3. Research Orientation and the State Plan

PREVIOUS RESEARCH in the region has provided valuable insights into the locations of human activities through time. In some cases, as in the project area, settlement models are so well developed that sites can be predicted with uncanny accuracy, but there is yet much to be learned about human utilization of this part of New Castle County.

Industrial Site Definition

The traditional definition of an archæological site has been "a place where artifacts are found," which is misleading and unduly restrictive in the context of modern industrial archæology. Twenty years ago, some archæologists could define archæology as "the excavation of data," (Foley 1969:93) and restrict archæological studies to uncovering that which has been buried.

Identification of sites with artifacts forces researchers to ignore loci where artifacts are not found, or places where the site itself is the artifact, or sites where artifacts are intangible or at least not solid. Intangible artifacts may be found on industrial sites or sites where the general landscape has interacted with, and been changed by, humankind in ways that are subtle and not expressed as traditionally recognizable artifacts.

A more satisfactory, if prolix, definition is one offered by Deetz (1967: 11): "a spatial concentration of material evidence of human activity." This definition distances itself somewhat from the concept of an artifact, as well as from the concept of digging or uncovering.

Industrial sites, in particular, contain elements that do not fit the traditional definition of artifacts. Stream pollution, soil chemicals, odors, and even the acidity of the rain, are artifactual evidence from which human activity can be deduced, even though we do not normally conceive of a gas, a chemical formula, or an effect as an artifact in the sense that a projectile point or a potsherd is an artifact. It is more correct to define a site, particularly an industrial site, after the example of Deetz, as *a place containing evidence of human agency*.

The object of the archæologist's attention can therefore be identified as the study of man's place in his environment, or the environment's effect on man, as expressed in measurable phenomena.

Each manifestation of human agency therefore becomes the equivalent of an artifact within a site, the definition of which is more properly broadened to include any place where man has left evidence.

This redefinition is useful, for the holistic industrial archæologist, since much useful evidence of human agency may be atmospheric, environmental, or even intangible.

In the project area, it turns out, the most important artifact may be an engineering idea expressed in feet above sea level, reflecting the personality of an extremely wealthy civil engineer. The artifact has such dimensions as horsepower and volume, in addition to the established dimensions of superficial size and age. Therefore, the research program concentrated on recovering from mill race remains such topographical data as might later be useful in the interpretation of the mill downstream and the dam that still stands upstream.

Many industrial sites, notably power and transportation systems, are much larger than the landmark structures that attract the most attention. A railroad is more than a station, and a milling system is more than the structure that contains the powered mechanism. In such cases, the entire system must be considered, for the loss of any part can hobble the interpretation or restoration of the whole.

Prehistoric Management Plan

The Delaware prehistoric cultural resources management plan (Custer 1986) and the companion management plan for Northern Delaware (Custer and DeSantis 1986) identify the Brandywine Valley as a high priority area for archæological research,

both because of development pressures and because of the scarcity of reported sites.

The plan was based upon a cultural ecological or cultural materialist approach, which examines the relationship between an environment and its people.

In the Piedmont uplands, Custer and DeSantis point out, there has been, historically, little environmental diversity. The streams have very narrow floodplains and there are few swamps. Through most of prehistory, the region was forested. Deciduous forests would have had a high carrying capacity for wildlife.

This part of New Castle County is ranked as having poor data quality and low site probability. Yet the plan identifies the Brandywine Valley as a corridor possessing a high research priority because of development pressures.

In the plan is a table, abstracted below, that assigns numeric scores to significant site probabilities by temporal study units. A high probability of significant sites was indicated by a 5, while low was indicated by 1. With a total score of 11.95 for all periods, the "major drainages" group (which includes the Brandywine) was found to be the lowest-ranked area in terms of probability for containing "significant" sites.

