those activities to the broader landscape of the peninsula. The overall research program was organized around questions that are crucial to our understanding of regional prehistory, especially subsistence, settlement patterns, community structure, technology, site formation processes, and the relationship between occupation or activity sites and the broader landscape (Berger 1998).

The Puncheon Run Site was occupied intermittently over a long period of prehistory during which important cultural changes occurred, and some of these changes were reflected in the archaeological record at Puncheon Run. During the Woodland I period, from 3000 BC to AD 1000, important developments included the invention of new container technologies—first soapstone bowls and then ceramics—and a great increase in the use of underground storage pits (Custer 1989, 1994). Improvements in storage may have led to an increasing degree of sedentism, with people spending months at a time in base camp sites along the major rivers. Storage pits may also have allowed a more intensive exploitation of seasonally abundant resources. The appearance of elaborate burial cults, exemplified by the Delmarva Adena culture, may represent increasing social complexity and the development of ranked political hierarchies. The Woodland II period, from AD 1000 to 1500, saw the introduction of corn and bean agriculture and the formation of stable village communities.

The excavations at the Puncheon Run Site included scattered 1x1-meter units, large blocks of units, and the investigations of features that had been exposed by machine-stripping of plowed areas. In all, 450 1x1-meter units were excavated at the site, and 65 features were investigated. More than 24,000 prehistoric artifacts were recovered. Analysis of the material has included a variety of specialized studies, including extensive flotation and floral analysis, microwear studies of stone tools, geomorphology and soil chemistry, immunological studies of protein residues, and phytolith analysis. Thirty-five radiocarbon dates were obtained.

To provide a broader context for interpreting the findings, the project also included a study of the entire St. Jones River drainage, both as a natural system and as an archaeological province, and a review of the ethnohistorical literature pertaining to Native American lifeways in the eastern woodlands between AD 1500 and 1700. The study examined the important natural resources of the region and considered how people might have used them, and it provided the only indication of activities that would have left few identifiable archaeological traces. The overview of regional archaeology was an opportunity to examine a broader range of the site types, as well as a larger sample for interpreting the relationships between different site types and different environmental niches and how those relationships changed over the centuries.

Prior to this study, the large site had been divided for convenience into four loci, and these divisions were retained as points of reference for the subsequent research. Locus 1 contains the western portion of the site, on an upland terrace overlooking Puncheon Run. Locus 2 is located on both sides of an intermittent drainage channel east of Locus 1. Locus 3 includes the easternmost portion of the upland terrace from the east side of Locus 2 to the confluence of the St. Jones River with Puncheon Run. Locus 4 was an island in the St. Jones River, east of Locus 3, a former point bar separated from the mainland by the cutting of a new channel early in the twentieth century.

The final excavations focused on five areas of the Puncheon Run Site, each representing a distinct activity area within the broad landscape. Some of these activity areas can be associated with resources known to have been available at the site. The *Cobble Bar* area, near the western end of the site, in Locus 1, contained large masses of debitage from tool production, along with cores and bifaces, derived from cobble deposits along the Puncheon Run floodplain. Evidence suggests that these cobble bars were exploited between 1000 BC and AD 1500. Near the Cobble Bar area, and also in Locus 1, was the *Buried Plowzone* area, where rapid burial of the original ground surface in early historic times preserved evidence of a transient camp or station; used in the same time period as the Cobble Bar, this area may have been associated with a trail, a canoe landing, or a now extinct springhead. The *Silo Pit* area, in Locus 1, was a cluster of 12 large storage pit features found in a part of the site containing very few artifacts, which has interesting implications for the role of such pits in the subsistence practices of their time, primarily between AD 100 and 500. More very large pits were found in the *Feature 30* block, in Locus 3. This area was at the eastern end of the site near the Metate block, but it was different in terms of both artifacts and features; radiocarbon dates from this area varied widely, but Feature 30 and the pits associated with it probably dated to between AD 600 and 1000. Another area of excavation known as the *Metate* block was in Locus 3, near the St. Jones River; it appears to have been primarily a fish-processing camp dating to the period 2000 to 1000 BC. Data from these five activity areas can be supplemented by the information from the

shovel testing survey of the entire peninsula, as well as the extensive Phase II testing program, which identified a number of other areas of interest. Taken together, this material constitutes a remarkable record of life in prehistoric Delaware.

This report is not intended as a definitive statement of everything that has happened at the Puncheon Run Site. It represents the interpretations of its authors, who are aware that their reconstructions are among many possible ways of viewing the site. This report has been structured to present as much of the data from the excavations and analyses as possible, so that other researchers can make their own interpretations. Rather than constituting a conclusion to the Puncheon Run project, the report may be viewed as the beginning of a new phase in which discussion about what was found and its meaning can spread beyond the few people directly involved with the project and into the broader community of those interested in Delaware's past.

B. THE PREHISTORIC LANDSCAPE OF PUNCHEON RUN

Understanding the relationship between people and the landscape they used has been one of the main purposes of the Puncheon Run archaeological project.

What is unique about the Puncheon Run project is its focus on a larger area than what is traditionally viewed as a single site. Most archaeology has been and still is focused on "sites," although there have been scattered attempts at "non-site archaeology." In the Middle Atlantic region, archaeological sites are usually defined by clusters of artifacts or other occupational refuse, or landscape features. Sites can be defined as places where people have left clear evidence of their presence, such as artifacts, house foundations, earthworks, or storage pits. A site may represent a village, a camp, a ceremonial center, a quarry, or even a hunting station. At any of these places people may have lost or discarded objects, built shelters, or modified the landscape in ways that can be recognized in the archaeological record.

But the people of prehistoric Delaware did not do all of their living at places archaeologists would recognize as sites. They lived within a landscape that included not just their houses and camps, but also the trails they walked on, rivers they fished in, woods they hunted in, hillsides where they picked berries, thickets they would have avoided, ceremonial places, and sacred views. Hunter-gatherers, in particular, spent much of their time on the move, traveling from camp to camp, digging for clams on a mudflat, gathering nuts, or chasing a wounded deer through the woods (Lee and Devore 1968; Schire 1984; Winterhalder and Smith 1981). The landscape changed with the seasons, and people who made their living from nature had to be acutely sensitive to its rhythms. Some mires that were impassable in the spring were dry and walkable in the summer, while some streams that a canoe could traverse in the spring were dried up and blocked in the hot season. Some foods, such as strawberries, might be available for only a few days, so their ripening had to be carefully monitored. Others, such as hickory nuts, varied unpredictably from year to year. Flocks of birds might be continually on the move. To keep track of these environmental changes, people constantly explored their surroundings, checking the resources they knew about and keeping an eye out for new ones. As John Smith (1986:118) wrote of the Indians in Virginia, "by their continuall ranging, and

travell, they know all the advantages and places most frequented with Deere, Beasts, Fish, Fouls, Roots, and Berries." They may also have had to keep watch for other people, whether trespassers on their lands, enemies come to do harm, or friends come to visit or trade.

Although the landscape is occasionally reshaped by events such as fires or floods, much remains constant over the decades and centuries, changing only with the seasonal rhythms. The courses of rivers and the shapes of hills change too slowly for people to notice their motions. Deer follow the same trails to the same watering holes year after year, and some fish have returned to spawn in the same rivers for millennia. A grove of hickories might bear nuts for a century. People no doubt observed these natural continuities, and they understood that particular places were special to certain living things. Those places also became special to the people who depended on the deer, fish, and nuts, and they may have remained so for generations. The woods and riverbanks they knew so well were these people's homes, just as much as their camps and houses. To understand people who lived in this way, we must try to study the entire landscape, not just the places that can easily be defined as archaeological sites. Understanding the relationship between people and the landscape they used has been one of the main purposes of the Puncheon Run archaeological project.

C. THE PUNCHEON RUN PROJECT

1. Archaeology at Puncheon Run

DelDOT sponsored the Puncheon Run project as an element of planning for the Puncheon Run Connector, a new limited-access highway that will carry traffic between the new State Route 1, east of the St. Jones River, and U.S. Route 13 on the west side of Dover. At its crossing point over the St. Jones, the new road intersects two Native American archaeological sites, the Puncheon Run Site on the west bank and the Hickory Bluff Site on the east bank.