TABLE I

AGGREGATE SIGNIFICANT SITE PROBABILITIES BY TEMPORAL STUDY UNITS (AFTER CUSTER)

Temporal Study Units	Major Drainages	Total for All Areas
Paleo-Indian	2.28	15.61
Archaic	1.86	18.19
Woodland I	3.67	22.6
Woodland II	3.14	22.14
Contact	1.0	7
Total	11.95	

The plan states that Brandywine Valley sites possess high priority for investigation whenever they are found. For the present project, however, these priorities are largely irrelevant, since Blume, Clark, and Dunn have shown that the project area is unlikely to contain prehistoric sites.

THE STATE HISTORIC PRESERVATION PLAN

In order to implement the National Register of Historic Places program, the Delaware historic preservation office has issued a set of documents that collectively constitute the state preservation plan.

The historic contexts list in the Delaware Comprehensive Historic Preservation Plan (Herman and Siders 1989) lists a number of historic property types. The following is a list of property types that are present in and near the project area, as they are grouped in the plan within three of the historic themes, associated with milling and associated transport:

- ECONOMIC AND CULTURAL TRENDS
  - Agriculture - Crops
    - [not listed: Hay; see page 14, herein]
  - Agriculture - Methods
    - Land Improvement
    - Labor
      - Tenant
      - [not listed: Contract Labor Gangs; see pages 18, 28]
  - Agricultural Orientation
    - [not listed: Industrial Support Farms; see pages 8 - 9]
  - Forestry
    - Saw Mills
    - Dams
    - [not listed: Raceways and Penstocks; see pages 28 - 30]
  - Shipping/Transporting
    - Land
      - Roads
      - Crossroads
  - Manufacturing
    - Rural Industries
      - Saw Mills [see Forestry, above]
      - Grist Mills
- LANDSCAPE
  - Change through Occupation
    - Early Industrial/Commercial Sites
  - Transportation Networks
    - Land
      - Roads and Toll Roads
      - Crossroads
- PEOPLE
  - Major Families and Individuals
  - [Not listed: Immigration; see pages 19, 28]

The plan divides the state into five geographical areas, the first of which is the Pennsylvania Piedmont, in which the project lies.

For the purpose of creating contexts, the plan identifies five historic periods:

A. 1630-1730 Exploration & frontier settlement
B. 1730-1770 Intensified & durable occupation
C. 1770-1830 Early industrialization
D. 1830-1880 Industrialization & early urbanization
E. 1880-1940 Urbanization & early suburbanization

The plan sets priorities for all these various plan elements (Ames et al 1989: 79-82). According to the authors of the plan, "The Piedmont Zone is not a high priority now because much of the historic landscapes of the nineteenth century have already been compromised or destroyed. By the late 1990s the Piedmont will have the greatest number of potentially eligible resources in the state from the early twentieth century and should move up in the Geographic Zone priorities."

Agriculture is the plan's first-ranked priority among above-ground, or visible, resources, followed by settlement patterns and demographic change. Manufacturing is the third priority for above-ground resources.

For below-ground resources, which includes some archæological sites but not their archæological attributes, the plan identifies settlement patterns and demographic change as the highest ranking priority for preservation attention. Trapping and hunting is second, followed by mining and quarrying. At the bottom of the list, seventh, is manufacturing.

It would seem that manufacturing is of little concern to the historic preservation planning process in Delaware, and that there is little to be gained from studying and protecting below-ground industrial historic resources in northern Delaware. The opposite is true.

The Piedmont Zone is fifth on the priority list for above-ground resources and is similarly low on the priority list for below-ground resources. The state plan notwithstanding, Delaware history is dominated by industrial history, and industrial sites in the state are among the major practical concerns to preservation interests.

When the plan's composite list of priorities was compiled, the Piedmont fell near the bottom in every configuration of the data:

Above-Ground

#1:Agriculture
1770-1830±, 1830-1880±
Upper Peninsula, Lower Peninsula/Cypress Swamp, Coastal

#2: Settlement Patterns and Demographic Change
1830-1880±, 1880-1940±
Urban (Wilmington)

#3: Settlement Patterns and Demographic Change
1770-1830±, 1830-1880±
Piedmont, Upper Peninsula, Lower Peninsula/Cypress Swamp, Coastal

Below-Ground

#1: Settlement Patterns and Demographic Change
1630-1730±
Coastal

From this it can be inferred that the state plan assigns low priority to virtually all preservation issues in and around the project area. In practice, manufacturing centers on the Brandywine have received, and continue to receive, lavish preservation attention. Near the project area, the Rockland mills and the Eleutherian Mills complexes have been preserved, as an example.