The Puncheon Run Site was discovered by amateur collectors and was formally named and recorded in 1976 during a study for a proposed Dover Bypass. In 1995, Hunter Research, Inc. (HRI), carried out an archaeological survey of the Puncheon Run Connector corridor (Liebknecht et al. 1997). Hunter re-identified the Puncheon Run Site and also located three new sites: the Hickory Bluff prehistoric site across the St. Jones River from Puncheon Run, the Thomas Dawson farm, and the Nixon Mill. Preliminary test excavations were carried out at all of these sites. The Thomas Dawson Family site, which was west of Puncheon Run along U.S. 13, dated to about 1740 to 1780. The Nixon Mill, which dated to the 1790s, was found to be entirely outside the highway right-of-way, so no further archaeological work was done there. Hickory Bluff proved to be a major prehistoric site, primarily dating to 1200 BC to AD 200. Puncheon Run, Dawson, and Hickory Bluff were all thought to be important enough to require further excavation prior to highway construction.

In 1997 DelDOT assigned Berger to complete the archaeological work on the west side of the St. Jones River, including both the Puncheon Run and the Thomas Dawson sites. The Thomas Dawson Site was excavated in the winter of 1997-1998 (Bedell et al. 1999). Work on the east side was assigned to Parsons Engineering-Science, Inc., and they completed excavation of the Hickory Bluff Site late in 1999. Berger began work at the Puncheon Run Site with a program of survey and testing

designed to assess the site's variability and integrity across the entire peninsula. This work was carried out during 1997 and 1998 (LeeDecker, Holt, et al. 1998; LeeDecker, Jacoby, et al. 1998). The final data recovery program at the Puncheon Run Site was completed in the summer and fall of 1998.

2. Public Interpretation

The Puncheon Run Site was within the city limits of Dover, well-placed for attracting visitors, and public interpretation was an important part of the project. Before excavation began, a color brochure was prepared and distributed, inviting people to visit the site (Figure 2a-b). A kiosk was constructed on the site where interpretive materials were displayed (Plate 2), and the archaeologists also offered tours to visitors. The site was featured in television and radio broadcasts and in local newspapers. Several presentations have been made about the site at local libraries and historical societies as part of Delaware Archaeology Month.

A particular effort was made to accommodate students from neighboring schools. More than 400 students visited the site and participated in the excavations (Plate 3). Most came from nearby public schools with which DelDOT has longstanding connections, but students from private schools and home-schooled students were also among those to partake in these open-air archaeological classes. Flint-knapping demonstrations (Plate 4) were given for the students, and a display of artifacts from the site was set up for them to see. Handouts describing the site and the prehistory of the Dover region were prepared for the teachers. Because of the great size of the site, only a small part of which was actually excavated, there was a large amount of space where students could dig. Units were laid out according to the standard project protocol and excavated by groups of three to six students under the supervision of one of the professional excavators. Many of the students seemed to take a great interest in their work, and some of them certainly learned a little about archaeology. One of the eventual foci of the investigation, the Feature 30 block, was actually discovered by seventh graders from Central Middle School in Dover in an area that had not been previously investigated. The student excavations were the focus of one newspaper piece, "Students Receive a 2,000-Year-Old Lesson" (Merriweather 1998). The participation of students was thus a considerable success, both educationally and archaeologically.

PLATE 2: A Kiosk Provided Interpretive Material for Visitors

Explore Delaware's Prehistory at Punchieon Run

DelDOT Archaeology

Delaware Department of Transportation
Division of Planning
P.O. Box 778
Dover, Delaware 19903

Archaeology at Puncheon Run

What was life like in Delaware 2,000 years ago? Since there are no written records from so long ago, the only way we can find out is through archaeology. The Puncheon Run Site in Dover is a place where prehistoric Indians camped as they fished, hunted, and gathered plants on the St. Jones River and the surrounding marshes. The site will be crossed by the Puncheon Run Connector, a new road that will carry traffic from State Route 1 to US 13. To prevent this construction from damaging the only record we have of life in this area before Europeans came—the archaeological sites—the Delaware Department of Transportation (DelDOT) and Louis Berger & Associates, Inc. (Berger), are conducting archaeological excavations at the Puncheon Run Site. The final excavations began in May 1998 and will run throughout the summer.

Public Involvement

The site will be open for tours on Tuesdays from 8:00 a.m. to 3:00 p.m., and by appointment. People who want to dig on the site can drop by on Thursdays or make special arrangements. Hundreds of students have already worked on the site, learning about the past and the science of archaeology.

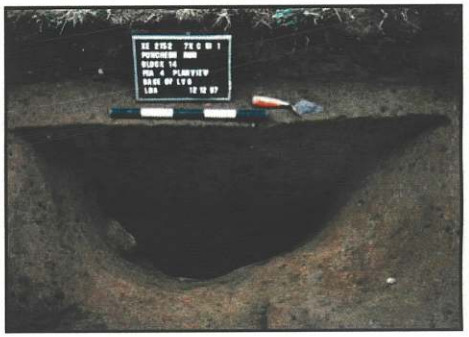
Artifacts

The prehistoric people of Puncheon Run used stone tools, like spear points and knives, and clay pots. By studying these objects we hope

to learn what kinds of work people did on the site, and when they lived here. Since different groups of people make their tools and pots differently, we also hope to find out how they were related to other peoples in the surrounding region by studying the tools and pottery fragments found on the site. People also made tools out of wood, bone, and reeds, but those have all rotted away.

Storage Pits

The people who lived at Puncheon Run dug many deep pits. We think they were used to store food for the winter months, although they may have been used for temporary storage during food gathering or processing. We do not know yet what those stored foods were, but we hope to find out by excavating more of



these pits. We will be carrying out a variety of scientific tests on the soil from the pits, including radiocarbon dating, immunologic tests for animal proteins, studies of plant phytoliths (microscopic silica structures made by plants), and analysis of the soil chemistry.

Prehistoric Hearths

In some parts of the site prehistoric hearths or fire places are still intact, the stones lying right where they were left when the people moved on, as much as 5,000 years ago!

FIGURE 2b: Trifold Brochure Distributed to the Public

A major effort has also been made to communicate the findings of the Puncheon Run project to other professional archaeologists. In July 1998 a professional open house was organized in conjunction with the concurrent excavations at the Hickory Bluff Site across the St. Jones River. Announcements were sent to archaeologists throughout the Middle Atlantic region as well as to other groups. More than two dozen professionals not involved with the project visited the site for presentations and tours. Preliminary findings were presented at the Annual Meeting of the Society for American Archaeology in 1998 (LeeDecker 1998), followed by a full session at the Middle Atlantic Archaeological Conference (MAAC) in 1999, where five papers were presented (Bedell and LeeDecker 1999; Jacoby 1999; LeeDecker 1999; McKnight 1999a; Wagner 1999). More comprehensive results of the protein residue studies and their implications for understanding ancient fishing methods were given at the 2000 MAAC meetings (Jacoby 2000a). Findings were presented to a national audience at the 2002 Annual Meeting of the Transportation Research Board (TRB) in Washington, D.C. (LeeDecker et al. 2002).

PLATE 3: Students Excavating at the Puncheon Run Site

PLATE 4: Flint-knapping Demonstration for Students

There a presentation entitled "Perspectives of Prehistoric Landscapes: Archaeology at the Puncheon Run Site, Kent County, Delaware" was included in the session "Cultural Resource Mitigation: New Ways of Looking at Old Things," which was organized by the TRB's Committee on Historic and Archeological Preservation.

Another community with a particular interest in the work at Puncheon Run is the Nanticoke Indian Association. Nanticokes involved with the association participated in the later stages of the excavation and concluded the fieldwork with a blessing ceremony for those people who lived on the site so long ago.

3. The Structure of This Report

This report was prepared to document compliance with Section 106 of the Historic Preservation Act, and it therefore must meet certain professional standards. It is also intended, however, to be accessible to a larger reading public, and its structure is therefore somewhat different from the conventional excavation report. This volume, the first of three, contains the account of the excavations and the description of the findings. The first substantial chapter (Chapter II) presents the environmental and archaeological background to the project, and the next (Chapter III) sets forth the research design and context, which provided overall scientific guidance and focus to the study; an explicit research design was prepared at the beginning of the project, but as with most long-term projects, new perspectives on the work developed as new findings came to light. Chapter IV provides a basic description of the site, from the perspective of the multiple phases of fieldwork, together with summaries of the features, activity areas, and artifacts; the discussions are organized according to the major areas or loci of the site. Chapters V, VI, and VII contain a series of thematic studies covering the main research topics explored during the project: subsistence practices, landscape reconstruction, and settlement systems. Each of these thematic studies is intended to be usable as an independent unit by people interested in that particular aspect of the work, so there is some repetition of basic material. The study's major findings are summarized in Chapter VIII, which also includes an appraisal of the methods used for this study and suggestions for future archaeology on the Delaware Coastal Plain.