Since two of the plan's temporal divisions are labelled "industrialization," it seems strange that manufacturing should be lightly regarded among the preservation priorities, especially in view of the rapid erosion of industrial resources.

There must be some hidden significance to the temporal label "early industrialization" and the division called "industrialization and early urbanization," since the plan's first priority is agriculture during those periods, entirely outside the traditional urban industrial districts of the state. Agriculture in northern Delaware during the nineteenth century was, in fact, a component of the industrial landscape, which was not specifically urban, as the research for this paper demonstrated.

Either the temporal labels should be changed, or priorities should be reordered. In the meantime, preservationists will continue

to place a high priority on the "industrialization and early urbanization" period in largely rural contexts, largely in southern Delaware.

COMMERCIAL ORIENTATION

Transportation-related sites are, by definition, an element of commercial history. The project-area sites are commercial and industrial elements of the larger Philadelphia sphere of influence.

From the establishment of Philadelphia in 1682, Delaware has been part of Philadelphia's commercial hinterland.

Even after Delaware broke away from Pennsylvania politically in 1776, local commerce has continued to flow into the Pennsylvania economy. When steam navigation and railroads were introduced during the nineteenth century, Delaware's farmers turned to Philadelphia for access to the national markets beyond.

Wilmington, a commercial satellite of Philadelphia, was a market center for Delaware and Pennsylvania hinterlands to the west and northwest, up the Christina and Brandywine Valleys. Elsewhere in Delaware, Wilmington played no role whatever in the economic system. In terms of regional commerce, the city looked entirely to its westward and northwestward.

To tap this market, Wilmington interests built turnpikes, railroads, and local roads that radiated out from the city. The network of roads we now call Route 100 was never a turnpike, but it served as a secondary artery into Wilmington markets.

The Wilmington and Northern Railroad (FIGURE 4), which penetrated the Pennsylvania hinterland as far as Reading, was an attempt to siphon off some of Philadelphia's natural trade into the secondary market in Wilmington. Instead of becoming a hub, Wilmington became a corridor, through which rail traffic passed en route to somewhere else.

Wilmington's economic isolation from the rest of Delaware was broken with the construction of paved highways around the time of World War I. For the first time, downstate markets opened for upstate businesses through the highway system.

Wilmington's brief period of statewide economic dominance may prove to have been fleeting, as the state's center of population and influence moves again to the southward and newer networks, based on the Interstate highway system, redirect commerce to other, more distant, centers.

In the history of the project area, Philadelphia interests loom large, but the powder mills are intimately entwined with the larger history of the nation. While the Rockland mills were established by Philadelphia interests, the powder mills were from the start considered instruments of national policy. Neither mill served a Wilmington market, and during the nineteenth century neither company had a significant presence in the life of the city.

The Brandywine banks were, largely, a rural industrial environment detached from the urban industries around Wilmington, a scant four miles away. In the context of the period, "industrial" was not synonymous with "urban" in America.

INDUSTRIAL NATURE OF FARM SITES

During the nineteenth century, industries depended heavily upon their agricultural surroundings. It was impossible to run a factory without a complementary farm, and bigger factories requried bigger agricultural establishments.

Christiana Hundred along the Brandywine functioned as a support structure for the mills along the creek. Animals for motive power and transportation, wood for building and fuel, stone for building, food for man and beast, all were provided by farmlands along the edge of the valley.

In spite of their bucolic appearance, the farms of Christiana Hundred's "Chateau Country" are historically industrial in nature. Many acres were owned or controlled by the duPont Company as hay plantations to feed the draft animals; hundreds of other acres fed the workers who lived in the little villages down in the valley. Only in the present century has the valley become largely devoted

to purely residential estates that do not materially support the local industries.