A large part of the most technical data is to be found in Volume II, which contains reports describing the various ancillary studies undertaken as part of this work:

- Soils and geomorphology
- Paleoethnobotanical studies
- Native Amerian plant use
- Use-wear analysis of stone tools
- Protein residue analysis
- Excavation of a woodchuck den
- Refitting of fire-cracked rock
- Landscape assessment
- Ethnohistory of Delaware's Indians
- Phytolith analysis
- Ceramic analysis
- Feature description and analysis
- Replication of a "pebble point"
- Comparison of Delaware and regional chronologies

Some discussion of these studies is also included in this summary volume, but specialists interested in the methods or detailed results of a particular study should refer to Volume II. The artifact inventory and other data summaries are provided in Volume III.

4. A Note on Chronology

The management plans and historic contexts developed by the Delaware State Historic Preservation Office (DESHPO) follow a chronological system that differs from the system in general use throughout eastern North America. This chronology (Table 1), developed by Dr. Jay Custer of the University of Delaware, is intended to reflect more accurately the major cultural changes that have taken place in Delaware. Custer includes the period between 8000 and 6500 BC, when Kirk and Palmer points were common, with the Paleoindian period, rather than the Early Archaic period. Of particular importance for this study, Custer's system groups the Late Archaic, Early Woodland, and Middle Woodland periods into the single Woodland I period, extending from 3000 BC to AD 1000. The Late Woodland period, beginning at AD 1000 and lasting until European contact, is retained in Custer's system but under a different name, the Woodland II. Although Custer uses common period names as purely chronological divisions, he has also identified different cultural complexes within the Woodland I period, each with a defining artifact assemblage and other archaeological traits. This report follows Custer in using Woodland I and Woodland II to refer to the broad cultural periods when the Puncheon Run Site was occupied. The time periods used in the surrounding region are also

TABLE 1: DELAWARE AND REGIONAL CHRONOLOGIES

Uncalibrated Dates	Regional Period Name	Delaware Period	Delaware Cultural Complex
12,000[1] to 8000 BC	Paleoindian	Paleoindian	no complex
8000[2] to 6500 BC	Early Archaic	Paleoindian	no complex
6500 to 3000 BC	Middle Archaic	Archaic	no complex
3000 to 1000 BC	Late Archaic	Woodland I	Barker's Landing[3] 3000 to 500 BC (Clyde Farm in Piedmont/Fall Line)
1000 to 300 BC	Early Woodland	Woodland I	Delmarva Adena (500 to 1 BC) (Wolfe Neck in Low Coastal Plain and Black Rock I in Piedmont/Fall Line)
300 BC to AD 1000	Middle Woodland	Woodland I	Carey (1 BC to AD 600) (Black Rock II in Piedmont/Fall Line))
			Webb (AD 600 to 1000) (Delaware Park in Piedmont/Fall Line)
AD 1000 to 1500	Late Woodland	Woodland II	Slaughter Creek (AD 1000 to 1500)

[1] Apart from ambiguous and disputed early dates from Meadowcroft Rockshelter in western Pennsylvania and Cactus Hill in southeastern Virginia, there is no evidence of pre-Clovis human occupation of the eastern United States. Across North America, Clovis sites date to ca. 11,000 rcbp (radiocarbon years before present), i.e., 13,000 cal BP (calendar years before present) or 11,000 cal BC (calendar years before Christ or Common Era).

[2] Calendric or calibrated equivalents: 8000 BC=9500 cal BC; 6500 BC=7600 cal BC; 3000 BC=3800 cal BC; 1000 BC=1300 cal BC

[3] Custer et al. (1996) now divide the Barker's Landing complex into three periods based upon projectile point type frequencies: I, 3000-2000 BC; II, 2000-1200 BC; III, 1200-700 BC.

referred to when appropriate. Custer's fundamental assumption is that human cultures function primarily as adaptive structures that respond appropriately to environmental change. Therefore, episodes of major climate change should correspond closely to significant episodes of culture change. Since publication of the various iterations of the Custer schema (1984, 1989, 1994, 1996), radiocarbon calibration by dendrochronology has extended back another 4,000 years to ca. 12,000 cal BP, and data from varied environmental records (e.g., ice cores, ocean-floor and lake-bed sediments) have facilitated reconstruction of Holocene climate changes at a level of detail that was unimaginable a decade ago. In light of this fine-tuning of the relevant chronology and the environmental sequence, the reassessment and revision of the Custer schema, presented in Volume II, Appendix O, are clearly warranted.