Co-minglings of agriculture and industry were the rule on the Brandywine as elsewhere in America during most of the nineteenth century. In 1832, W. W. Young reported that his company's activities at Rockland comprised several farms, plus wool and cotton spinning and weaving, which "necessarily, are blended with each other, and there is much difficulty to identify them separately with exactness." A Wilmington tanner reported a similar difficulty of separating his tannery from his farms, which he described as "intimately connected" (Porter 1990:61).

LOCAL PRESERVATION ENVIRONMENT

The Brandywine Valley is an area where cultural resources have been lovingly preserved, but at the same time is suffering intense development pressure. Two nationally-known museums, Winterthur and Hagley, abut the project area.

The valley enjoys an active preservation movement, which includes historic and natural features. In some cases, progress has taken bizarre turns that have obliterated the authentic historic landscape, and sometimes in the name of preservation.

Ugly but significant historic sites have been made æsthetically pleasing in the name of preservation, degrading the historical integrity of the industrial landscape.

Historically polluted streams or watercourses are clean and green; historically noisy places have become quiet, and historically noisome places have been made to smell sweet.

Such changes are frequently wrought in the name of history and historic preservation. So that more people can enjoy the open spaces, the construction industry is busily throwing up houses in nearly every neighborhood, diminishing the open landscape that characterized the valley for three centuries.

Hay fields, which once dominated the valley, are turning into subdivisions, golf courses, and lawns. The visual link with nineteenth-century industry recedes in step with the march of the suburbs.

While isolated artifacts of the nineteenth-century industrial period survive, the built environment in the Brandywine Valley today is primarily a product of the twentieth century, erected after the decline of local industry. Suburbanization is an important historical process, and the name of the most recent temporal division of the state plan.

As the state plan predicts, early examples of the suburbanization process soon will be eligible for the National Register.

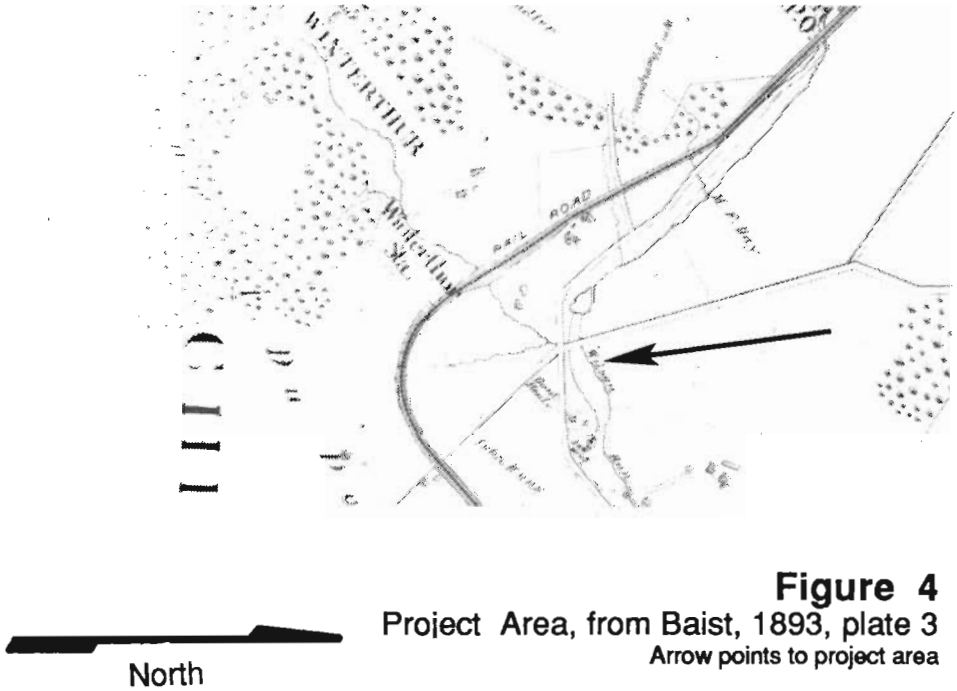

Figure 4
Project Area, from Baist, 1893, plate 3
Arrow points to project area